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Five women prisoners with a history of being battered and who met the *DSM-IV* criteria for post-traumatic stress disorder were assessed (A phase) and provided with structured relaxation training (RT) (B phase, or placebo treatment), followed by eye movement desensitization and reprocessing (EMDR) therapy (C phase). Using the Beck Anxiety Inventory and the Impact of Events Scale's avoidance behavior and intrusive thoughts subscales as outcome measures, RT alone did not result in any clinical improvements. The subsequent provision of EMDR did not improve upon this lack of success with 4 of the 5 participants; 1 did improve on anxiety and intrusive thoughts. The apparent ineffectiveness of EMDR with these participants may be attributed to several explanations. Foremost perhaps is the hypothesis that EMDR is not sufficient to ameliorate the effects of chronic abuse.

The Relative Effectiveness of EMDR Versus Relaxation Training With Battered Women Prisoners

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Domestic violence remains a serious problem in contemporary society. Although the most common pattern is for a male to assault his female partner, men are also battered by women and gays and lesbians by their partners. In some instances, the experience of being battered by one's partner is of such severity and/or duration that serious psychosocial sequelae can develop. The emergence of post-traumatic stress

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disorder (PTSD) (American Psychiatric Association, 1994) can be one of these consequences, and this disorder is of high prevalence among battered victims seeking treatment (Austin, Lawrence, & Foy, 1993; Dutton, 1992; Gleason, 1993; Kemp, Green, Hovanitz, & Rawlings, 1995; Kemp, Rawlings, & Green, 1991; Saunders, 1994; Walker, 1994).

Inexplicably, very little empirical research has been conducted evaluating the effectiveness of psychosocial treatments for battered women. In a comprehensive search of the literature using computerized databases such as PsychLit and Sociofile and a manual examination of recent journals covering the years 1974 to 1996, only seven such studies were found. All of these evaluated group therapy and/or shelter services, with six using nomothetic research designs (Brannen & Rubin, 1996; Cox & Stoltenberg, 1991; Holiman & Schilit, 1991; Mancoske, Standifer, & Cauley, 1994; Tutty, 1996; Tutty, Bidgood, & Rothery, 1993) and one (Rubin, 1991) reporting outcomes using single-subject designs for 6 participants in a battered women's shelter. The Holiman and Schilit (1991) study was qualitative in nature and did not employ inferential statistical tests to support its conclusions. Although these studies all suffered from various methodological limitations (small nonprobability samples of participants, limited follow-up periods, lack of control groups, low statistical power, etc.), the nomothetic studies did report favorable results, with the exception of Rubin (1991), suggesting that domestic violence is amenable to psychosocial interventions.

During the past decade, a new psychosocial treatment for PTSD has appeared, initially called eye movement desensitization (EMD) and later called eye movement desensitization and reprocessing (EMDR). Since Shapiro's (1989a) initial report on this treatment, a very large number of case reports, single-subject research designs, and group

were presented as a dissertation submitted to the graduate faculty of the University of Georgia in partial fulfillment of the requirements for the Ph.D. degree in social work. Portions of this article were also presented at the International Conference on Research for Social Work Practice on May 25th, 1998, in Miami. Correspondence concerning this manuscript should be sent to Sharman D. Colosetti, 1160 Walker Dr., Decatur, GA 30030 or to B. A. Thyer, School of Social Work, University of Georgia, Athens, GA 30602. Send Internet correspondence to sharmanc@atlanta.com or to bthyer@arches.uga.edu.

Although empirical research into these issues has not been able to keep pace with the criticisms, some facts have emerged. First, saccadic eye movements are not essential to the success of the treatment (Bauman & Melnyk, 1994; Cocco & Sharpe, 1993; Gosselin & Matthews, 1995; Shapiro, 1995). This undercuts one of the fundamentally distinctive features of EMDR.

Very few studies have been conducted to date comparing EMDR with a credible placebo treatment or against other active therapies for PTSD (e.g., standard imaginal and real-life exposure therapy) (see Acierno, Tremont, Last, & Montgomery, 1994; Sanderson & Carpenter, 1992; Sharpley, Montgomery, & Scalzo, 1996a, 1996b; Vaughn et al., 1995). We now report on a series of single-subject research designs that compared the relative efficacy of relaxation training alone versus EMDR in the treatment of five incarcerated women who experienced PTSD related to a history of battering. This study provided a test of the following hypotheses:

Hypothesis 1: EMDR will produce greater reductions in clinical anxiety than those obtained through prior use of RT.

Hypothesis 2: EMDR will produce greater improvements on avoidance behavior than those obtained with prior use of RT.

Hypothesis 3: EMDR will produce greater improvements on intrusive thoughts than those obtained with prior use of RT.

METHOD

AGENCY SITE

This study was conducted at a state prison located in rural Georgia. The design and conduct of this study was reviewed and approved by the Georgia Department of Corrections and by the University of Georgia's Institutional Review Board.

PARTICIPANT SAMPLE

All participants were obtained via referral from the prison psychiatrist or from the waiting list for women desiring to be enrolled in a bat-

tered women's group provided to prison inmates. All reported a history of abuse in an intimate relationship.

Because these women by nature of incarceration were from a vulnerable population, extreme care was used in selecting this sample. As a part of the initial assessment procedure conducted by the senior author, participants completed the Dissociative Events Scale (DES) (Bernstein & Putnam, 1986) and the Abusive Behavior Inventory (ABI) (Shepard & Campbell, 1992). The Clinician-Administered PTSD Scale (CAPS) (Blake et al., 1990), administered by clinical staff psychologists, was used to make the diagnosis of PTSD. The following criteria were chosen according to Shapiro's (1995) guidelines to ensure maximum safety to participants:

1. Participants agreed to tell the clinician the truth about what they were experiencing.
2. Participants agreed to practice and use self-control techniques, such as relaxation, between sessions.
3. Participants had been in prison for a minimum of 1 year (to rule out the effects of adjustment to prison life).
4. Participants agreed to keep a weekly log of memories, dreams, thoughts, and situations to identify targets for treatment.
5. Participants had and agreed to use a support network to minimize between-sessions distress.
6. Participants did not have a known history of a respiratory and/or cardiac condition, epilepsy, eye problems, and/or organic brain damage.
7. Participants did not have a known recent history (while incarcerated) of suicide gestures or attempts.
8. Participants did not have a pending or contemplated legal proceeding that involved targets for treatment.

During the first meeting, each participant described the worst abusive experience that she had undergone. At the beginning of subsequent sessions, the clinician read the script to the participant prior to administering the Beck Anxiety Inventory (BAI) and the Impact of Events Scale (IES).

Participant 1 was a 50-year-old White woman who had a high school education. She had been married four times and had a history of being physically and sexually abused. She had never been hospitalized for psychiatric problems but was taking psychotropic medication during this study. Her score on the ABI was 117; on the DES, 29.4. Her script of her worst incident of abuse was from 1993.

Participant 2 was a 38-year-old White woman who completed both a GED and 2 years of college while incarcerated. She had been married twice, once to an abusive partner, and had a history of both physical and substance abuse. She had never been hospitalized for psychiatric problems but was taking psychotropic medication during the intervention. Her score on the ABI was 125; on the DES, 23.6. Her script was from an incident in 1991.

Participant 3 was a 25-year-old African American woman who had a high school education. This was her first incarceration. She had never been married and had a history of both sexual and substance abuse. She had been in three abusive relationships. She had never been hospitalized for psychiatric problems and was not taking psychotropic medication during the intervention. Her score on the ABI was 74; on the DES, 28.9. Her script was from an incident in 1992.

Participant 4 was a 49-year-old White woman who had a ninth-grade education. This was her second incarceration. She had been married five times and had a history of physical, sexual, and substance abuse. She had been in one abusive relationship. She had never been hospitalized for psychiatric problems but was taking psychotropic medication during the study. Her score on the ABI was 114; on the DES, 28.9. Her script was from an incident in 1969.

Although Participants 1, 2, 3, and 4 had not received therapy prior to incarceration, they each had completed several prison psycho-educational and therapy groups prior to participating in this study. Participant 5 was the only participant who had had therapy prior to incarceration.

Participant 5 was a 32-year-old White woman who had a high school education. This was her first incarceration. She had been married once and had a history of substance abuse. She had been in one abusive relationship. She had been hospitalized for psychiatric problems and was taking psychotropic medication during the intervention. Her score on the ABI was 95; on the DES, 15. Her script was from an incident in 1980.

OUTCOME MEASURES

There were two standardized outcome measures used to assess potential changes in psychiatric symptomatology in the participants. The first was the IES (Horowitz, Wilner, & Alvarez, 1979; Zilberg, Weiss, & Horowitz, 1982), a 15-item self-report instrument used to provide a measure of the stress associated with a past traumatic event. The IES is widely used as an outcome measurement in clinical trials of PTSD treatment, as it possesses excellent psychometric properties, appears to be suitable for use with participants from various socioeconomic backgrounds, and is sensitive to changes over time. IES scores can range from 0 to 75 (cutoff score is 26), with higher scores indicating greater stressful reaction to a past trauma. Subscales are used to individually assess avoidant behavior and intrusive thoughts associated with a traumatic event.

The second primary outcome measure was the BAI, a 21-item self-report instrument that also possesses excellent psychometric properties. Scores can range from 0 to 63, higher scores reflective of greater anxiety symptomatology. The mean BAI score for clinically anxious individuals was 24.59 ($SD = 11.41$) (see Beck, Epstein, Brown, & Steer, 1988).

Participants completed the IES and BAI at the beginning of each assessment/treatment session.

Subjective Units of Distress (SUDS) (Wolpe, 1990) scores were used to guide the course of therapy only because they appear to be a state-specific measure of EMDR and may have little generalizability (Hyer, Boudewyns, Peralme, Walters, & Kiel, 1996).

RESEARCH DESIGN

Treatment was provided to each participant in the context of an A phase, B phase, C phase single-subject research design, with the A phase used to gather data without providing formal therapy, the B phase indicating the weekly provision of structured relaxation training

(described below), and the C phase used to deliver EMDR therapy (described below). Duration of these phases varied slightly across participants according to the clinical and scheduling exigencies present in the prison environment.

THERAPIST CHARACTERISTICS

All assessment and therapy services were provided by the senior author, a 47-year-old White female clinician with 9 years of clinical experience who was licensed as a master social worker by the state of Georgia. She had successfully completed both Level I and Level II training in EMDR. Her clinical work for this study was supervised by a licensed clinical psychologist, similarly technically qualified in the provision of EMDR, who had 6 years of clinical experience in providing this form of therapy.

TREATMENT

RT was provided by the clinician following the protocol found in section A of Miller and Halpern's (1980) audiotaped instructions. RT can be construed as a credible placebo treatment in that it possesses considerable face validity and has been actually recommended as a component in the treatment of battered women (Walker, 1994). However, no prior study has shown that as a single treatment RT is effective in producing symptomatic relief for participants meeting the criteria for PTSD. As noted by Blake, Abueg, Woodward, and Keane (1993), in EMDR research "one critical variable which must be controlled for in future investigations of EMD is patient expectancy and demand characteristics presented by the procedure" (p. 218). We believe that RT is a credible control condition for these factors.

EMDR was provided through strict adherence to the protocol described by Shapiro (1995), in which the therapist was appropriately trained and supervised. Treatment sessions were held approximately weekly. In an attempt to facilitate informed consent in the use of an experimental method of treatment, during week 1 of the study, all participants were individually shown a videotape of a weekly television program (20/20), which portrayed EMDR in a positive light. Each was

also given four newspaper articles that also described the treatment in favorable terms (copies of these materials are available from the senior author). The BAI and IES were administered to participants at the beginning of each session.

RESULTS

The data for Participant 1 are displayed in Figure 1. Following 4 weeks of baselined assessments using the BAI and IES, she was provided with three sessions of relaxation therapy alone and then with three sessions of EMDR. A follow-up session (not involving further treatment) was held 1 month later, and EMDR resumed for six more sessions. No appreciable improvements on anxiety, avoidant behaviors, or intrusive thoughts were obtained through RT, and the first phase of EMDR did not alter this lack of improvement.

Participant 2 had a four-session baseline, three sessions of RT, and three sessions of EMDR. RT had no apparent effect on BAI and IES scores, but BAI and intrusive thoughts scores improved markedly when EMDR was provided. One-month follow-up found these gains to be maintained.

Participant 3 had a more variable data pattern during baseline and RT, but the two phases did not appear to differ appreciably. EMDR-derived data did not differ from the last four sessions of RT data. However, at 1 month's follow-up, anxiety was significantly elevated, while avoidant behavior and intrusive thoughts were significantly lower.

Participant 4's baseline and RT data were not compellingly different, and EMDR did not appear to produce meaningful improvements beyond those seen during RT. One-month follow-up scores were worsened beyond the last data point obtained during EMDR treatment.

Participant 5 produced more ambiguous data. Baseline data were highly variable, but RT were associated with improvements on all outcome measures. During EMDR, anxiety and intrusive thoughts scores worsened, and avoidant behavior, although declining, remained within the range obtained during RT. One-month follow-up scores were unchanged.

(text continues on p. 733)

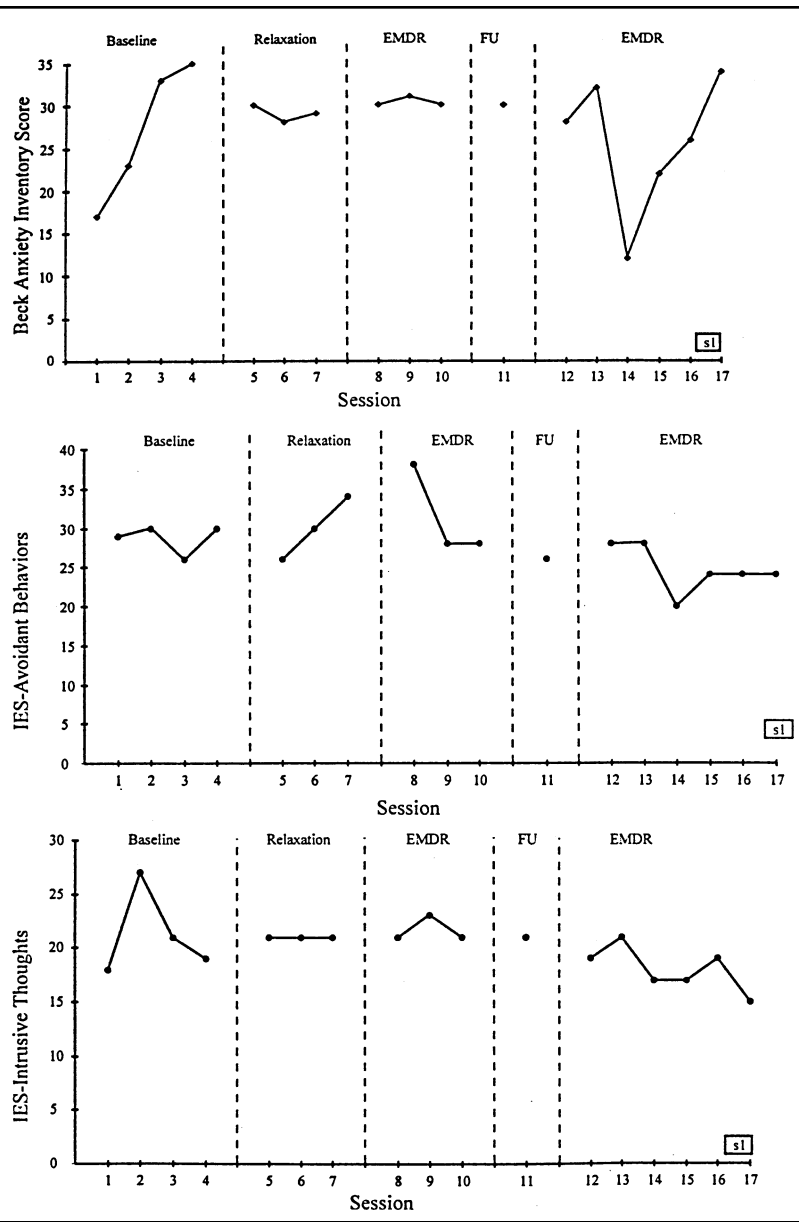


Figure 1. Participant 1—Effects of relaxation therapy compared with eye movement desensitization and reprocessing on anxiety, avoidant behaviors, and intrusive thoughts.

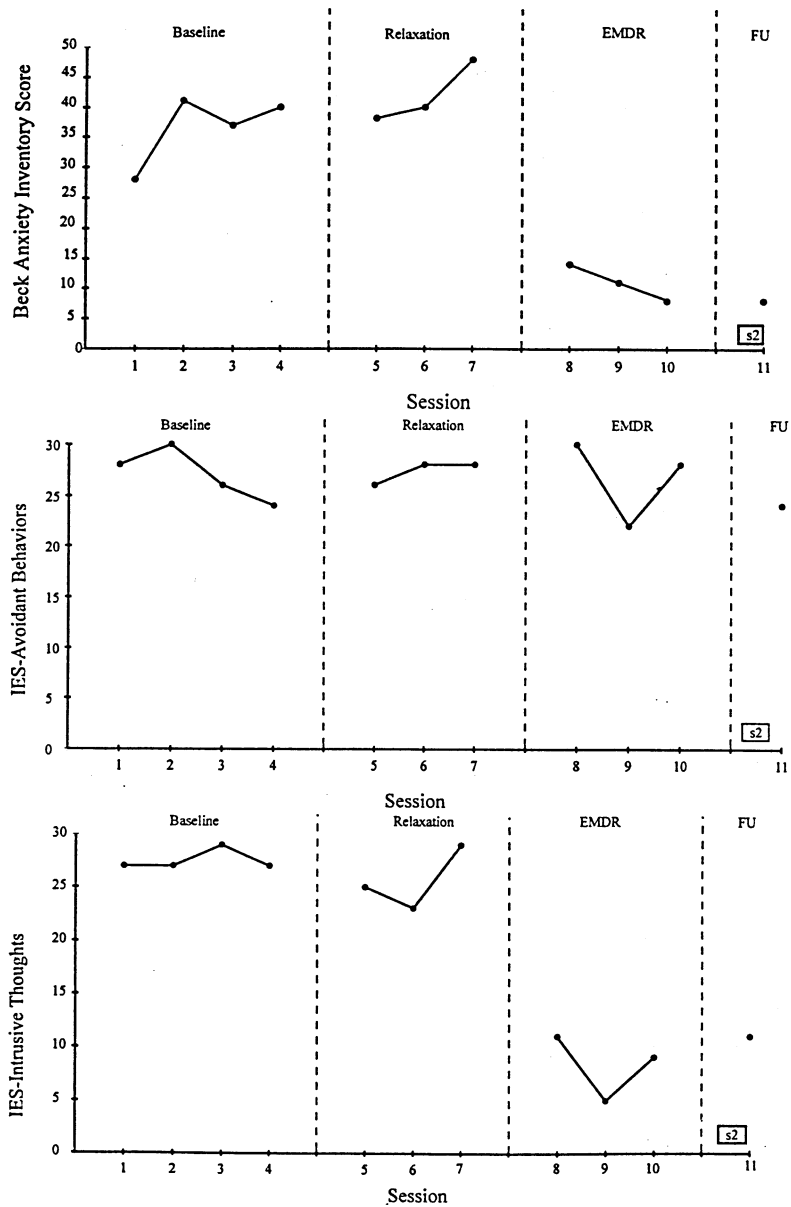


Figure 2. Participant 2—Effects of relaxation therapy compared with eye movement desensitization and reprocessing on anxiety, avoidant behaviors, and intrusive thoughts.

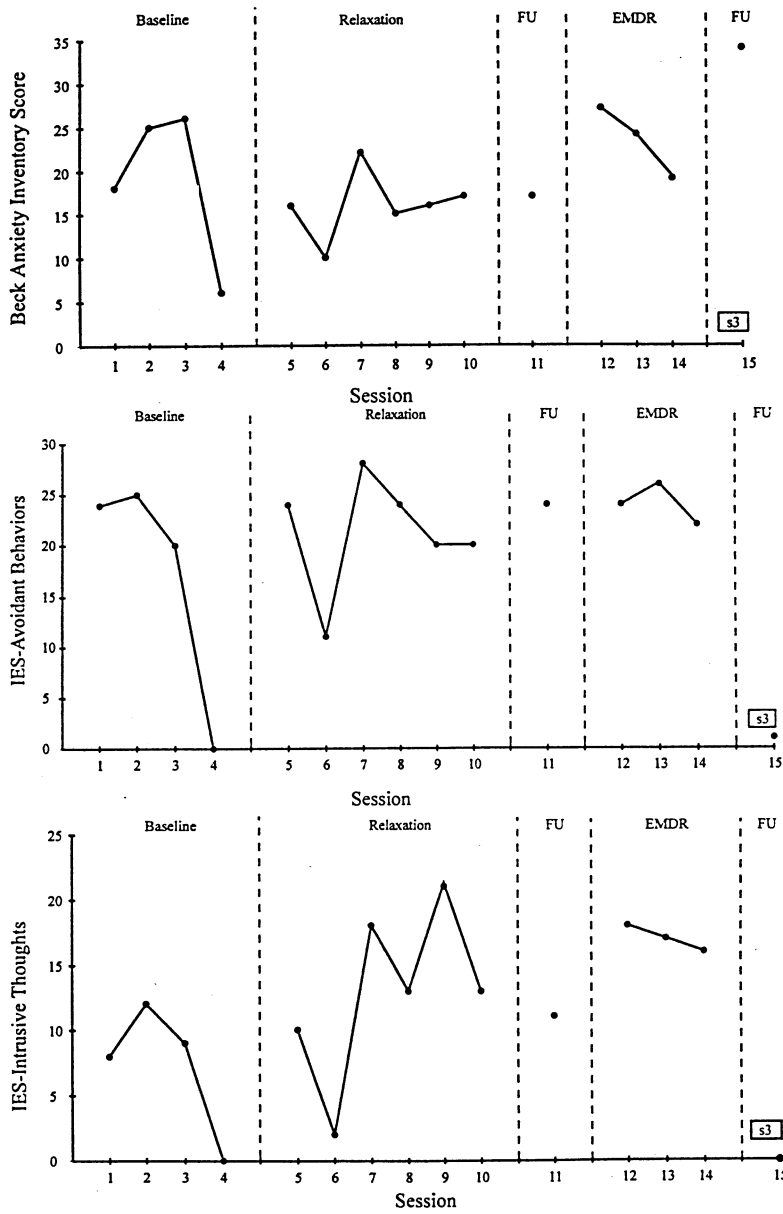


Figure 3. Participant 3—Effects of relaxation therapy compared with eye movement desensitization and reprocessing on anxiety, avoidant behaviors, and intrusive thoughts.

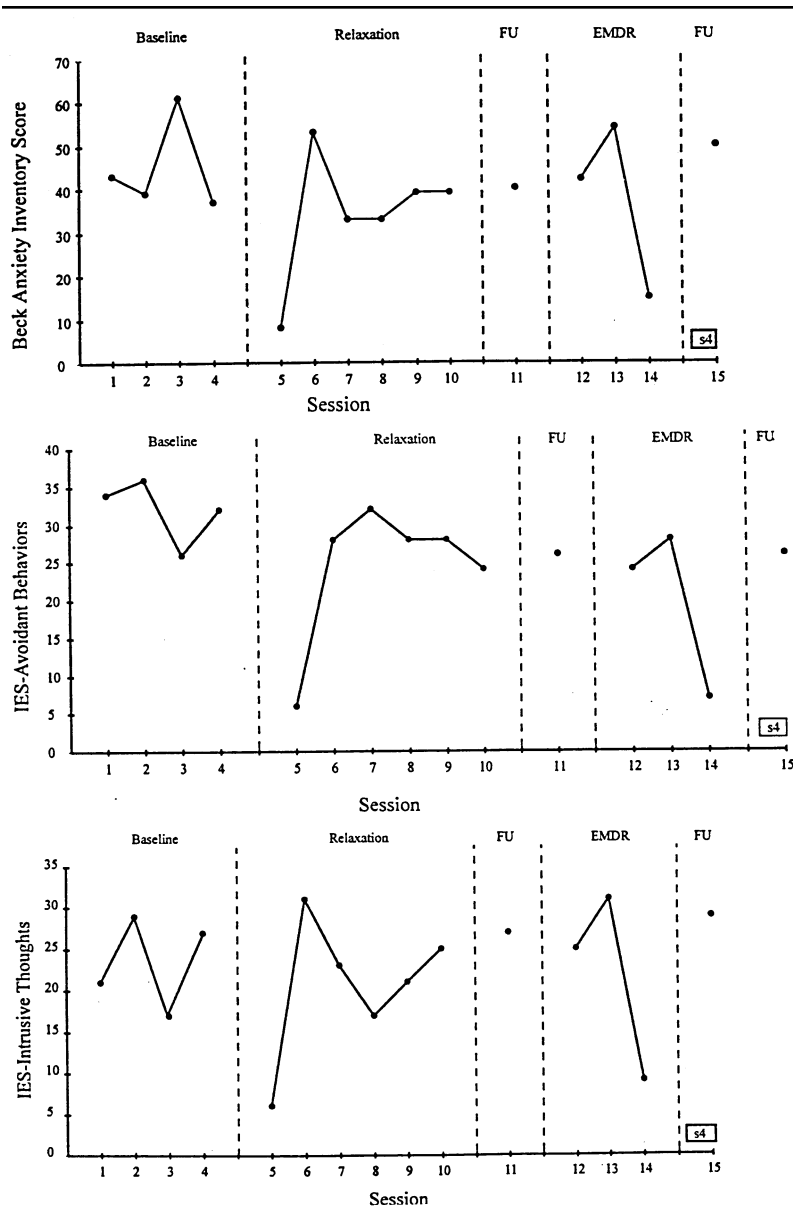


Figure 4. Participant 4—Effects of relaxation therapy compared with eye movement desensitization and reprocessing on anxiety, avoidant behaviors, and intrusive thoughts.

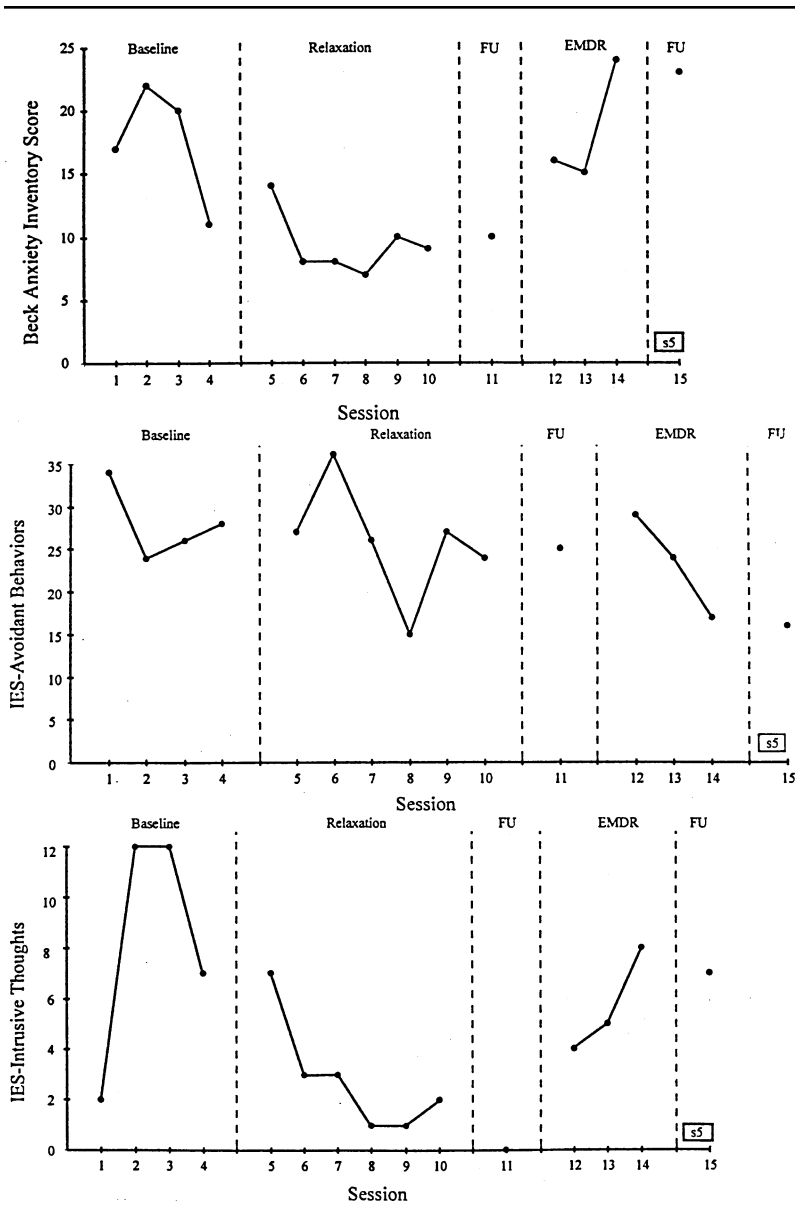


Figure 5. Participant 5—Effects of relaxation therapy compared with eye movement desensitization and reprocessing on anxiety, avoidant behaviors, and intrusive thoughts.

Because no remarkable change was noted for any participant, the CAPS was not repeated at the follow-up session.

What do our data suggest with respect to our research hypotheses? With regard to Hypothesis 1 (EMDR will produce greater reductions in clinical anxiety as assessed by the BAI than those obtained through prior use of RT), the only participant to exhibit a data pattern consistent with this hypothesis is Participant 2. The remaining four participants failed to demonstrate a superior effect of EMDR compared with RT on BAI scores. On balance, then, Hypothesis 1 was not corroborated.

With regard to Hypotheses 2 and 3 (EMDR will produce greater improvements on avoidance behavior as assessed by the IES than those obtained with prior use of RT; EMDR will produce greater improvements on intrusive thoughts as assessed by IES than those obtained with prior use of RT), only 1 of the 5 participants' data patterns (Participant 2) displayed the predicted effects. Thus, these predictions were largely disconfirmed with these participants.

DISCUSSION

The results of the present investigation are subject to several interpretations. Perhaps the least charitable is to conclude that EMDR appeared to be no more effective than a credible placebo treatment (RT), which in itself did not appear to alleviate PTSD symptomatology to any detectable extent among 5 women prisoners with a history of being physically abused. Professionally, this was a disappointing conclusion given the prior studies on the effectiveness of EMDR as a rapid treatment for PTSD and weak empirical support for any psychosocial interventions for this clinical population (e.g., battered women prisoners). However, scientifically, this would perhaps be the most conservative interpretation of our data.

It is possible that this population of female participants possesses certain characteristics that render them particularly difficult individuals to treat. The concatenation of deprivation, severe past and concurrent stressful life circumstances, and PTSD-related features mitigate against substantial psychological healing being possible with brief

treatment. According to Shapiro (1995), the founder of EMDR has stated, "Treating participants in penal institutions may be contraindicated in many instances because of the peer pressures inherent in the system" (p. 97).

Our study may be legitimately critiqued on several methodological grounds. Using the same person (in this case the senior author) to design the study, assess the participants, conduct the treatment, and analyze the results opens the possibility of bias. We believe that this factor is minimized for the following reasons—our use of standardized assessment instruments, as opposed to highly reactive outcome indicators such as SUDS or validity of cognition (VOC) ratings, reduces the role of therapist influence to some extent. In addition, frankly, the senior author/therapist was quite optimistic that EMDR would be successful, not ineffective, as turned out to be the case. She had invested considerable amounts of time, training, money, and clinical work in acquiring legitimate training in EMDR therapy skills. Our failure to reject the null hypothesis was not at all anticipated.

Our small sample size, 5 participants, is an obvious limitation but one that given the lack of treatment studies on helping battered women is not as pertinent as it would be in other more richly researched areas of practice. It is possible that more frequent or longer treatments, either RT or EMDR, would prove more efficacious. This post hoc explanation for our results does not stand up well to the prior claims with regard to the effectiveness of a very few sessions of EMDR.

Clinical considerations precluded any therapist control over participants' prescriptions for psychotropic medications obtained from medical and psychiatric staff. No attempt was made to stabilize medications prior to or during treatment. Several participants did have their medication regimens altered during the course of this study. The issue of medication has been subject to much debate in the EMDR community. Shapiro (1995) suggested that EMDR be repeated after medication is discontinued, whereas others contend that the use of psychotropic medication does not hinder the efficacy of EMDR. In any event, the consistency with which a lack of effect for EMDR was found makes this potential confounding circumstance a more tenuous one.

It is tempting to come up with post hoc explanations as to why Participant 2 improved on two measures whereas the others did not. She,

unlike the other participants, did not have a history of childhood sexual abuse, and perhaps this rendered her a more suitable candidate for brief intervention with EMDR treatment. Prior reports of successfully using EMDR with sexually abused individuals (Marquis, 1991; Spates & Burnette, 1995; Wilson, Tinker, & Becker, 1995) mitigate against accepting the former rationale, however. Clinically, we note that during treatment, Participant 2 reported that she had learned to be a good actress, hiding her feelings and making excuses for the many bruises that she wore. Is it possible that her extensive history of treatment with the clinician/researcher, both in groups and individually, may have influenced her to exaggerate her scores to gain approval? Moreover, Participant 2 was the only woman who appeared to consistently do her homework and remain present to the experience of treatment. All other women reported using avoidance to some degree. Participant 1 reported "I'm trying to talk myself into it" during her third session of EMDR. Participant 3 reported that she had "blocked it all out" and that her "anger got in the way" of listening to the relaxation tape several days in the dorm. Participant 4 reported using the relaxation tape to "block the memories." Participant 5 reported feeling "totally detached" when listening to the script during the third and subsequent weeks of relaxation training.

But such post hoc explanations for the failure of EMDR to produce clinically significant changes on standardized, valid measures of PTSD symptoms are rather feeble when contrasted with the powerful effects one might expect in reading the literature, claims such as the following:

The evidence clearly indicates that a single session of the EMD technique is effective in desensitizing memories of traumatic incidents. . . . Enough information has been given here to achieve complete desensitization of 75-80% of any individually treated trauma-related memory in a single 50-minute session. (Shapiro, 1989a, pp. 216, 221)

EMDR effectiveness was demonstrated on different outcome measures after three 90-minute treatment sessions, with the effects being maintained at 90 days after treatment. . . . Treatment was equally effective whether the trauma was related to sexual assault or molestation, physical or mental abuse, relationship trauma, or death of a significant other. (Wilson et al., 1995, p. 935)

Our report of five clinical cases used single-system designs to examine individual participant responses to the assessment process that did not involve formal therapy elements, their reactions to a credible psychosocial treatment not known to be effective in alleviating PTSD, and their subsequent responses to EMDR provided by a qualified therapist supervised by a similarly qualified clinical psychologist. As called for in prior reviews on EMDR research (e.g., Acierno et al., 1994), we used validated outcome measures as opposed to highly reactive self-ratings of anxiety.

Our data are consistent with the hypothesis that EMDR possesses no greater therapeutic efficacy than does a credible placebo treatment. A recent study by Dunn, Schwartz, Hatfield, and Wiegele (1996), using a sample of stressed/traumatized college students receiving EMDR or a credible visual (nonmoving) placebo, found "while the EMDR group showed significant reductions of stress, EMDR was no better than a placebo" (p. 231).

PTSD has itself been shown to be resistant to placebo influences in terms of clinical symptomatology but not necessarily with respect to more reactive subjective ratings of anxiety conducted during treatment sessions. Our data lead us to echo the call for well-controlled comparative trials evaluating EMDR versus additional placebo therapies and other presumably effective psychosocial treatments such as standard exposure techniques.

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