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The Efficacy of EMDR: A Meta-analysis of EMDR as Clinical Treatment

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Abstract

Eye movement desensitization and reprocessing (EMDR) is a controversial clinical treatment most often used in the treatment of anxiety and depressive disorders. Many clinicians use this therapy, but no consensus exists whether this treatment works. This meta-analytic review examined EMDR versus waitlist or alternative treatments, in adult and child populations, and in reduction of depression and anxiety symptoms. Results indicate that EMDR has no significant effect in the reduction of symptoms in either population for either psychological disorder. Implications for further research are discussed.

Keywords: eye movement desensitization and reprocessing, anxiety, depression

Introduction

The treatment of posttraumatic stress disorder (PTSD) has become a leading concern in the field of clinical psychological research. Alternative treatments have come to light with this increase in emphasis. Since, Shapiro (1989a, 1989b,1995) proposed eye movement desensitization and reprocessing (EMDR) as a treatment for psychological disorders ,including PTSD, research has abounded and the topic has received a great deal of attention. EMDR includes the visual tracking of hand movements while focusing on the memory of trauma. This treatment is now a source of uncertainty and controversy as the results of various studies lead to conflicting conclusions. We need to understand how this treatment works and if the favorable results of previous analyses support EMDR as an empirical practice. Because EMDR is increasingly used as a therapeutic tool, the controversy begs resolution. If clients are receiving a therapy, it is essential to know if it works.

Though there is no shortage of research on EMDR, clarity eludes. For example, Devilly, Spence, and Rapee (1998) examined the efficacy of EMDR in the treatment of posttraumatic stress disorder in veterans. They paired a standard psychiatric assessment with EMDR for one group, with a second group receiving an equivalent sans EMDR. Results indicated little difference between the two groups, and any detectable differences were due to the standard treatment, not EMDR. These findings directly contrast with the work of Power et al. (2002), where EMDR was compared to exposure and cognitive-restructuring. In this study, EMDR was more favorable than exposure in

the treatment of PTSD, especially in social and depressive domains. Taylor and Thordarson et al. (2003) echo these findings, with EMDR showing significantly less efficacy than exposure therapy in the treatment of PTSD symptoms. While these results might seem to offer advantage to exposure therapy over EMDR, Lee et al. (2002) presents countering evidence. Stress inoculation training with prolonged exposure (SITPE) was compared with EMDR. Both treatments faired equally at the conclusion of treatment. Significant differences were found in favor of EMDR in the Intrusive Events Subscale (IES), though.

The only definitive conclusion one can draw from a glance across the EMDR research is that EMDR is inconclusive. Individual studies provide local views of therapy. Meta-analysis offers a way to view the research landscape from a higher perch. Through this process, I hope to identify a general view of how well EMDR works.

As psychological research implements the New Statistics, meta-analysis becomes an increasingly important tool. The New Statistics emphasizes considering data with an emphasis on confidence intervals and effect sizes as opposed to significance values. In January 2014, these procedures became standard operating procedures for all journals published by both the Association of Psychological Science and the American Psychological Association. No current meta-analysis considers the existing literature within these new parameters. I hope that assessing and reporting data in this manner will contribute to a greater understanding of the efficacy of EMDR.

As EMDR research continues, individual studies need to be combined into meta-analyses so overall results can be considered. A lack of research is not the issue here, either. In previous meta-analytic reviews, a narrow focus is taken. Bisson et al. (2013) exclusively examine EMDR in the treatment of PTSD in adults, while Greyber et al. (2012) focuses on EMDR as treatment for children with PTSD. Greyber suggested only two meta-analytic reviews existed examining EMDR among children. (Greyber 2012, Rodenburg et al. 2009) All of this goes to say that the focus of previous meta-analyses perhaps remained too narrow and too sparse. While there is no fault with narrowing the focus of a meta-analytic review, it appears that no single meta-analysis looks at the efficacy of EMDR in children and adults suffering from a variety of anxiety and depressive disorders. Now, individual studies exists in which these populations and disorders are tested, making the meta-analytic review essential. Therefore, the gap in the literature perhaps is not within a single specific target group, but rather a necessary broadening of the lens with which we look at the efficacy of EMDR.

In the current study, I provide an updated review of available research on the efficacy of eye-movement desensitization and reprocessing as a viable treatment. I further distinguish this meta-analysis from others by incorporating a broad range of populations and disorders and considering the results within the context of the new statistics. Through this, I aim to supply a thorough, relevant analysis.

Method

I searched the following databases to identify studies for inclusion: PsycINFO from 1992 to December of 2014, the American Psychological Association (APA) Database, and the Association for Psychology Science (APS) Database. Search terms included "EMDR," "eye movement desensitization and reprocessing," in combination with "adults," "veterans," "children," "depression," and "PTSD". All articles produced by this search were considered for inclusion in this study. Reference lists of previous meta-analytic reviews were also searched as a way of locating additional articles. The final results led to seventeen studies selected for inclusion in this meta-analytic review. Characteristics and descriptions of these studies are available in Table 1. Table 2 includes a reference chart for abbreviations of measures used in Table 1.

Inclusion Criteria

Selection was determined by numerous factors. First, studies were included based on availability and relevance. Studies comparing EMDR with alternative treatments methods were included (e.g., cognitive-behavioral therapy, exposure therapy). Waitlist comparison studies were also included in this meta-analytic review. When studies included more than one comparison treatment to EMDR, the waitlist condition was chosen. If no waitlist was chosen, the condition with the largest sample size was chosen. No case studies were included. Studies were eliminated due to self-admission of improper therapist training of EMDR techniques. Studies that were not

readily available within PsycINFO, the APA database, or the APS database were not included in this meta-analytic review.

Results

I located a total of 16 studies for analysis. A description of sample size, sample characteristics, and assessments used for analysis of disorder symptoms can be seen in Table 1. Most of the studies included in this review consisted of an adult population (88%). A significantly high level of heterogeneity was found among studies. (I^2 = 67.15%, CI [-.30 , -.03]; Q = 310.48, p < .05). This is not unexpected considering the different characteristics of each sample used in this review. Meta-analysis of the 17 included studies yielded a weighted effect size of d = .17 (*SD = .07)*, indicating little to no effect in the reduction of PTSD and depression symptoms.

Moderator Analyses

We examined four main categorical variables within our analysis. All of these variables were assessed using a random-effects weighted analysis. Table 3 includes the results of each categorical analysis. Though age would typically be considered a continuous variable, we divided studies into two distinct categories, adult and child. This allowed us to accurately consider this a categorical variable. We also included moderator analyses for depression and anxiety groups. Some studies included data on the effects of social functioning and physiological responses, but there was not enough to constitute moderator analyses for these two factors.

Child: In the child category, a small effect was found in anxiety and depression symptom reduction, d = .22 (SD = .13), 95% CI [.02, -.03] p = .08). These results indicate EMDR was only slightly more efficacious than alternative treatments. It is important to consider that few studies (k = 3) were included in the child moderator analysis, and sample sizes tended to be smaller in these studies.

Adult: The adult category exhibited similar results, with almost no effect in favor of EMDR in the reduction of anxiety and depression symptoms. d = -.25 (SD = .08) Though this difference is actually quite small, it is statistically significant p = .001, 95% CI [-.40, -.11] A majority of our studies examined an adult population. (k = 14) So, it appears that there was enough of an effect to consider EMDR to be more efficacious than alternative treatments in the adult condition.

Anxiety: In the categorical analysis of anxiety, EMDR showed the largest effect in the reduction of anxiety symptoms. (d = -.13, SD = .08, CI [.01, -.28] p = .11) This result included the largest amount of data between each of our four categorical moderator analyses.

Depression: For depression symptom reduction, EMDR again showed only a small effect over alternative treatments. (d = -.30, SD = .18, CI [-.65, .05] p = .09) It is important to consider the relatively small amount of data included in our meta-analytic review assessing depression symptoms reduction. (k = 11) While this category includes more than half of our studies, most included only one measure of depression (Beck

Depression Inventory) as opposed to the anxiety condition, which included multiple assessments. (STAI, CAPS, etc.)

Discussion

As a whole, EMDR presented little, if any, results indicating this treatment as advantageous over alternative treatments or waitlist conditions. There are a few factors that may have influenced these outcomes, though. Results did exhibit a significant percentage of heterogeneity, which may have altered the data analysis. Our child categorical analysis also had a smaller number of participants (k=3), which could I have contributed to the results found in this category. The relatively larger effect sizes for child and depression categories may simply be skewed by the smaller sample sizes and number of assessments as well.

While these factors may have influenced our findings, they cannot account for the exceptionally small effect sizes of EMDR in each moderator category. EMDR exhibited almost no effect in the anxiety category and adult categories. This result is exceptionally concerning, as EMDR is most commonly associated and utilized to treat adults with PTSD symptoms. The adult and anxiety categorical values had the largest amount of data, so this may be a reflection of the overall lack of advantages in the use of EMDR for treating anxiety and depressive disorders.

Availability also posed a significant influence in our data collection and analysis, specifically in the examination of EMDR in child samples. There tended to be a lack of research as a whole for RCTs (randomized controlled trials) comparing EMDR to an

alternative treatment in children. Many studies were excluded due to lack of a control or alternative treatment. Studies that did include these factors were often only available for purchase, making it difficult to include a truly representative child sample in this meta-analytic review.

As previously discussed, the depression category exhibited the strongest response in symptom reduction. This may have been influenced due to similarity in assessment measures, with 71% of the measures included being the BDI. So, it is necessary to consider this small effect in light of the difference of assessment similarity.

All obstacles considered, these results suggest that EMDR has almost no advantage over waitlist treatments or alternative treatments. While some categorical variables showed stronger results than others, they are negligible. Despite the influences in the categorical analysis, there seems to be no evidence indicating that EMDR is more effective than other treatments or even waitlists. This is quite concerning, as many clinicians continue to employ EMDR in clinical practice.

Future meta-analyses should assess the efficacy of PTSD and depression treatments in children with EMDR. While our results show no significant effect, a larger sample size may be necessary to confidently confirm its lack of benefit. Before this can occur, more individual studies must compare EMDR in children to alternative treatments. The implications of these results suggest that EMDR is not the most reliable evidence-based treatment for psychological disorders, and it may be necessary to reduce the use of this treatment for clients.

Study Name	Year	Target	EMDR N	Control N	Measures	Age
Ahmad et al.	2007	PTSD	17	16	PTSS-C, SUD, VOC,	Child
Chemtob et al.	2002	PTSD	17	15	CRI, RCMAS, CDI, Visits to the nurse, child ratings	Child
Muris et al.	1998	Specific Phobia	9	9	SPQ-C, BAT, SAM, STAI	Child
Feske and Goldstein	1997	Panic Disorder	15	12	PAI, ACQ, BAI, MI, BSQ, BDI, BSI, Social Adjustment Scale	Adult
Rothbaum et al.	2005	PTSD	20	20	BDI, DES-II, STAI	Adult
Devilly et al.	1998	PTSD	13	12	BDI, PPD, M-PTSD, STAI, SUD	Adult
Lee et al.	2002	PTSD	12	12	BDI, IES, MMPI-K, SI-PTSD	Adult
Taylor, Thorardson et al.	2003	PSD	15	15	CAPS, BDI, Trauma-related guilt, trauma-related anger, dissociative symptoms	Adult
Vaughan et al.	1994	PTSD	12	13	BDI, HRSD, IES, SI, STAI	Adult
Devilly and Spence	1999	PTSD	11	12	STAI, BDI, SCL-90. SUD, PPD, CMS, IES, PSS-SR, PTSD Interview, Distress Evaluation Scale	Adult
Carlson et al.	1998	PTSD	10	12	BDI, IES, PTSD Symptom Scale	Adult
Ironson et al.	2002	PTSD	10	9	BDI, PSS-SR, BDI, SUD	Adult
Scheck, Schaeffer, & Gillette	1998	Trauma	30	30	BDI, STAI, PENN, IES, Tennessee Self Concept Scale	Adult
Power et al.	2002	PTSD	39	29	IES, SI-PTSD, SHEEHAN, MADRS, CAPS, HAM-A, HADS	Adult
Rogers et al.	1999	PTSD	6	6	IES, SUD	Adult
Dunn	1996	Anxiety	14	14	SUD	Adult

Table 1, Summary of Studies used in Meta-analysis

Table 2, Measure Abbreviation Key

BDI	Beck Depression Inventory
HRSD	Hamilton Rating Scale for Depression
MADRS	Montgomery-Asberg Depression Rating Scale
MMPIK	Minnesota Multiphasic Personality Inventory
ACQ	Anxiety Control Questionnaire
BAI	Beck Anxiety Inventory
BAT	Behavioral Approach Task
CAPS	Clinician-Administered PTSD Scale
CMS	Civilian Mississippi Scale for PTSD
DES	Dissociative Experiences Scale
HADS	The Hospital Anxiety and Depression Scale
HAM-A	Hamilton Anxiety Scale
IES	Impact of Events Scale
PENN	Penn Inventory for Posttraumatic Stress Disorder
PSS-SR	Posttraumatic Stress Symptom Scale Self Report
SAM	Self-Assessment Manikin
SPQ-C	Spider Phobia Questionnaire for Children
STAI	State-Trait Anxiety Inventory
SUD	Subjective Units of Distress Scale
BSI	Brief Symptom Inventory

Table 3, Moderator Variable Analyses

Category	*k*	*d*	*SD*	95% CI	95% CI	*z*	S^2	p
Child	3	.22	.13	-.03	.47	1.75	.016	.08
Adult	13	-.25	.08	-.40	-.11	-3.34	.006	0
Depression	11	-.30	.18	.03	-.65	-1.65	.032	.09
Anxiety	16	-.13	.08	-.28	.03	-1.59	.006	.11

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