

A Randomized Experimental Test of the Efficacy of EMDR Treatment on Negative Body Image in Eating Disorder Inpatients

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Eye Movement Desensitization and Reprocessing (EMDR) therapy is being used by some clinicians to treat eating disorders. Although there is anecdotal and case study data supporting its use, there are no controlled studies examining its effectiveness with this population. This study examined the short and long-term effects of EMDR in a residential eating disorders population. A randomized, experimental design compared 43 women receiving standard residential eating disorders treatment (SRT) to 43 women receiving SRT and EMDR therapy (SRT+EMDR) on measures of negative body image and other clinical outcomes. SRT+EMDR reported less distress about negative body image memories and lower body dissatisfaction at posttreatment, 3-month, and 12-month follow-up, compared to SRT. Additional comparisons revealed no differences between the conditions pre to posttreatment on other measures of body image and clinical outcomes. The empirical evidence reported here suggests that EMDR may be used to treat specific aspects of negative body image in conjunction with SRT, but further research is necessary

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to determine whether or not EMDR is effective for treating the variety of eating pathology presented by eating disorder inpatients.

Eye movement desensitization and reprocessing (EMDR) is a psychotherapeutic treatment that was originally developed in the 1980's to treat post-traumatic stress disorder (PTSD) (Shapiro, 1989a; 1989b). While the unique effects of EMDR treatment remain controversial (DeBell & Jones, 1997; DeRubeis & Crits-Christoph, 1998; Perkins & Rouanzoin, 2002), several distinguished organizations have acknowledged it as a useful form of treatment for PTSD (Chambless, et al., 1998; Chemtob, Tolin, van der Kolk, & Pitman, 2000). An accumulation of anecdotal and case study evidence suggests that EMDR is effective for the treatment of eating disorders (e.g., Cooke & Grand, 2006; Freedland, 2002; York, 2000), despite the fact that there has been no experimental examination of the use of EMDR in this clinical population. The purpose of the present study was to examine the efficacy of EMDR in the treatment of eating disorders.

Researchers have warned that particular characteristics of the EMDR protocol may produce some risks when applied to individuals with eating disorders, such as the search for traumatic memories (Hudson, Chase, & Pope, 1998; Pope & Hudson, 1996). We selected negative body image memories as the treatment target for EMDR for three reasons. First, negative body image is clearly associated with the core pathology of eating disorders (American Psychiatric Association [APA], 1994; Deter & Herzog, 1994). Second, negative body image is experienced as aversive but does not directly imply a causal relationship between trauma and eating disorders (Hudson et al., 1998). Third, negative body image is less likely to be associated with secondary gain (DeBell & Jones, 1997). In addition, negative body image continues to affect one to two thirds of individuals after treatment even with apparently successful cognitive-behavioral treatments (Rosen, 1990, 1996). The severity and unremitting nature of negative body image in eating disorders suggests that other treatments should be examined, and thus the risk of randomly assigning individuals to a suboptimal treatment for the purposes of testing a potential treatment may be warranted.

Hypotheses

The present study addressed three open questions about the efficacy of EMDR in eating disorders populations. First, does EMDR reduce distress about NBIMs among eating disorders patients beyond standard residential treatment (SRT)? We predicted that participants who received SRT + EMDR would report significantly less distress about negative body image memories (NBIMs) at posttreatment compared to participants who received SRT only. We also predicted that SRT + EMDR would report significantly less distress about NBIMs at 3-month and 12-month follow-up compared to SRT. Second, does targeting NBIMs with EMDR improve other dimensions of negative body

image (e.g., beliefs about attractive people, desire to harm vs. pamper one's body) compared to SRT? We predicted that SRT + EMDR would report significantly less distress on other dimensions of negative body image compared to SRT. Third, does targeting NBIMs with EMDR improve other clinical outcomes (e.g., depression, eating symptoms) compared to SRT? We predicted that SRT + EMDR would not significantly differ from SRT on other clinical outcomes.

METHOD

Participants

Participants were 86 women admitted to a residential eating disorders treatment program over an 18-month period. Women were assessed by senior staff psychiatrists at a residential eating disorders center, and diagnosed using a semi-structured interview based on criteria from the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (APA, 1994). The eating disorders distribution in the present study was: anorexia nervosa-restricting subtype (AN; $n = 27$), bulimia nervosa (BN; $n = 23$), and eating disorder not otherwise specified (EDNOS; $n = 36$). For the total sample, mean BMI was 20.05 (SD = 5.30) and the mean age was 24.59 (SD = 8.48). Ninety-four percent of the women were European American, 2.0% Asian American, 1.0% African American, and 3.0% Hispanic American.

STANDARD RESIDENTIAL TREATMENT (SRT)

The standard residential treatment provided individual, group, and family therapy seven days a week conducted by trained eating disorders therapists. Therapeutic approaches incorporate a variety of cognitive, behavioral, and experiential techniques. Women assigned to SRT were ostensibly placed on a waiting list for participation.

EMDR TREATMENT (SRT+EMDR)

The EMDR treatment followed standard protocols described in detail elsewhere (Shapiro, 1995, 2001). After an initial assessment and orientation to EMDR, a specific body image memory was selected as the treatment target from the *Body Image Memory Questionnaire* described below. To initiate the actual desensitization and reprocessing, patients visually tracked a light bar for approximately 15 to 20 seconds, referred to as bilateral stimulation. Women assigned to the SRT + EMDR condition received one or two 60-minute EMDR sessions per week during their treatment stay. Licensed eating disorders therapists completed Level II EMDR training prior to their participation in the study. An independent rater performed fidelity checks on recorded sessions to verify

therapists' adherence to EMDR protocol. Based on a random review of 20 EMDR sessions the fidelity checks demonstrated an 80% compliance rate.

Measures

NEGATIVE BODY IMAGE MEMORIES

The *Body Image Memory Questionnaire (BIM)* was adapted from Shapiro (1995, 2001) to measure subjective distress associated with specific body image memories. Participants recorded their earliest, worst, and most recent BIM and then rated each memory based on how disturbing it felt to them from 0 (*not disturbing at all*) to 10 (*worst you can imagine*). Internal reliability for these NBIMs was high ($\alpha = 0.76$ to 0.89).

OTHER BODY IMAGE OUTCOMES

The *Body Investment Scale (BIS)*; Orbach & Mikulincer, 1998) is a 24-item measure of emotional investment in the body, particularly self-destructive and self-harming tendencies, with high internal reliability across the four factors ($\alpha = 0.82$ to 0.90). The *Appearance Schemas Inventory (ASI)*; Cash & Labarge, 1996) is a 14-item measure of dysfunctional beliefs associated with physical appearance, including body image vulnerability, self-investment, and appearance stereotyping, with high internal reliability across the three factors ($\alpha = 0.86$ to 0.95). The *Body Dissatisfaction subscale* of the EDI-2 (EDI-BD) is a widely used 9-item measure of degree of satisfaction with various parts and regions of the body such as waist, hips, and thighs (Garner, 1991), with high internal reliability ($\alpha = 0.92$). The *Sociocultural Attitudes toward Appearance Questionnaire – Revised (SATAQ-R)*; Heinberg, Thompson, & Stormer, 1995) is a 14-item measure of awareness and acceptance of culturally sanctioned standards of appearance, with high internal reliability across the two factors ($\alpha = 0.80$ to 0.89).

OTHER CLINICAL OUTCOMES

The *Eating Attitudes Test-26 (EAT-26)*; Garner, Olmsted, Bohr, & Garfinkel, 1982) is a widely used 26-item measure of eating attitudes and behaviors, with high internal reliability ($\alpha = 0.89$). The *Beck Depression Inventory (BDI)*; Beck, Steer, & Garbin, 1988) is a widely used 21-item measure of depressive symptoms, with high internal reliability ($\alpha = 0.95$). The *Dissociative Experiences Scale (DES)*; Bernstein & Putnam, 1986) is a 28-item measure of the percentage of time an individual has dissociative experiences, with high internal reliability ($\alpha = 0.82$). Finally, participants reported the age of eating disorder onset, number of times previously hospitalized, and satisfaction with current weight. Admission weight and height measured by a nurse practitioner were used to calculate body mass index (BMI).

Procedure

Eligibility of women who expressed interest in participation was determined using the EMDR clinical guidelines (Shapiro, 1995, 2001). Women were ineligible if they met any of the following criteria: (a) diagnosed with a dissociative disorder or reported a score greater than 30 on the DES, (b) actively suicidal or attempted suicide in the past month, (c) on any form of bed rest, (d) have a history of or active seizure disorder, or (e) actively psychotic. Eligible women were randomly assigned to SRT or SRT+EMDR by a research assistant masked to the hypotheses of the present study using a random number table. Participants were randomly assigned to one of the available therapists who were not also the participants' individual or family therapist. There were no significant differences in the number of SRT+EMDR participants assigned to each EMDR therapist over the course of the study, $\chi^2(6) = 10.540, p = .104$. Due to the constraints imposed by unexpected discharges, a minimum number of completed EMDR sessions were not required, which allowed more women to be included in the study. Participants provided informed consent prior to beginning the study, and completed self-report questionnaires at admission (pretreatment), discharge (posttreatment), 3-month follow-up, and 12-month follow-up. The follow-up packets included a cover letter, the questionnaires anonymously coded, and a self-addressed stamped envelope to return the completed packet. The return rate at 3-month follow-up was 93% for SRT+EMDR participants and 95% for SRT participants. The return rate at 12-month follow-up was 79% for SRT+EMDR participants and 74% for SRT participants.

RESULTS

A one-way MANOVA revealed no significant differences between SRT+EMDR and SRT in age, age of eating disorder onset, number of times previously hospitalized, satisfaction with current weight, BMI, depression, dissociation, eating attitudes, or body dissatisfaction (p 's ranged from .17 to .99). There were also no significant differences in the proportion of each eating disorder diagnosis represented in each condition, $\chi^2(2) = 2.74, p = .25$. These results indicate no systematic differences at pretreatment between conditions on relevant participant characteristics. At posttreatment, a significant difference was observed in length of treatment stay, $F(1,84) = 4.08, p = .02$, with a slightly longer length of treatment stay for SRT+EMDR ($M = 23.25, SD = 9.77$) than SRT ($M = 19.94, SD = 10.49$). Mean number of EMDR sessions was 4.31 ($SD = 1.96$).

Negative Body Image Memories

Table 1 displays the means for the three NBIMs at each assessment point. Effect sizes were reported for all analyses, indexed by r (Rosnow &

TABLE 1 Between Group Differences for Body Image Memories at Each Assessment Point

Body Image Memories	SRT + EMDR			SRT			F^a	r^b (95% CI)
	n	M	SD	n	M	SD		
Earliest								
Pretreatment	43	6.09	3.05	43	5.56	3.16	0.638	.008 (-.19, .21)
Posttreatment	43	3.56	2.30	43	5.28	3.07	14.47***	.382 (.17, .59)
3-Month	40	3.33	2.36	41	5.05	2.97	9.939**	.333 (.18, .54)
12 – month	34	4.49	2.59	32	5.06	2.44	0.369	.008 (-.23, .24)
Worst								
Pretreatment	43	8.42	2.20	43	8.49	2.11	0.023	.001 (-.23, .23)
Posttreatment	43	5.21	2.68	43	7.30	2.68	12.480***	.362 (.13, .60)
3-Month	40	4.23	3.15	41	7.02	2.72	11.722***	.357 (.12, .59)
12-month	34	5.26	3.05	32	7.13	2.08	6.226**	.296 (.03, .56)
Most Recent								
Pretreatment	43	6.84	2.89	43	6.58	2.56	0.189	.004 (-.29, .30)
Posttreatment	43	5.26	2.74	43	6.30	2.65	3.940*	.211 (-.08, .51)
3-Month	40	4.18	3.16	41	5.73	3.08	3.523*	.206 (-.10, .51)
12-month	34	5.49	3.34	32	5.75	2.97	0.063	.003 (-.33, .34)

Note. SRT+EMDR = standard residential treatment plus EMDR; SRT = standard residential treatment.

^a F -values indicate between group differences at each assessment point. ^bEffect sizes (r) refer to between group differences.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Rosenthal, 1996), and corrected for potential bias (Becker, 1988). Because of the number of between group comparisons on the NBIMs, the Bonferroni correction was used to reduce the likelihood of Type I errors (i.e., p values were set at .014 or $.05/\sqrt{12}$). A one-way MANOVA indicated that SRT + EMDR and SRT did not significantly differ at pretreatment on ratings of the NBIMs. A series of 2 (Condition: SRT + EMDR vs. SRT) \times 4 (Time: pretreatment vs. posttreatment vs. 3-month vs. 12-month) repeated-measures ANCOVA models were conducted to test the primary hypotheses for the NBIMs. Length of treatment stay and pretreatment scores were entered as covariates in all analyses. Results revealed Time \times Condition interactions for the earliest memory, $F(3,252) = 7.27$, $p < .01$, $r = .17$, and worst memory, $F(3,252) = 6.78$, $p < .014$,

$r = .16$, but not the most recent memory, $F(3,252) = 4.58, p < .03, r = .13$. Follow-up repeated measures ANCOVA models tested for differences between conditions at each time of assessment compared to pretreatment (see Table 1). SRT + EMDR reported significantly less distress than SRT at posttreatment for the earliest and worst memory, but not for the most recent memory. These effects remained significant at 3-month follow-up, but only for the worst memory at 12-month follow-up. Together, these results indicate that SRT + EMDR reduced distress about earliest and worst NBIMs more than SRT alone at posttreatment, 3-month, and 12-month follow-up (worst BIM only).¹

Other Body Image and Clinical Outcomes

Because of the number of between group comparisons on the other body image and clinical outcomes, the Bonferroni correction was used to reduce the likelihood of Type I errors (i.e., p values were set at $.011$ or $.05/\sqrt{24}$). A series of 2 (Condition: SRT + EMDR vs. SRT) \times 4 (Time: pretreatment vs. posttreatment vs. 3-month vs. 12-month) repeated-measures ANCOVA models revealed no significant differences between SRT + EMDR and SRT on the BIS, ASI, SATAQ-R, EDI-BD, depression, dissociative symptoms, or disordered eating attitudes.

DISCUSSION

The present study examined the effects of adding EMDR to standard residential eating disorders treatment on a variety of body image and clinical outcomes. Consistent with predictions, SRT + EMDR participants reported less distress about their NBIMs compared to SRT participants at posttreatment and 3-month follow-up. Consistent with meta-analytic results on the effectiveness of EMDR (Davidson & Parker, 2001), effect sizes for these group differences were medium to large for the earliest and worst memory, and small for the most recent memory. SRT + EMDR participants reported less distress about the worst BIM compared to SRT participants at 12-month follow-up; however the effects on the earliest and most recent memory faded over the 12 months, with effect sizes hovering around zero. An average of four EMDR sessions appeared to be sufficient to reduce distress up to 3 months and up to 12

¹ We did not have a theoretical rationale for predicting differences between eating disorder diagnoses on the negative body image memories. However, because of the absence of any empirical evidence on the efficacy of EMDR treatment for eating disorders, a series of 3 (Diagnosis: AN-R vs. BN vs. EDNOS) \times 4 (Time: pretreatment vs. posttreatment vs. 3-month vs. 12-month) repeated-measures ANCOVA models were conducted to test for potential differences on the body image memories by eating disorder diagnosis. Results revealed no significant Diagnosis \times Time interactions for the earliest, $F(6,249) = 0.873, p = .459, r = .101$, worst, $F(6,249) = 0.437, p = .727, r = .007$, or the most recent, $F(6,249) = 0.987, p = .404, r = .108$, memory.

months for the worst memory. However, four sessions of EMDR was not sufficient to sustain a permanent reduction in distress about these memories, or to generalize to other body image and clinical outcomes. It is possible that to generalize these effects would require more than four EMDR sessions, further processing of other targets, and/or the building of new skills to lead to improved body image overall. It may be reasonable to incorporate EMDR into treatment to reduce distress about specific traumatic body image-related experience, but processing these memories will not necessarily bring about a broader change in body image or eating disorder pathology.

It appears that selecting negative body image as the treatment target for EMDR was appropriate in a sample of women with eating disorders. The risk for memory fabrication in the recall of trauma among eating disorders patients should have been minimized because negative body image events have been related consistently to the development and maintenance of eating disorders (Rosen, 1990; Smolak & Levine, 2001). However, the accuracy of participants' recall of prior body image-related events remains debatable. Memories tend to fade or become distorted over time (Roediger & McDermott, 2000; Schacter, 1995), and other research suggests that vividly imagining an object leads to falsely remembering what was actually seen versus what was only imagined (Gonsalves et al., 2004). This is important because if the body image memories were not particularly accurate, this may be one explanation for why the EMDR therapy did not generalize beyond the memories to participants' actual body images. Although EMDR treats the subjective experience of the memory regardless of the actual veracity of the memory, this possibility should be subjected to further scrutiny.

Several limitations of the present study should be considered. First, it is unclear how EMDR therapy would have compared to a supportive listening condition targeting the same body image memories. There is considerable uncontrolled "extra" therapy inherent in the residential treatment setting; thus, it is worth acknowledging that the effects observed on the NBIMs with EMDR therapy were quite robust considering the comprehensive SRT that it was compared against. Second, a comparison of treatment conditions that experienced the same length of treatment stay would provide a more stringent test of the effects of EMDR. Third, participants were not blind to receiving the EMDR treatment or being on a wait list, and future experimental designs should address this potential contamination effect. Finally, the present findings cannot be generalized to AN-purging subtype because this diagnosis was not represented in the final sample, or to outpatients, men, and other types of memories.

To conclude, the intent of the present research was not to support or discredit EMDR per se, but rather to test the efficacy of EMDR therapy for treatment with a severely eating disordered population. A randomized, experimental study with long-term follow-up was conducted to test the effectiveness of EMDR for the treatment of eating disorders. The evidence reported here suggests that EMDR can reduce distress about specifically

targeted negative body image memories, but more research is needed to determine its effectiveness on broader eating disorders pathology.

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