A Review of Eye Movement Desensitization and Reprocessing (EMDR): Research Findings and Implications for Counsellors

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Abstract

The last six years have seen the emergence of a new therapeutic technique, most often used to treat symptoms of post traumatic stress disorder (PTSD), called Eye Movement Desensitization and Reprocessing (EMDR) (Shapiro 1989a, 1989b, 1991, 1995). A number of uncontrolled case studies followed the initial studies of EMDR alleging remarkable successes in the treatment of PTSD. More recently, controlled studies examining the efficacy of this strategy have appeared, most often in the behavioural literature. Considerable variability exists in the findings of the controlled studies, making definitive conclusions difficult to achieve. This article examines the strengths and weaknesses of the published studies, illuminates the nature of the debate about efficacy of EMDR, and reviews implications for practicing counsellors and counsellor trainees.

Résumé

Au cours des six dernières années est apparue une nouvelle technique thérapeutique, qu'on utilise le plus souvent pour traiter les symptômes de la névrose post-traumatique et qu'on appelle *Eye Movement Desensitization and Reprocessing (EMDR)* (la désensibilisation et le reconditionnement des mouvements oculaires). Des études de cas menées dans des conditions non contrôlées ont suivi les premières études de l'*EMDR* imputant des succès remarquables à cette nouvelle technique dans le traitement de la névrose post-traumatique. Dans la récente période, on constate l'apparition, surtout dans les travaux du comportement, d'études de l'efficacité de cette stratégie menées dans des conditions contrôlées. Les résultats des études menées dans des conditions contrôlées démontrent une variabilité considérable qui ne permet pas d'établir des conclusions définitives. Cet article examine la solidité et les faiblesses des études publiées, illumine la nature du débat sur l'efficacité de l'*EMDR* et discute des implications pour les conseillers praticants et étudiants.

Several years ago a treatment technique was introduced in the behavioural literature developed by Shapiro (1989a) called Eye Movement Desensitization and Reprocessing (EMDR). As sometimes happens with the emergence of new techniques, there has been an on-going debate about the efficacy and validity of the technique. Valid points have been made on both sides of the argument. EMDR was initially developed to treat post traumatic stress disorder (PTSD), although some authors argue that EMDR can be applied to other disorders, including phobias in clients who have Dissociative Identity Disorder (Paulsen, 1995), panic attacks (Goldstein & Feske, 1994), eating disorders (Parnell, 1997), personality disorders (Fensterheim, 1996), substance abuse (Shapiro, Vogelmann-Sine, & Sine, 1994), depression (Puk, 1991), phobias (Young, 1994), and some applications that are not necessarily diagnosable such as grieving (Solomon & Shapiro, 1997), critical incident debriefing for emergency workers (McCammon & Allison, 1995), spiritual unfolding (Parnell, 1996), and executive coaching (Foster & Lendl, 1996). Probably due largely to the pilot studies focusing on PTSD, most of the attempts at replication and dismantling (isolation of discrete components) of the technique have also focused on PTSD or closely related anxiety symptoms. EMDR involves a clearly prescribed method of assessment and treatment. The pilot studies of EMDR suggest that it results in rapid reduction of PTSD symptoms (Shapiro, 1989a, 1989b). Subsequently, some studies have replicated Shapiro's results, while other studies seem to indicate that EMDR has no more efficacy than other behavioural techniques to which it has been compared.

The current paper provides a synopsis of the research examining the efficacy of EMDR. The research literature pertaining to EMDR falls into four categories: pilot studies, uncontrolled case studies, controlled case studies, and controlled group studies. Each of these categories will be systematically reviewed. This paper also provides overviews/critiques of previously published research, which are cited throughout the descriptions of studies. In addition to the synopsis of the research, readers are offered references for other reviews of the literature, and a discussion of why this topic has generated such a heated debate. There is also a discussion of the implications of the research findings for counsellors in practice, including how to make sense of the conflicting data and the ethical implications of using, or not using, this technique with clients who are suffering from symptoms secondary to emotional trauma. It is recognized that there are other types of presenting problems for which EMDR might help, but a full discussion of all applicable diagnoses is beyond the scope of this paper.

The EMDR Technique: What It Is

Shapiro (1995) argues that EMDR helps clients reduce or remove the negative affect associated with traumatic memories by activating a neurophysiological process that permits a form of relearning. The eye movements are presumed to activate brain chemistry that permits changes in memory structures and related emotional responses. Further discussion of the theory and alternative explanations follow a description of the intervention. The basic application of EMDR involves eight phases of treatment (Shapiro, 1995). It is possible that all eight phases can be completed within one treatment session, but the number of sessions needed can vary from one to many, depending on the client. Following are the phases and a brief description of the task in each phase (Shapiro, 1995, pp. 68-74).

Client history and treatment planning. The clinician gathers information about the client's current level of functioning, current symptoms, stimuli that trigger symptoms, and assessment of the client's stability and life circumstances. With this information, the clinician establishes targets for treatment that encompass the original trauma, subsequent secondary triggers, and adaptive behaviours that will be desirable in the future.

Preparation. Tasks in this phase include rapport-building, teaching relaxation procedures, informed consent to treatment, and discussion with the client about the potential loss of secondary gains that might be occurring because of the symptoms.

Assessment. The assessment phase entails the clinician clarifying components of the target and provides a pre-treatment baseline. The client identifies an image that accurately represents the memory sequence, as well as the concomitant maladaptive self-evaluation he or she uses when recalling the event. The degree of emotional distress associated with the memory is quantified using Subjective Units of Distress (SUDS; Wolpe, 1991), in which the client assigns a numerical rating to the intensity of the disturbing feelings as he or she recollects the trauma. The client is asked to generate a more adaptive self-evaluative statement that also creates an internal locus of control. The degree to which the client believes the adaptive self-evaluative statement is quantified using the Validity of Cognition (VoC; Shapiro, 1989a). A rating of 1 means the client acknowledges the accuracy of the rational self-statement, but the statement does not feel valid, while a 7 indicates emotional congruence with what one knows is true on an intellectual level.

Desensitization. The purpose of this phase is reduction of negative affect as indicated by the SUDS rating. In this phase the client engages in repeated horizontal eye movements at the rate of about one per second, for about 24 eye movements. The rate of speed for the movements as well as the number of eye movements necessary to induce accelerated processing varies between clients. Some clients cannot engage in horizontal eye movement; vertical or diagonal eye movement is also acceptable in this treatment protocol. Other forms of stimulation besides eye movements can also induce accelerated reprocessing. Alternative stimuli used by clinicians and found in the research include alternating hand taps on clients' left and right hands, and alternating sounds in the clients' left and right ears.

Installation. "Installing" is the process of restructuring the critical or otherwise negative self-evaluative statement that had accompanied the distressing memories. The negative self-statements are replaced with more positive, adaptive self-evaluative cognitions. If the client already had some constructive self-statements, those statements are further strengthened during this phase.

Body Scan. Following Installation, the client holds the target memory and positive cognition in mind, then searches through his or her body for any body sensations suggesting tension. If the client identifies any, the bodily sensation becomes the target of subsequent sets of eye movements.

Closure. It is critical that the client re-establishes a sense of stability and equilibrium by the conclusion of the session, regardless of whether or not the reprocessing was successfully completed. The client is also directed to keep a journal or log of associated thoughts, images, or dreams that occur between treatment sessions.

Reevaluation. This is done at the beginning of each new session. The purpose is for the clinician to ascertain whether treatment effects are being maintained.

There are two pieces of data gathered in the Assessment phase which have been integral components of the efficacy investigations. One is the SUDS, and the other is VoC. Typically, when a client is having symptoms stemming from specific trauma, he or she reports high levels of SUDS and low VoC levels for rational, appropriate self-evaluation (Shapiro, 1989a). The initial SUDS and VoC levels become a baseline against which the client's progress can be gauged in resolving the traumatic memory. SUDS and VoC are client variables that are frequently cited as primary dependent measures (i.e. means of gauging effectiveness of EMDR) in the EMDR efficacy research.

Possible Theoretical Bases of EMDR

There are competing explanations as to how and why the EMDR technique results in the reported symptom reductions. This paper will briefly examine the theory offered by Shapiro (1995) as well as some alternative hypotheses.

Shapiro (1995) proposed a theoretical framework, called Accelerated Information Processing (AIP) which forms one basis for the EMDR treatment strategy. The AIP model appears to be closely related to the information processing model of intellectual functioning (Campione & Brown, 1978; Silver, 1993). Briefly, the AIP model is based on the assumption of a "neurological balance in a distinct physiological system that allows information to be processed to an 'adaptive resolution'" (Shapiro, 1995, pg. 29). Shapiro posits that "the eye movements or alternative stimuli used in the EMDR procedure trigger a physiological mechanism that activates the information processing system to an adaptive resolution." (pg. 30) Shapiro's AIP model is also linked to theories about the rapid eye movement stage of sleep (REM) and the processing of emotional and stress-related information (Gabel, 1987; Greenberg, Katz, Schwartz, & Perlman, 1992). Shapiro's main premise about traumatic memories is based on the apparent imbalance which occurs in the nervous system when a person experiences severe psychological trauma, manifested by changes in neurotransmitters and adrenaline. The memories are encoded neurologically in the neurobiologically deviant state. Shapiro (1995) hypothesizes the following:

Therefore, the original material, which is held in this distressing, excitatory state-specific form, continues to be triggered by a variety of internal and external stimuli and is expressed in the form of nightmares, flashbacks, and intrusive thoughts—the so-called positive symptoms of PTSD. (p. 30)

As an extrapolation of the theory of REM information processing, Shapiro (1995) posits that providing bilateral sensory stimulation precipitates activation of a physiological mechanism that stimulates the information-processing system in the brain. Specifics of this physiological mechanism are unknown and clearly need to be further investigated.

Hassard (1996) and Greenwald (1995) have identified similarities between REM sleep and EMDR that warrant consideration as possible explanations of how EMDR works. Hassard (1996) offers the following theory about how memory is recorded in the brain in a neural network:

> The memory of a trained neural network is held as a level of activation or "computational energy" of a given neuron or set of neurons . . . In neural networks, since information is distributed as patterns of activity in the network, different memories can be superimposed on each other at the same or related locations. (278)

This explains why we experience associations—our brains hold layers of information that are connected by some unifying characteristic of the memory. Crick and Mitchenson (as cited in Hassard, 1996) hypothesize that the purpose of REM sleep is to reorganize or classify information in the brain to enhance efficiency of neurological functioning; this hypothesis is referred to as reverse learning. Hassard builds upon the reverse learning hypothesis by suggesting that in contrast to unremarkable memories, traumatic memories may be too embedded electrophysiologically to respond to the reverse learning process in REM. The basis of the effectiveness of EMDR may be that induced eye movements recreate the reverse learning conditions normally present in REM sleep.

Several authors (Carrigan & Cahill, 1995; Dyck, 1993; ten Broeke & De Jonghe, 1995) have proposed that, given the assumption that PTSD develops primarily as the result of respondent conditioning, EMDR is a form of exposure. In this conditioning model, the EMDR procedure serves as a means for the client exposing himself to the traumatic memory which he had previously been avoiding, while simultaneously being somewhat distracted by the eye movement (or other stimulus). The distracter serves to reduce the extreme subjective distress inherent in a flooding procedure, while still exposing the client to the trauma, which constitutes a response prevention paradigm that eventually eliminates the avoidance of the traumatic memory. Some studies, to be discussed, have supported the conditioning hypothesis that the curative component of EMDR is exposure plus distraction.

Yet another hypothesis, proposed by Waters (1997), suggests that EMDR works as a function of "resolute perception," a process observed and named by Hanna and Puhakka (as cited in Waters, 1997, p. 99). Resolute perception refers to "deliberate, sustained focus of attention on an identified problem with the goal of achieving clarity, at a point when the client is ready and willing to perceive" (p.99). Waters proposes that the eye movement aspect of the EMDR procedure is immaterial; EMDR is effective because the clients participating in EMDR have reached a stage of readiness to process their traumatic memories. The clients would, in this theoretical framework, respond to therapeutic intervention whether the intervention was EMDR or any other technique whereby he or she sustained focus on the traumatic memory.

Pilot Studies

Shapiro (1989a, 1989b) initially conducted a pilot study of 70 clients and volunteers, then proceeded with a controlled study of 22 subjects. The group of 22 subjects all had PTSD symptoms secondary either to rape, molestation, or Vietnam combat. The pre- and posttest measures used were SUDS and VoC levels. The participant's pulse rates were also monitored, but these were not included in the results. Shapiro reported that participants experienced highly significant reductions in levels of distress (SUDS) after just one treatment session. The mean pretreatment SUDS levels was 7.45; after one session of EMDR treatment the mean SUDS level dropped to .13. These SUDS reductions were maintained at one- and three-month follow ups. These findings constitute the initial basis for the claim that EMDR may be an efficacious procedure in treatment of PTSD. Critics of Shapiro's EMDR research (Acierno, Hersen, VanHasselt, Tremont, & Mueser, 1994; Greenwald, 1994; Herbert & Mueser, 1992; Lohr, Kleinknecht, Conley, Dal Cerro, Schmidt, & Sonntag, 1992) observed multiple methodological flaws. These included lack of objective substantiation of PTSD in the participants, lack of objective dependent variables, and bias introduced by having the primary investigator conduct the treatment in the experimental group.

Uncontrolled Case Studies

Subsequently, a series of anecdotal, uncontrolled case studies appeared reporting remarkable reduction of symptoms. These treatment effects have included reductions in PTSD symptoms secondary to memories of traumatic assault (Hyer, 1995; Kleinknecht & Morgan, 1991; Vaughan, Wiese, Gold, & Tarrier, 1994), war trauma (Lipke & Botkin, 1992; Thomas & Gafner, 1993; Young, 1995), devastating burns (McCann, 1992), assault (Page & Crino, 1993), nightmares (Pellicer, 1993), memories of childhood sexual abuse (Puk, 1991), memories of a terminally ill sibling (Puk, 1991), memories of a car accident (Spector & Huthwaite, 1993), and rape (Shapiro, 1989b; Wolpe & Abrams, 1991). These anecdotal accounts document pre-treatment SUDS levels that were at an extreme of 9 to 10 and post-treatment SUDS levels at 0 to 1. Moreover, the case studies that report follow-up data indicate continued symptom remission ranging from 1 week to 1 year. Cocco and Sharpe (1993) reported successful treatment of PTSD in a boy who was 4 years, 9 months of age. The authors implemented alternating auditory stimuli rather than visual tracking, and after one session observed a reduction in nightmares and enuresis, among many other behavioural symptoms.

One commonality among many of the uncontrolled case study reports is that the actual number of traumatic events for each participant is generally low. Many participants suffered only one specific incident, i.e. one sexual assault, car accident, or industrial accident. This is an important observation because the extent of traumata over time could influence the effectiveness of EMDR. Shapiro (1995) stated that a single uncomplicated trauma can be treated in one to three sessions, while a history of multiple traumas can require many more sessions to treat.

One case study, Vaughan, Wiese, et al. (1994), employed objective outcome measures specifically based on symptoms of PTSD. The two measures used were the Structured Interview for PTSD and the Hamilton Rating Scale for Depression. This case study described the treatment of ten clients who met the diagnostic criteria for PTSD. The conclusion from these case studies was that clients experienced improvement in several categories of symptoms: re-experiencing; avoidance; and hyperarousal. In eight of the ten cases, Vaughan, Wiese, et al. (1994) reported that external validation of the positive effect of EMDR treatment was obtained from family members and five professionals (two psychologists and three psychiatrists).

Some researchers attempted to objectify outcomes by using standardized measures (Kleinknecht & Morgan, 1991; Vaughan, Wiese, et al., 1994). However, all of the remaining case studies relied exclusively on client self-report. However, there are numerous objective measures which should have been utilized to further substantiate client's self-report. Examples include paper and pencil inventories, physiological measurements that correlate with anxiety, and behavioural descriptions from collaterals of clients.

In all of the above cases, the primary investigators implemented the treatment. It is possible that an expectancy effect contributed at least partially to the remarkable results (i.e. the primary investigator could have inadvertently exaggerated the therapeutic benefits to the clients). Another possible influence could have been the clients' sensitivity to demand characteristics and their willingness to fully cooperate and endorse a procedure to validate the therapist.

Critics have observed (Lohr et al., 1992; Acierno, Hersen, et al., 1994) that many clients in the case studies had already been exposed to other treatment approaches which had failed. Lohr et al. (1992) argue that the patients' history of previous treatments makes it difficult, at best, to establish a clear causal relationship between the treatment and symptom reduction. Additionally, if the case study itself occurred over an extended period of time, there was no control for random events which could simultaneously impact upon the treatment. Positive outcomes could alternatively be attributed to the EMDR refreshing the patients' gains from previous therapy, reinforcing coping strategies they had learned.

To summarize, all of the anecdotal case studies published to date have appeared to strongly support Shapiro's findings of significant treatment effect using EMDR. However, critical methodological problems have rendered case study outcomes to be questionable in terms of validity and reliability. The methodological problems identified thus far include possible bias introduced by the primary investigator administering the treatment, lack of control for possible confounding variables, and poorly identified outcome measures. In other words, these shortcomings in the research methods raise doubts about attributing positive client response specifically to the EMDR, because so many uncontrolled factors may have contaminated the research process.

Controlled Group Studies and Controlled Case Studies

A growing number of controlled studies have recently appeared in the behavioural literature. Under more rigorous experimental control, some authors of case studies have found no significant effect for EMDR (Acierno, Tremont, Last, & Montgomery, 1994; Lohr, Tolin, & Kleinknecht, 1995; Muris & Merckelbach, 1995). Lohr et al. (1995) used a multiple baseline design across images and days of treatment to treat two participants with injection and needle phobias. Both participants demonstrated reduction in SUDS and on measures of medical fears at the conclusion of treatment, but anxiety symptoms had returned at the 6-month follow up. Carlson, Chemtob, Rusnak, and Hedlund (1996) conducted a controlled single subject design using four Vietnam veterans as participants. Three of the four participants characterized the outcome as a substantial improvement in their PTSD symptoms. The standardized measures of their symptoms reflected the self-reported improvement; however, physiological measures such as heart rate, skin conductance, and skin temperature showed no significant change over time. Similarly, when Muris and Merckelbach (1995) implemented EMDR with two clients who were spider phobic, the clients reported symptom reduction after EMDR, although the clients continued to behaviourally avoid spiders until *in vivo* exposure sessions (not part of the EMDR protocol) had occurred.

There have also been a number of controlled group studies that fail to support the utility of EMDR (Bauman & Melnyk, 1994; Dunn, Schwartz, Hatfield & Wiegele, 1996; Pitman , Or, Alumna, Longer, Pore, & Macmillan, 1996; Sanderson & Carpenter, 1992; Tallis & Smith, 1994). Bauman and Melnyk (1994) examined EMDR in comparison to another treatment condition (finger taps at alternate ears) for effectiveness in reducing test anxiety. The treatment groups demonstrated comparable SUDS reduction; there was no evidence of EMDR as a superior treatment approach. Pitman et al. (1996) controlled for eye movement by comparing EMDR to an eyes-fixed control group. Following treatment, there were modest reductions in some dependent measures (Impact of Event scores reduced on Intrusion subscale, reduction on Symptom Checklist-90-Revised) in the treatment group. However, the authors did not consider the magnitude of change in post-treatment dependent measures to be significant. Tallis and Smith (1994) investigated the rate of eye movement as the primary independent variable, with treatment groups consisting of rapid eye movement, slow eye movement, and stationary image (no eye movement). The rapid eye movement treatment condition used eye movement at the rate of two eye movements per second (the speed prescribed by Shapiro, 1989a), while the slow eye movement treatment used eye movement at the rate of one eye movement per second. Participants were not patients with a history of trauma; instead, they were community volunteers who were exposed to aversive electronic sounds and a photograph of a mutilated corpse. Treatment groups were compared on facilitation of emotional processing. The slow eye movement and stationary image groups both demonstrated greater SUDS reduction than did the rapid eye movement group. It is possible that the aversive stimuli in this study did not sufficiently induce the neurological conditions that are presumed to be present in a true psychological trauma to accurately generate EMDR treatment effects.

Three studies (Foley & Spates, 1995; Sanderson & Carpenter, 1992; Vaughn, Armstrong, Gold, O'Connor, Jenneke, & Tarrier, 1994) compared EMDR to another form of exposure: image confrontation without eye movement. Although treatment groups consistently showed significant improvement over wait list controls, EMDR did not emerge as being a superior treatment over other types of exposure.

In contrast to the non-supportive data, there has been an increasing number of controlled group (Boudewyns, Stwertka, Hyer, Albrecht, & Sperr, 1993; Gosselin & Matthews, 1995; Hekmat, Groth, & Rogers, 1994; Jensen, 1994; Marquis, 1991; Oswalt, Anderson, Hagstrom, & Berkowitz, 1993; Sanderson & Carpenter, 1992; Silver, Brooks, & Obenchain, 1995; Wilson, Becker, & Tinker, 1995; Wilson, Silver, Covi, & Foster, 1996) and case studies (Forbes, Creamer, & Rycroft, 1994; Goldstein & Feske, 1994; Kleinknecht, 1993; Montgomery & Allyon, 1994a, 1994b) that have clearly supported EMDR as an effective treatment technique for symptoms of anxiety and/or PTSD. The group studies have not generally yielded the magnitude of SUDS reduction among participants that anecdotal case studies typically cite. For example, Boudewyns et al. (1993) conducted a pilot study comparing EMDR to exposure control among Vietnam veterans, using multiple dependent measures that included paper and pencil self-report, psychophysiological data, and SUDS. At post-treatment, the only significant difference between treatment conditions was observed in the significant SUDS reductions; nonetheless, the authors suggested that EMDR was a potentially effective treatment approach. Hekmat et al. (1994) used a non-clinical population, comparing students in three treatment conditions to investigate efficacy of EMDR with and without music, to increase pain threshold, pain tolerance, and pain endurance. The painful stimulus to which participants were exposed was hand immersion in ice water. The EMDR group demonstrated a significant increase in pain threshold, while pain tolerance and pain endurance were increased more in both eye movement groups than in the control group. Wilson et al. (1995) recruited community volunteer participants who endorsed memory of trauma to compare a treatment group to a delayed treatment group. A particular strength of this study was the increased control of variables not previously identified, such as demographics, nature of the trauma, duration of the traumatic memory, and status of the participant in therapy.

Group studies have used a variety of control treatment conditions for comparison to EMDR in symptom reduction. The treatment conditions to which EMDR has been compared include fixed visual attention (Dunn et al., 1996; Renfrey & Spates, 1994), no manipulation of eye movement (Montgomery et al, 1994a, 1994b), exposure control (Boudewyns et al., 1993), finger tapping (Bauman & Melnyk, 1994), auditory tones (Foley & Spates, 1995); relaxation, or wait list control (Vaughan, Armstrong, et al., 1994; Wilson et al., 1995). EMDR was found, in some of these comparisons, to be superior to control conditions (Boudewyns et al., 1993; Wilson et al., 1995). In other comparisons, EMDR was somewhat effective but the participant's symptom reduction was not necessarily any better than comparison treatments (Bauman & Melnyk, 1994; Dunn et al., 1996; Foley & Spates, 1994). In these non-conclusive studies, authors concluded that perhaps the most salient component of the EMDR protocol is something other than the eye movement. There is clearly wide variability in the types of comparison conditions, including comparison treatment conditions and comparison control conditions, which complicates the task of identifying trends in the research results. DeBell and Jones (1997) state that there is a need for standardized control groups, because the inconsistency in control groups between studies further complicates attempts to draw meaningful comparisons between the treatment and no-treatment groups.

Several authors (Acierno et al., 1994; Greenwald, 1994; Herbert & Mueser, 1992; Lohr et al., 1992) have observed that the outcome data generated from the group studies, like the case studies, have been based on exclusive use of client self report as the outcome measure. Some authors (DeBell & Jones, 1997) have argued that objective measures of positive change are most desirable, and offer as examples the Impact of Events Scale PTSD, the Mississippi Scale for Combat-Related PTSD, and the Beck Depression Inventory . Further, given that the DSM-IV (American Psychiatric Association, 1994) identifies physiological components of anxiety disorders which include elevated heart rate, rapid breathing, and muscle tension, optimal experimental procedure would include pre- and post- EMDR treatment measures of these psychophysiological variables in order to accurately state that the anxiety condition has truly been reduced. There have been a number of controlled, single subject designs in which multiple psychophysiological measurements have been used (Kleinknecht, 1993; Lohr, Tolin, & Kleinknect, 1995; Montgomery & Allyon, 1994a, 1994b). The results have consistently indicated moderate to no change in heart rate and blood pressure, despite participants' reports of reduced distress in response to the traumatic imagery. One group study to date (Wilson et al., 1996) specifically addressed a number of questions about autonomic functioning that had been raised by the previous research. The study included comparison of no eye movement to eye movement or finger tapping, assessment of autonomic activity throughout the application of the EMDR procedure, evaluating the effectiveness of EMDR for clients with a single trauma memory, and assessment of the correlation between SUDS and autonomic activity. The investigators found significant symptom reduction in the eye movement group, and the participants in the two control groups also demonstrated autonomic and behavioural indications of symptom reduction when they were administered the EMDR treatment. Wilson et al. (1996) concluded that the eye movements are more effective than either exposure alone or exposure with another competing stimulus, such as finger tapping.

Synthesis of Empirical Findings and the Essence of the Controversy

Critics (Herbert & Mueser, 1992) have observed that, in the earlier group studies, participants did not necessarily meet the full DSM-IV diagnostic criteria for PTSD. As well, some studies used non-clinical populations with contrived stressors (such as immersion of a hand in ice water or exposure to a photo of a corpse) to evaluate efficacy on aspects of emotional functioning such as increased pain tolerance and speed of emotional processing. This brings into question the nature of the client population that benefits from EMDR.

Some authors (Greenwald, 1996; Shapiro, 1995) have criticized some of the non-supportive group studies (Pitman et al., 1993; Sanderson & Carpenter, 1992; Tallis & Smith, 1994) on a number of levels. The criticisms, which, according to Shapiro (1995), could account for the non-supportive results, have included lack of EMDR training among clinicians administering the treatment, lack of conformity in application of the procedure, and use of outcome measures that do not accurately reflect successful treatment results.

The literature is replete with studies supporting EMDR, refuting the efficacy of EMDR, and criticizing the research on either side of the debate. Consumers of research findings are faced with discrepant results between the controlled studies' moderate success for EMDR with respect to symptom reduction and the contrasting anecdotal case studies. There are more studies that suggest significant efficacy than there are studies that suggest no treatment effect of EMDR. How can such multiple disparate research findings be synthesized into cohesive conclusions?

One apparent pattern among several controlled studies is that while participants report a reduction in self-reported discomfort, this SUDS reduction does not necessarily carry over to the psychophysiological correlates of anxiety (Boudewyns et al., 1993; Lohr, Tolin & Kleinknecht, 1995; Montgomery & Allyon, 1994a, 1994b). The one exception to this statement is Wilson et al. (1996), who did identify a relationship between autonomic variables and SUDS throughout all phases of the EMDR application. There is clearly a need for further investigation on the relationship between SUDS and behavioural reports, and SUDS and autonomic activity, to determine whether the results from Wilson et al. (1996) can be replicated.

Perhaps the studies isolating eye movement have not been successful because eye movement is not the critical variable. A number of researchers have concluded, based on their data, that eye movement is not an essential factor in symptom reduction (Bauman & Melnyk, 1994; Dunn et al., 1996; Foley & Spates, 1995; Renfrey & Spates, 1994). Some authors (Dyck, 1993; Otto, Penava, Pollack, & Smoller, 1996) proposed that the curative aspect of the EMDR procedure is related to the distracting or engaging quality of the stimulation. Perhaps the most salient sensory memories of the trauma are most responsive to re-conditioning if the distracter is presented in the same sensory modality as the most intense and disturbing aspect of the memory. In addition to these issues, there is now some evidence that alternative forms of stimulation (i.e. finger taps) produce the same treatment effect as EMDR. This would suggest that the essential component of EMDR contributing to its' efficacy is some variable other than rapid eye movement.

Future Directions For Research

In light of the accumulated knowledge base, there are several directions for future research. Resolution of the conflicting evidence through some larger-scale, more definitive research is clearly needed. While SUDS reductions are certainly desirable, for the purposes of empirical investigation, more objective data are needed.

If a client truly has internalized symptom reduction and therapeutic change, one would expect corresponding physiological and behavioural changes. In addition to pre- and post-treatment paper and pencil measures of anxiety symptoms, researchers need to look at pre- and post-treatment behavioural descriptions of PTSD-related behaviour, e.g., frequency of nightmares, frequency and extent of social interaction, and behavioural ratings by collaterals.

The possibility exists that SUDS correlates with some unidentified variable that accounts for the strongly supportive case study results. One hypothesis is that EMDR may elicit differential treatment effects based on idiosyncratic client variables that have yet to be identified. More centrally, there needs to be investigation of the theoretical basis on which the efficacy data has been interpreted. The Accelerated Information Processing model is plausible in light of its grounding in other empirically based theories of neurological functioning. However, there is a need for more research to understand the neurological mechanisms. Given the contradictory results on efficacy, it would be helpful to investigate the theoretical underpinnings of EMDR as a critical adjunct to the efficacy research. One possible method, for example, would be to conduct Positron Emission Tomography (PET) scans in clients who are trauma victims pre- and post- EMDR, and pre- and post- other types of exposure treatment. PET scans are used to show which parts of the brain are emitting the most electrochemical activity. If EMDR does, in fact, facilitate development of alternative neural pathways, a PET scan could yield compelling evidence.

Competing theories also need to be investigated. Dyck's (1993) conditioning model has some compelling features. Like Shapiro's AIP model (1995), there is a strong empirical foundation upon which the conditioning model rests. Dyck (1993) offers some parameters for future investigations that would enable the conditioning model to be tested. Such research would involve: quantifying/assessing the distraction level of the clinician's finger movement, comparison of alternative distracters that are different in nature but similar in degree of distraction, and comparison of all distracters in treatment of PTSD. Two studies (Bauman & Melnyk, 1994; Renfrey & Spates, 1994) have already yielded results that would be consistent with the conditioning model.

Researchers might also consider further investigating the Waters (1997) theory of resolute perception as the curative aspect of EMDR.

This theory holds that the client's resolution to sustain mental focus on the traumatic memory is the essential ingredient in resolution of negative affect, and that the eye movement is extraneous. To investigate this theory, a researcher would compare groups using a variety of distracting activities, for example EMDR versus scribbling repeated circles on a page, versus marching in place.

A question that readily arises as one peruses the information about EMDR is, why such a controversy? Are all techniques and theories, as they become integrated to the field of counselling and psychotherapy, met with such strongly favourable and unfavourable reactions? There are some mitigating factors that have been present in the case of EMDR that may have contributed to the debate.

Following Shapiro's pioneering studies, the EMDR training workshops were available only to licensed or certified mental health professionals until 1995, when *Eye Movement Desensitization and Reprocessing: Basic Principles, Protocols, and Procedures* (Shapiro, 1995) was published. This raised a question about the ethics of offering a seminar, for which tuition was being charged, as the only arena in which the specifics of the technique were being made available to other clinicians and researchers. The rationale for such limited access was that it was a potentially harmful technique and that clinicians should only attempt to use it if they had been properly trained. However, some authors (Baer, Hurley, Minichiello, Ott, Penzell, & Ricciardi, 1992) viewed this as unprofessional because it hampered the ability of other researchers to replicate or disprove Shapiro's original findings.

Nonetheless, some of the earlier authors (e.g. Acierno, Tremont, et al., 1994) did not participate in the EMDR training. Consequently, some of the criticisms that were made by the authors who were untrained in the EMDR technique were actually erroneous. This unfortunate state of affairs has been referred to as an "information gap" (Greenwald, 1996) and "errors of context" (Shapiro, 1996). Additionally, Shapiro (1996) cites numerous examples in which investigators were at least partially trained in the EMDR procedure, yet deviated from the prescribed protocol (Jensen, 1994; Lohr, et al., 1995). The subsequent conclusion that EMDR was not effective, then, was premature because there was not sufficient treatment fidelity, meaning adherence to the procedure as it is specifically prescribed. Treatment fidelity, in the case of EMDR, is a critical issue to which researchers must carefully attend if their data are to be sufficiently valid to warrant comparison to other studies (Greenwald, 1996; Shapiro, 1996; Van Ommeren, 1996).

Another possible reason for ambivalent reactions in the literature to EMDR lies in the fact that PTSD constitutes a disorder for which clients may be in treatment for many years. When a researcher/clinician presents other mental health professionals with a treatment protocol for

PTSD that purports successful and complete treatment in a few sessions, those therapists are presented with information that may be quite divergent from their previously held expectations that the likely course of treatment for PTSD is lengthy. This dissonance might stem from typical individual or organizational resistance to change, an adherence to a preferred theoretical orientation that does not recognize a rapid cure as valid, or a preference to maintain previously established financial arrangements (Levin, Shapiro, & Weakland, 1996).

Yet another variable that may contribute to the controversy is a lack of understanding about the theoretical basis of EMDR. Van Etten and Taylor (1997) observed that elucidation of the change mechanism in EMDR is critical for professional acceptance of the technique, stating, "Without such clarification, the acceptability of EMDR within the professional community is likely to remain controversial" (p. 24). There is much yet to be learned about neurological mechanisms. As the body of well-designed studies continues to grow, and studies focusing on neurological aspects of response to EMDR begin to accumulate, this controversy may be resolved.

Implications for Counsellors and Counsellor Trainees

What are the implications of EMDR research for counsellors in practice or training? It could be argued that since the prevalence of PTSD in the general population is quite low, efficacy of different treatment approaches is a clinical issue with which most counsellors need not be concerned. For example, one study estimated that only 5 men and 13 women out of 1000 people met criteria for PTSD at any point in their lifetime (Helzer, Robins, & McEvoy, 1987). Among *psychiatric* patients, on the other hand, the prevalence has been cited as high as 9.2% in young adult clients (Breslau, Davis, Andreski, & Peterson, 1991). Furthermore, many clients admit to a history of sexual abuse resulting in residual symptoms even though those symptoms do not necessarily constitute a diagnosable post-traumatic stress disorder. Beyond the possible history of sexual abuse, many clients present with some painful memories, to which their cognitions and imagery often return, regardless of whether this process represents a Post-Traumatic Stress condition. If use of the EMDR technique results in symptom reduction, perhaps symptom relief should take precedence over physiologic or diagnostic considerations. Counsellors are trained to enter the client's world, and take the client's self-report as a central piece of feedback about the efficacy of the counselling intervention. From this vantage point, perhaps clients' self-reported SUDS reduction is ample justification to use the EMDR technique despite the criticisms. Shapiro (1995) made the observation that, for decades before the curative mechanism of penicilllin was understood, the drug was used, because it worked. If a client is presented with EMDR as a treatment option, however, informed consent as to the status of EMDR as "probably efficacious" (APA Division 12 Task Force, 1998) will be especially important. Clients must understand that the results the EMDR research have been variable. Positive treatment effects could be temporary, a consideration that has ethical implications when the client is paying to undergo EMDR treatment.

Given that symptoms of past trauma can cause significant emotional discomfort, it is advisable for clinicians to be aware of *all* the treatment options and the degree to which each of those techniques have met with success. The scientist/practitioner model of counselling dictates that the first line of attack in treating PTSD be implementation of techniques which empirical data have proven effective (e.g. flooding or other exposure techniques). However, if the more established techniques do *not* alleviate symptoms, a counsellor can attempt EMDR, even though it is still in the stages of being conclusively shown to be effective (Herbert & Mueser, 1992).

The APA's Division 12 Task Force on Psychological Interventions published an annual report on the psychosocial interventions that have appeared in the professional literature with clear empirical support (Chambless et al., 1998). The Task Force has clear specific guidelines in defining "well established" treatments for particular disorders as well as "probably efficacious" treatments. EMDR is identified by the Task Force as a probably efficacious treatment for civilian PTSD. Van Etten and Taylor (1997) conducted a meta-analysis of PTSD treatment strategies and found behaviour therapy and EMDR to be the most effective psychological treatment strategies for PTSD.

Prospective users of EMDR must also be aware, however, of precautions that should be taken prior to embarking on an EMDR course of treatment. The EMDR Dissociative Disorders Task Force (Shapiro, 1995) delineated multiple client characteristics that should be present before using EMDR with a client who has a dissociative disorder. Those characteristics include "(1) good affect tolerance; (2) a stable life environment; (3) willingness to undergo temporary discomfort for long-term relief; (4) good ego strength; (5) adequate social support and other resources; (6) history of treatment compliance" (pg. 367). This author would argue that such client characteristics are conducive to optimal treatment response regardless of what the technique or disorder happens to be. If a client has an unstable life environment or poor ego strength, a clinician would generally be well advised to proceed with treatment slowly before introducing a treatment procedure such as EMDR that, in the short term can be emotionally intense and perhaps stressful. Other contraindications for use of EMDR include numerous physical conditions such as cardiac problems, pregnancy, and ocular problems—the former two because of the heightened emotional state clients experience during the procedure.

Other authors have identified areas for caution and concern in applying EMDR. Young (1994) suggests possible negative sequelae of an EMDR treatment procedure to include premature flooding (e.g., intense exposure to anxiety provoking stimuli without the benefit of having learned adaptive coping strategies), and increased intensity or frequency of angry impulses. This would be of particular concern if the client has potential to be abusive toward significant others, including children, in his or her environment. Therefore, clients with a history of violent behaviour are not good candidates for EMDR. DeBell and Jones (1997), after a careful analysis of seven EMDR treatment experiments, recommend the following: cautiously proceeding with EMDR as a treatment strategy only after undergoing training and supervision; using EMDR primarily with clients with mild phobias and/or moderately traumatic memories; and not using EMDR to treat PTSD.

The Canadian Guidance and Counselling Guidelines for Ethical Behaviour (CGCA, 1989) state, "The counsellee should be INFORMED OF COUNSELLING CONDITIONS at or before the time the counsellee enters such a relationship." In the case of EMDR, then, a counsellor would need to discuss with the client the experimental and controversial nature of the EMDR procedure, including advantages and disadvantages of using the technique, and the possible temporary nature of symptom relief, prior to obtaining the client's consent to treatment. Some authors (Welfel, 1998) suggest that an integral part of informed consent includes advising clients of all the treatment options that are available for their particular presenting problem. In regard to PTSD and symptoms secondary to trauma, recent authors (Friedman, 1996; McFarlane, 1994) have offered overviews of the disorder, including paradigms for conceptualization of PTSD and overviews of therapeutic approaches. Counsellors are ethically bound to suggest alternative treatments if the approach they are attempting is not benefiting the client. Shapiro (1996) observed that despite emergence of PTSD as a diagnostic category in the DSM-III in 1980, over the subsequent 13 years there were only six controlled studies that did not focus on psychopharmacological interventions. Currently documented treatment approaches to PTSD include hypnotherapy (Foa & Meadows, 1997), psychoanalysis (Foa & Meadows, 1997; Friedman, 1996), cognitive-behavioural therapy (Foa & Meadows, 1997; Friedman, 1996), pharmacotherapy (Otto, Penava, Pollack, & Smoller, 1996), group and family therapy (Friedman, 1996) and in-patient therapy (Friedman, 1996). Among the cognitive behavioural treatment strategies, the most efficacious appear to be exposure therapies and stress inoculation (Foa, Rothbaum & Molnar, 1995; Shapiro, 1996). Of note is that Foa et al. (1995) cite stress inoculation as one of a constellation of techniques that fall into the broad category of Anxiety Management Training.

Prior to publication of *Eye Movement Desensitization and Reprocessing: Basic Principles, Protocols, and Procedures* (Shapiro, 1995), Shapiro's workshops were open only to certified or licensed professionals. However, with the book now available, the possibility exists that counsellors emerging from their training programs will want to add this technique to their repertoire of skills. Readers interested in learning how to use EMDR are strongly advised by Shapiro (1995) to learn under the supervision of an appropriate licensed professional who has been formally trained in its application.

It is also quite possible that counselling students might encounter clients who have presenting symptoms such as traumatic memories or symptoms of anxiety, either in practicum and internship placement, or after they complete their training and are working in the field. In my experience as a clinician in a community mental health center, there were occasionally clients who would call for an appointment and specifically request a counsellor who had training in EMDR. With this in mind, counsellors in training need to be apprised of treatment approach options for a variety of symptoms and emotional disorders. Awareness of the EMDR debate is important from the standpoint of providing a client with information about treatment options, as part of the informed consent process.

There is clearly a need for continued investigation of this innovative new technique. A myriad of possibilities exists with regard to differential treatment effects, specific symptom configurations that respond to EMDR, and clear identification of the curative component of treatment. As the research process continues, EMDR might evolve into a very significant contribution in the field of counselling and psychotherapy. Counsellors will find it helpful to be apprised of the EMDR technique and potential movement in the field. It may spark interest for research, and it also will equip counsellors to respond to clients' needs for informed consent with the broadest range of information possible.

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