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REVIEW ARTICLE

Comparing the efficacy of EMDR and trauma-focused cognitive-behavioral therapy in the treatment of PTSD: a meta-analytic study

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ABSTRACT

Background. Eye movement desensitization and reprocessing (EMDR) and trauma-focused cognitive-behavioral therapy (CBT) are both widely used in the treatment of post-traumatic stress disorder (PTSD). There has, however, been debate regarding the advantages of one approach over the other. This study sought to determine whether there was any evidence that one treatment was superior to the other.

Method. We performed a systematic review of the literature dating from 1989 to 2005 and identified eight publications describing treatment outcomes of EMDR and CBT in active–active comparisons. Seven of these studies were investigated meta-analytically.

Results. The superiority of one treatment over the other could not be demonstrated. Trauma-focused CBT and EMDR tend to be equally efficacious. Differences between the two forms of treatment are probably not of clinical significance. While the data indicate that moderator variables influence treatment efficacy, we argue that because of the small number of original studies, little benefit is to be gained from a closer examination of these variables. Further research is needed within the framework of randomized controlled trials.

Conclusions. Our results suggest that in the treatment of PTSD, both therapy methods tend to be equally efficacious. We suggest that future research should not restrict its focus to the efficacy, effectiveness and efficiency of these therapy methods but should also attempt to establish which trauma patients are more likely to benefit from one method or the other. What remains unclear is the contribution of the eye movement component in EMDR to treatment outcome.

INTRODUCTION

Eye movement desensitization and reprocessing (EMDR) is a relatively new therapy method developed by Shapiro in 1987 (Shapiro, 1995) and mainly used in the treatment of post-traumatic stress disorder (PTSD; APA, 2000). Although there is ongoing controversy about certain aspects of EMDR, especially the contribution of the eye movement component to treatment outcome, its efficacy is now beyond doubt (van Etten & Taylor, 1998; Shepherd *et al.* 2000; Davidson & Parker, 2001; Bradley *et al.* 2005; National Collaborating Centre for Mental Health, 2005). In EMDR the client is instructed to focus both on a disturbing image or memory and on the emotions and cognitive elements connected with it. Once the client has established contact with the disturbing material, the therapist induces a bilateral stimulation. The simplest method involves moving the fingers back and forth in front of the client's face after

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instructing the client to follow the movement with his/her eyes. Bilateral stimulation can also be induced through auditory or tactile stimuli.

Trauma-focused cognitive-behavioral methods, such as stimulus confrontation and cognitive restructuring, have proved very helpful and are often the treatments of choice for individuals with PTSD (Foa *et al.* 2000). Stimulus confrontation can be induced either imaginatively (as in systematic desensitization) or *in vivo*. In a typical trauma-focused cognitive-behavioral intervention the client is confronted with the disturbing material and requested to describe the traumatic experience and relive it in their imagination. As 'homework', the client is normally instructed to listen daily to an audio tape recording of this trauma narrative from one of the first sessions. In addition, the client is frequently requested to practice *in vivo* exposure.

In a frequently cited meta-analysis, van Etten & Taylor (1998) concluded that in the treatment of PTSD, EMDR and cognitive-behavioral methods are superior to other therapies, such as hypnotherapy, relaxation training and dynamic psychotherapy. The authors found that these two forms of treatment had similar effect sizes, both directly after the end of treatment and in a later follow-up study. Although the efficacy was similar, the authors described EMDR as more efficient because it requires lower average treatment duration than cognitive-behavioral therapies.

However, critical methodological scrutiny of the comparison of EMDR and cognitive-behavioral therapy (CBT) in the study by van Etten & Taylor (1998) indicates that its interpretability is restricted by the fact that the average effect sizes in the treatment and control groups were calculated on the basis of pre/post comparisons alone. While pre/post comparisons can be drawn upon to establish whether a form of therapy is effective, provided one has knowledge of the corresponding pre/post effect sizes in untreated control groups, the interpretability of a direct comparison between two forms of therapy is limited by such an approach. Ultimately, genuinely reliable statements on the efficacy of two different forms of therapy can only be made on the basis of a direct post/post comparison, also referred to as active–active comparison. An essential precondition here is that the subjects in both therapy groups be taken from the same sample and randomly assigned to one of the two groups. This is the only certain way of controlling for a priori differences in symptom severity. If these baseline differences are not controlled for, there is a danger that the effect sizes established are based on artifacts or may be under- or overestimated (Jamieson, 1999). However, there is a very good reason why no direct post/post comparisons were undertaken in the meta-analysis by van Etten & Taylor (1998). At the time their publication appeared there was only one study (Vaughan *et al.* 1994) directly comparing EMDR with a behavioral-therapy approach. In addition, more recent meta-analyses (Davidson & Parker, 2001; Bradley *et al.* 2005) have not addressed this issue either.

The purpose of the following meta-analysis was to compare the efficacy of EMDR and CBT for clients with PTSD, taking into account the number of studies currently available. Additionally, we considered it important to correct the treatment outcomes by drawing upon the baseline differences, because neglecting these *a priori* differences can lead to under- or overestimation of actual symptom reduction.

METHOD

Literature search

The literature search was restricted to the period 1989 to December 2005. The first step we undertook was to search the databases PSYNDEX, PSYCINFO, MEDLINE and PILOTS using the keywords 'EMDR' and 'eye movement desensitization'. The search came up with approximately 1100 hits that we scrutinized carefully for controlled and randomized original studies directly comparing cognitive-behavioral interventions with EMDR in adult clients with PTSD.

Inclusion criteria

For inclusion, studies had to meet the following criteria: (1) the EMDR treatment in the original studies was based on Shapiro's (1995) standard protocol and a manualized CBT method with 'exposure' as the main intervention form; (2) diagnosis of PTSD in accordance with DSM-III-R (APA, 1987), DSM-IV (APA, 1994) or DSM-IV-TR (APA, 2000); (3) random assignment to treatment; (4) the study participants were at least 18 years of age; (5) the original

study reported either average scores and standard deviations, percentage improvement rates, or statistical values such as t, F and χ^2, from which the effect sizes could be calculated. In addition, indication of the number of subjects per cell was necessary; (6) at least one valid and reliable instrument measuring post-traumatic symptoms was used.

A total of eight studies were located that satisfied these inclusion criteria. We decided to exclude one of these studies (Rogers *et al.* 1999) as the authors state that their report summarizes data gathered from an ongoing study that was designed to examine the process rather than the long-term efficacy of the treatments. Table 1 summarizes the remaining seven studies in terms of their methodological quality. Methodological quality was assessed on the basis of the gold standards proposed by Foa & Meadows (1997): clearly defined target symptoms, reliable and valid measures, use of blind independent evaluators, assessor reliability, manualized treatment, random assignment, and treatment fidelity. The methodological criteria 'random assignment' and 'manualized treatment' were indispensable preconditions for inclusion. Accordingly, they are not displayed in the table. The same applies to study trials not included in the meta-analysis.

Calculation of study effect sizes

The following measures from the original studies were drawn upon for the calculation of PTSD effect sizes: (1) PTSD Interview (PTSD-I; Watson *et al.* 1991); (2) Clinician-Administered PTSD Scale (CAPS; Blake *et al.* 1995); (3) Structured Interview for PTSD (SI-PTSD; Davidson *et al.* 1989); (4) Impact of Event Scale (IES; Horowitz *et al.* 1979); (5) PTSD Symptom Scale Self-Report (PTSD-SS; Foa *et al.* 1993); (6) Mississippi Scale for Combat-Related PTSD – Civilian Version (Keane *et al.* 1988). The calculation of co-morbid depression symptoms was based on the Beck Depression Inventory (BDI; Beck & Steer, 1987) and the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983). Two calculations were undertaken for each original study: (1) an assessment of effect sizes in the form of the standardized average-score difference between the groups studied, and (2) the variances in these effect assessments (v_d). Hedges' d was used as the measure of the effect sizes. The advantage of this measure over and against Cohen's d is that it supplies valid effect sizes for smaller samples (see Hedges & Olkin, 1985). For the direct comparison of the two forms of treatment, we calculated the post/post effect sizes ($d_{post/post}$), taking account of group differences at the beginning of the study ($d_{pre/pre}$). As such baseline differences can cause distortions, the post/post effect sizes were corrected by using the following formula (Becker, 1988; Klauer, 1993; Rustenbach, 2003): $d_{corr} = d_{post/post} - d_{pre/pre}$.

As one follow-up study (Power *et al.* 2002) expresses the success rates in percentages only, these percentages were used as the basis for calculating the effect size of this study. For this purpose, the differences in the success rates for the two treatment groups, which can be interpreted as correlations in line with the binomial effect size display (BESD; Rosenthal & Rosnow, 1991), were converted into Hedges' d (Rosenthal, 1994).

For a further study (Taylor *et al.* 2003) expressing all PTSD symptom reductions in percentages only, it was impossible to calculate any baseline-corrected effect sizes at all. Accordingly, we contacted one of the authors (S. Taylor, personal communication, July 2003), who then supplied us with the CAPS global values for the pre and post measurements.

For another study (Rothbaum *et al.* 2005) that did not report any mean values, we were supplied with all the values required (B. O. Rothbaum, personal communication, January 2006).

The next stage was the calculation of a cumulative effect size of global PTSD symptomatology. First, a joint effect size was calculated for the three original studies indicating a total score both for the clinical interview and for the psychometric tests (Devilly & Spence, 1999; Lee *et al.* 2002; Rothbaum *et al.* 2005). This joint effect size is equivalent to the arithmetical average of the global scale scores from the clinical interview and the psychometric tests. For three studies (Devilly & Spence, 1999; Power *et al.* 2002; Rothbaum *et al.* 2005) that reported values from more than one self-rated measure, the arithmetical average of the psychometric tests was calculated first. Three of the studies reported only the global scale scores from the psychometric test or those of the clinical interview (Vaughan *et al.* 1994; Ironson *et al.*

Table 1. *Trials included in the meta-analysis*

Authors	*N* (post)	*N* (FU)	Drop-outs	Independent evaluators	Treatment fidelity	Assessor reliability	No. of sessions	Admission criteria	Clinician-rated measures	Self-rated measures	Follow-up (months)
Vaughan *et al.* (1994)	EMDR: 12 IHT: 13	EMDR: 12 IHT: 13	N.A.	Independent and blind	N.A.	N.A.	3–5	DSM-III-R; 22% fewer than 3 category C symptoms	SI-PTSD	IES, BDI	3
Devilly & Spence (1999)	EMDR: 11 TTP: 12	EMDR: 11 TTP: 12	EMDR: 6 TTP: 3	N.A.	Yes	N.A.	EMDR: up to 8 CBT: 8	DSM-IV	PTSD-I	IES, CMS, PSS-SR, BDI	3
Ironson *et al.* (2002)	EMDR: 10 PE: 9	EMDR: 6 PE: 6	EMDR: 0 PE: 3	No	Yes	N.A.	3 preparatory sessions + 3 treatment sessions	DSM-III-R	—	PSS-SR, BDI	3
Lee *et al.* (2002)	EMDR: 12 SITPE: 12	EMDR: 12 SITPE: 12	EMDR: 1 SITPE: 1	No	Yes	N.A.	7	DSM-IV	SI-PTSD	IES, BDI	3
Power *et al.* (2002)	EMDR: 27 E+CR: 21	EMDR: 22 E+CR: 17	EMDR: 12 E+CR: 16	Independent and blind only at post-treatment	Yes	N.A.	EMDR: 4 CBT: 6	DSM-IV	CAPS[a]	IES, HADS, SI-PTSD[b]	15
Taylor *et al.* (2003)	EMDR: 15 PE: 15	EMDR: 15 PE: 15	EMDR: 5 PE: 5	Independent and blind	Yes	High inter-rater reliability on SCID-IV and CAPS interviews	8	DSM-IV-TR	CAPS	BDI	3
Rothbaum *et al.* (2005)	EMDR: 20 PE: 20	EMDR: 20 PE: 20	EMDR: 5 PE: 3	Independent and blind	Yes	Yes	9	DSM-IV	CAPS	IES, PSS-SR, BDI	6

N (post), Number of subjects completing the therapy; *N* (FU), number of subjects still available at follow-up; EMDR, EMDR therapy group; Cognitive-behavioral therapy (CBT) groups: IHT, Image Habituation Training; TTP, Trauma Treatment Protocol; PE, Prolonged Exposure; SITPE, Stress Inoculation Training with Prolonged Exposure; E+CR, Exposure plus Cognitive Restructuring; N.A., no indication in the study.

PTSD-I, PTSD Interview; CAPS, Clinician-Administered PTSD Scale; SI-PTSD, Structured Interview for PTSD; IES, Impact of Event Scale; PTSD-SS, PTSD Symptom Scale Self-Report; BDI, Beck Depression Inventory; HADS, Hospital Anxiety and Depression Scale.

[a] CAPS global values are not reported.

[b] An unpublished self-report version of the structured interview for PTSD was used.

Table 2. *Results of the meta-analysis*

	N (EMDR)	*N* (CBT)	Mean ES	95% CI	*Q*	*p* (χ^2)
PTSD						
Post/post$_{corr}$	107	102	+0·28	−0·06 to +0·63	14·23	0·03
FU/FU$_{corr}$	83	80	+0·13	−0·28 to +0·55	11·58	0·04
Depression						
Post/post$_{corr}$	107	102	+0·40	0·05 to +0·76	9·13	0·17
FU/FU$_{corr}$	98	95	+0·12	−0·24 to +0·48	6·86	0·33

PTSD, Post-traumatic stress disorder; effect sizes (ES) expressed in Hedges' *d*; post/post$_{corr}$, baseline-corrected value of direct comparison between eye movement desensitization and reprocessing (EMDR) and cognitive-behavioral therapy (CBT) at the time of post-therapy measurement; FU/FU$_{corr}$, baseline-corrected value of direct comparison between EMDR and CBT at follow-up; *N* (EMDR), total number of subjects in the EMDR groups; *N* (CBT), total number of subjects in the CBT groups; CI, confidence interval of average effect size. Only if ES is within the CI and if this value does not include zero, then ES is significant; *Q*, homogeneity test; *p* (χ^2), significance value of the homogeneity test.

Table 3. *Detailed effect sizes of the included studies for post-traumatic stress disorder (PTSD) and depression symptomatology*

			Pre/post			Pre/FU						
	Symptoms	Measure	EMDR	CBT	WL	EMDR	CBT	Pre/pre	Post/post	FU/FU	Post/post$_{corr}$	FU/FU$_{corr}$
Vaughan *et al.* (1994)	PTSD	Clin.	1·34	0·59	0·22	1·40	0·66	−0·01	0·70	0·42	0·71	0·43
	Depression	Self	1·45	0·15	—	0·83	0·88	−0·07	0·98	0·14	1·05	0·21
Devilly & Spence (1999)	PTSD	Clin.	2·28	3·50	—	—	—	0·07	−0·72	—	−0·79	—
	PTSD	Self	0·72	1·46	—	0·30	1·39	0·07	−0·53	−0·86	−0·60	−0·93
	Depression	Self	0·65	1·30	—	0·34	1·26	0·06	−0·30	−0·58	−0·36	−0·64
Ironson *et al.* (2002)	PTSD	Self	1·47	2·07	—	1·36	2·53	0·76	0·62	0·57	−0·14	−0·19
	Depression	Self	1·64	1·95	—	1·15	1·80	0·96	1·29	0·63	0·33	−0·34
Lee *et al.* (2002)	PTSD	Clin.	2·00	1·50	—	2·40	1·68	0·64	0·60	0·81	−0·04	0·17
	PTSD	Self	2·15	1·52	0·49	2·45	1·37	−0·09	0·35	0·69	0·44	0·78
	Depression	Self	1·21	0·64	0·28	1·35	0·41	0·41	0·52	0·86	0·11	0·45
Power *et al.* (2002)	PTSD	Self[d]	2·46	1·40	−0·18	1·33	0·85	−0·43	0·51	0·31	0·94	0·75
	PTSD	Self	2·54	1·41	0·39	0·97	0·71	−0·51	0·60	0·19	1·11	0·70
	Depression	Self	1·66	0·55	−0·02	2·05	1·18	0·03	0·84	0·39	0·81	0·36
Taylor *et al.* (2003)[a,b]	PTSD	Clin.	2·07	2·52	—	—	—	−0·64	−0·73	—	−0·09	—
	Depression	Self	1·02	1·07	—	1·11	1·22	−0·35	−0·34	−0·17	0·01	−0·18
Rothbaum *et al.* (2005)[c]	PTSD	Clin.	2·07	1·98	0·58	1·64	2·26	−0·93	−0·43	−0·81	0·50	0·12
	PTSD	Self	1·68	1·97	0·17	1·21	2·25	−0·37	−0·41	−0·72	−0·04	−0·35
	Depression	Self	1·56	1·73	0·17	1·63	1·75	−1·18	−0·67	−0·70	0·51	0·48

Effect sizes expressed in Hedges' *d*; EMDR, EMDR therapy groups; CBT, cognitive-behavioral therapy groups; pre/pre, baseline differences between EMDR and CBT; post/post$_{corr}$, baseline-corrected value of direct comparison between EMDR and CBT at the time of post-therapy measurement; FU/FU$_{corr}$, baseline-corrected value of direct comparison between EMDR and CBT at follow-up; Clin., clinician-rated measure; Self, self-rated measure; positive values = advantage for EMDR; negative values = advantage for CBT.

[a] The study does not report average scores and standard deviations for the global Clinician-Administered PTSD Scale (CAPS). One of the authors kindly provided the values for the pre and post measurements (S. Taylor, personal communication, July 2003).

[b] FU CAPS global scores and standard deviations unknown.

[c] The study does not report average scores and standard deviations. The authors kindly provided all the values required.

[d] An unpublished self-report version of the structured interview for PTSD (SI-PTSD; Davidson *et al.* 1989).

2002; Taylor *et al.* 2003). In these three cases, the global scale scores reported for the calculation of the average effect size were used. One study (Power *et al.* 2002) did in fact report subscale values for a clinical interview (CAPS) but unfortunately no CAPS global scale scores. In this case only the self-rated measures were used for the calculation of effect sizes.

In order to include all of the seven studies in our meta-analysis, we decided to calculate a composite effect size and refrained from calculating effect sizes for PTSD symptoms in detail, as not all the studies report the necessary values. We did, however, make a distinction between clinical-rated and self-rated measures.

Table 4. *Baseline-corrected post/post and FU/FU composite effect sizes in the direct comparison between EMDR and trauma-focused cognitive-behavioral therapy*

	Vaughan *et al.* (1994)	Devilly & Spence (1999)	Ironson *et al.* (2002)	Lee *et al.* (2002)	Power *et al.* (2002)	Taylor *et al.* (2003)[a]	Rothbaum *et al.* (2005)[c]
PTSD							
Pre/pre	−0·01	0·07	0·76	0·28	−0·47	−0·64	−0·65
Post/post$_{corr}$	0·72	−0·70	−0·14	0·20	1·03	−0·09	0·23
FU/FU$_{corr}$	0·44	−0·93	−0·19	0·48	0·73	—[b]	−0·12
Depression							
Pre/pre	−0·07	0·06	0·96	0·41	0·03	−0·35	−1·18
Post/post$_{corr}$	1·05	−0·36	0·33	0·11	0·81	0·01	0·51
FU/FU$_{corr}$	0·21	−0·64	−0·34	0·45	0·36	−0·18	0·48

EMDR, Eye movement desensitization and reprocessing; PTSD, post-traumatic stress disorder.

[a] The study does not report average scores and standard deviations for the global Clinician-Administered PTSD Scale (CAPS). The authors kindly provided the values for the pre and post measurements (S. Taylor, personal communication, July 2003).

[b] Follow-up (FU) CAPS global scores and standard deviations unknown.

[c] The study does not report average scores and standard deviations. The authors kindly provided all the values required.

Meta-analytic procedure

The meta-analytic procedure was an adaptation of the method used by Hedges & Olkin (1985). First, all seven individual study effect sizes were weighted with the inverse of their variance. Subsequently, the average global effect size was calculated from these weighted primary-study effects. The variance of an effect size is a function of the sample size. Accordingly, studies with larger samples were more strongly weighted in the meta-analysis. All calculations were performed with the Metawin 2.0 software (Rosenberg *et al.* 2000). All the studies also investigated co-morbid depressive symptoms, so that the calculation of a cumulative effect size for 'depression' was also possible.

RESULTS

The results of this meta-analytic comparison of the seven original studies refer to a total of 209 participants who had gone through all the treatment sessions. The average age was 35·4 years. Sixty-five per cent of the subjects were women (the results are summarized in Table 2). Tables 3 and 4 summarize the effect sizes calculated for the individual studies. Effects with a plus sign indicate superiority of EMDR over CBT methods, those with a minus sign the opposite. The composite effect sizes for global PTSD symptom reduction at the two measuring time-points ranged from −0·89 to +1·03 and from −0·93 to +0·73. The average effect sizes in the post/post and the FU/FU comparison of EMDR and CBT are +0·28 and +0·13, respectively. The 95% confidence intervals ranged from −0·06 to +0·63 and from −0·28 to +0·55, respectively. The fact that all these values have a zero before the decimal point indicates that the actual effect sizes in the population did not differ significantly from zero.

The effect sizes for depression symptoms at the two measuring time-points ranged from −0·51 to +1·05 and from −0·64 to +0·48. The average effect sizes for the post/post and FU/FU comparison between EMDR and CBT are +0·40 and +0·12, respectively. The 95% confidence intervals ranged from +0·05 to +0·76 and from −0·24 to +0·48. While the average effect size for the post/post comparison differed significantly from zero, this did not apply for the FU/FU comparison. A closer look at the values in Table 3 shows that this is mainly due to the Vaughan *et al.* (1994) study, which indicated a remarkable advantage for EMDR over CBT for depression. However, this declined between the post and follow-up measurements and should not be overinterpreted.

It was not therefore possible to demonstrate the superiority of one form of therapy over the other. However, a significant homogeneity test, in accordance with a model of established effects, indicated that effect size variance was not caused by a measuring error alone. The homogeneity test was based on the Q statistics following a χ^2 distribution with $k-1$ degrees of freedom, where k corresponds to the number of effect sizes (Hedges & Olkin, 1985). However, the small

number of original studies means that little advantage is to be gained by closer examination of heterogeneity and various potential moderator variables.

DISCUSSION

This meta-analytic study investigated whether EMDR and trauma-focused CBT differ in their efficacy. For this purpose a meta-analytic evaluation of seven original studies directly comparing EMDR with cognitive-behavioral approaches was undertaken. The fact that both EMDR and cognitive-behavioral therapies are effective in the treatment of PTSDs has already been demonstrated by earlier meta-analyses (van Etten & Taylor, 1998; Davidson & Parker, 2001; Bradley *et al.* 2005). The results show, however, that the data derived from the present status of research is inadequate to establish the superiority of one of these forms of therapy over the other. Although the significant homogeneity test does indicate that there may be additional factors favoring one or the other of these therapeutic methods, the small number of original studies directly comparing EMDR and trauma-focused CBT in a post/post design makes it more or less fruitless to engage in a closer examination of these factors. Our results suggest that both EMDR and trauma-focused CBT can currently be regarded as effective forms of treatment for adult clients with PTSD. One problem associated with cognitive-behavioral methods is that they are more heterogeneous in terms of the treatment given. Accordingly, it will be the task of future research to devise studies comparing EMDR with manualized trauma-focused CBT forms, such as prolonged exposure (Foa *et al.* 2000), on the basis of sufficiently large samples.

It also remains unclear whether the mechanisms underlying EMDR are just another form of exposure, as the question about whether the eye movement component contributes to the treatment outcome is far from clear. A few dismantling studies have been conducted on this subject (see Davidson & Parker, 2001), most of them suggesting that the effects of eye movements are small or non-existent. However, the majority of these dismantling studies display a variety of methodological flaws. One such flaw is a sample size that is too small to reveal smaller significant differences between the treatment conditions. In addition, treatment conditions without eye movements differ considerably. For example, EMDR with the eyes closed (Boudewyns & Hyer, 1996) may have different effects from EMDR involving concentration on a stationary flashing light (Devilly *et al.* 1998) or on a nearby object (Renfrey & Spates, 1994).

Some of the studies exhibit large pretreatment differences, as can be seen in Tables 3 and 4. This often leads to erroneous assessments of the actual treatment outcome if the assessment is based on a single study without taking these baseline differences into account.

Another point requiring further investigation, as noted by Schnyder (2005), is the fact that in some patients, especially those who are severely disturbed and destabilized by their traumatic experience, any kind of exposure may cause retraumatization and increase the PTSD symptom level.

It would also be advisable to consider the traumatic events involved separately, on the basis of their nature and severity. In addition, future research should not restrict its focus to issues related to the effectiveness and efficiency of these therapy methods but should also attempt to establish which clients are more likely to benefit from one method or the other.

A limitation of this paper is the relatively small number of studies available that directly compare EMDR and CBT. It therefore did not seem advisable to include only those studies that satisfy high methodological standards. Of course, more high-quality research trials would certainly increase the power of the meta-analysis and would also permit more fine-honed analyses, including the detailed investigation of the PTSD symptoms intrusion, avoidance and hyperarousal. Future research needs to address this issue. Another limitation is common to many meta-analyses, that is the fact that we were only able to base the results on completer analyses. With regard to intent-to-treat analyses, we assume that most of these findings would remain valid because of a similarly large dropout rate (see Table 1) for both conditions.

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DECLARATION OF INTEREST

None.

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