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EMDR and the Anxiety Disorders: Exploring the Current Status

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Based on the assumptions of Shapiro's adaptive information-processing model, it could be argued that a large proportion of people suffering from an anxiety disorder would benefit from eye movement desensitization and reprocessing (EMDR). This article provides an overview of the current empirical evidence on the application of EMDR for the anxiety disorders spectrum other than posttraumatic stress disorder (PTSD). Reviewing the existing literature, it is disappointing to find that 20 years after its introduction, support for the efficacy of EMDR for other conditions than PTSD is still scarce. Randomized outcome research is limited to panic disorder with agoraphobia and spider phobia. The results suggest that EMDR is generally more effective than no-treatment control conditions or nonspecific interventions but less effective than existing evidence-based (i.e., exposure-based) interventions. However, since these studies were based on incomplete protocols and limited treatment courses, questions about the relative efficacy of EMDR for the treatment of anxiety disorders remain largely unanswered.

Keywords: eye movement desensitization and reprocessing (EMDR); anxiety disorders; specific phobia; panic disorder

The past three decades have witnessed significant advances and growth in research on anxiety disorders (Boschen, 2008). Growth has been strong for its treatment for which a wide array of behavioral and cognitive interventions have been proposed and investigated. With regard to the effectiveness of these procedures, the results of a recent comprehensive meta-analysis demonstrated not only that cognitive behavioral interventions are particularly efficacious but also that there are marked differences in treatment responsiveness among the different types of anxiety disorders (Hofmann & Smits, 2008). Treatment effects appear particularly large for acute stress disorder (ASD) and obsessive-compulsive disorders (OCDs) but are less strong for panic disorder and generalized anxiety disorder (GAD). The authors conclude that there is still considerable room for improvement in the treatment of anxiety disorders (Hofmann & Smits, 2008).

At the end of the 1980s, the first publications of a newly developed method, eye movement desensitization and reprocessing (EMDR), emerged. This began with Shapiro's (1989) study on the effects of EMDR on a single traumatic memory. After its publication, it took years before the first randomized clinical trial was published that supported the notion that EMDR was capable of treating full-blown posttraumatic stress disorder (PTSD) within a limited number of sessions (Wilson, Becker, & Tinker, 1995). In the years thereafter, many other studies followed, and now, 20 years after the first EMDR publication, there is enough evidence to conclude that the method is an established, time-limited treatment for PTSD (Bisson et al., 2007).

Based on the notion that EMDR is capable of resolving disturbing memories of traumatic events that are critical in the development and maintenance of PTSD, it could be asserted that other types of anxiety disorders that developed following a distressing event

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would also be responsive to EMDR. This notion is at the basis of Shapiro's adaptive information-processing (AIP) model, a framework that is considered to be helpful to therapists when developing a problem formulation in terms of a relationship between memories of disturbing events and clients' current anxiety symptoms and the use of EMDR for resolving these memories (Solomon & Shapiro, 2008). Indeed, since the development of EMDR, a large number of articles have appeared, suggesting a positive effect of EMDR on the symptoms of individuals suffering from various anxiety-related conditions. Because anxiety symptoms are common in patients who use primary and secondary mental health services, it is important to evaluate the potential of EMDR as a contribution to the treatment of anxiety disorders.

This article provides an overview of the current empirical evidence on the application of EMDR for anxiety disorders beyond the typical traumatically induced conditions like PTSD and ASD. First, the key symptoms of each condition within the spectrum of anxiety disorders (i.e., panic disorder with and without agoraphobia, social phobia, specific phobia, OCD, and GAD) are initially reviewed, as are the assumptions as to why this condition may be suitable for the application of EMDR. Next, the available research is summarized. Finally, some general conclusions are drawn.

Panic Disorder With or Without Agoraphobia

The central clinical features of panic disorder are the panic attacks, the associated feelings of losing control, and the fact that these are recurrent (American Psychiatric Association, 2000). Many panic patients suffer from agoraphobia, as they tend to avoid situations from which escape might be difficult or in which help may not be available in the event of having a panic attack (e.g., being outside the home alone).

Strictly speaking, there is no indication for EMDR in the treatment of panic disorder because there are already evidence-based psychological interventions available with cognitive-behavioral therapy being the most important. A number of treatment approaches have been established in controlled trials as being effective, including exposure treatment, reduction of avoidance, and cognitive treatments focusing on the modification of panic attacks (National Institute for Clinical Excellence, 2004). However, the long-term outcome of these studies appears to be limited, and the vast majority of panic disorder patients need prolonged additional treatment (van Balkom, de Beurs, Koele, Lange, & van Dyck, 1996).

From a theoretical point of view, EMDR could play a role in the treatment of panic disorder, as there are indications that panic disorder and agoraphobia often start after a stressful life event (Kleiner & Marshall, 1987). In addition, there is evidence to suggest that many panic patients suffer from PTSD-like symptoms as a result of their first panic attack (McNally & Lukach, 1992).

Beside incidental reports of therapists suggesting that EMDR can be successfully applied to panic disorder with agoraphobia (de Jongh & ten Broeke, 1996; Fernandez & Faretta, 2007), not many studies have been published, and those that have been conducted were carried out by the same research group (Feske & Goldstein, 1997; Goldstein, de Beurs, Chambless, & Wilson, 2001; Goldstein & Feske, 1994). Their first publication that concerned a series of seven persons diagnosed with panic disorder yielded promising results (Goldstein & Feske, 1994). It was found that most patients benefited significantly from EMDR, with reductions in number of panic attacks, severity of anticipatory anxiety, and occurrence of general symptoms of distress. In a subsequent randomized controlled study of the same researchers using a similar treatment protocol, the effectiveness of EMDR was compared with a protocol in which the eye movements were omitted and a wait-list condition (Feske & Goldstein, 1997; see Table 1). EMDR appeared to be more effective than both no-treatment and an EMDR protocol, in which the eye movements were lacking, on a number of self-report measures. However, at the 3-month follow-up, these differences could not be maintained. Four years later, the same research group published another randomized clinical trial for panic disorder with agoraphobia (Goldstein et al., 2001) in which the effectiveness of EMDR was compared with a relaxation condition used as an attention-placebo control condition (association and relaxation therapy [ART]). The use of ART in this study appeared to be very similar to EMDR with the exception of EMDR's distraction/bilateral stimulation component. Patients in the ART condition received 30 to 45 minutes of progressive muscle relaxation training, after which they were asked to describe the scene of their most frightening panic-related memory in detail, to close their eyes, and to speak out loud as they followed themselves to associate to this image ("let come up whatever comes up") for about 45 to 60 minutes of association. As to the results, it appeared that the clients in the EMDR condition did not fare better on any of the measures than those who were asked to just associate on the target memory. Conversely, EMDR appeared to be significantly superior to the wait-list

TABLE 1. Randomized Clinical Trials Pertaining to EMDR's Effectiveness on the Area of Anxiety Disorders

Authors	Year	Treatment (*n*)	Sample Characteristics	No. (and duration of sessions in minutes)	Outcome Variables	Effects
			Panic Disorder With Agoraphobia			
Feske and Goldstein	1997	1. EMDR (15) 2. Wait list (12) and 3. EMDR (18) 4. EMDR with eye movements omitted (18)	Panic disorder with almost all having agoraphobia	1, 3, 4: five[a] (one 120-minute and four 90-minute sessions)	a. Social concerns and general anxiety b. Anticipated panic and coping c. Physical concerns d. General anxiety and fear of panic e. Panic frequency f. Variety of secondary measures	1 > 2 (a–f) 3 > 4 (b, d, f) 3-month follow-up: 1 = 2 3 = 4
Goldstein, de Beurs, Chambless, and Wilson	2001	1. EMDR (18) 2. Attention-placebo, ART (13) 3. Wait list (14)	Outpatients applying for treatment; panic disorder with agoraphobia (based on Structured Clinical Interview for DSM Disorders)	1–2: four (90-minute sessions)	a. Panic/agoraphobia severity b. Diary c. Frequency of anxious cognitions d. Frequency of panic attacks	1 = 2 (a–d) 1 > 3 (a–b) 1 = 3 (c–d) Same results for 1-month follow-up
			Specific Phobia			
Muris and Merckelbach	1997	1. EMDR (8) 2. Imaginal exposure (8) 3. No-treatment control group (8) 4. All conditions were followed with in vivo exposure	Spider-phobic adults	1–3: one (60 minutes) 4: one (150 minutes)	a. Spider fear b. Approach behavior	1 > 2 (a) 1 = 2 (b) 4 > 1–3 After 4, all groups improved to an equal level (a, b)
Muris, Merckelbach, van Haaften, and Mayer	1997	1. EMDR (11) 2. In vivo exposure (11)	Spider-phobic children	1–2: one (90 minutes)	a. Spider fear b. Approach behavior c. Skin conductance	1 = 2 (a, c) 2 > 1 (b)
Muris, Merckelbach, Holdrinet, and Sijsenaar	1998	1. EMDR (9) 2. In vivo exposure (9) 3. Computerized exposure (8) 4. All conditions were followed with in vivo exposure	Spider-phobic children	1–3: one (150 minutes) 4: one (90 minutes)	a. Spider fear b. State anxiety during confrontation with spider c. Approach behavior	1 > 3 (b) 2 > 1 (a–c) After 4, all groups improved to an equal level (a–c)

[a]The treatment consisted of six sessions but included one session involving history taking.

condition on panic and agoraphobia severity, albeit no significant change was apparent on cognitive measures or on panic attack frequency.

It has been argued that a longer course of preparation (i.e., affect regulation) may have led to a better outcome (Shapiro, 1999). This notion is supported by a case described by Fernandez and Faretta (2007), who treated a woman with panic disorder and agoraphobia and used a preparation phase of six sessions prior to EMDR treatment, which lasted 15 sessions. Their approach led to complete remission of symptoms and maintenance of positive behavioral changes at 1-year follow-up.

Social Phobia

Social phobia, also known as social anxiety disorder, involves intense fear and avoidance of situations that are unfamiliar to the person and whereby he or she expects to be watched, evaluated, scrutinized, or embarrassed by others (American Psychiatric Association, 2000).

As is the case for all anxiety disorders, for social anxiety there are treatment approaches that have been found to be effective, particularly those with a cognitive-behavioral signature (Hofman & Smits, 2008). Although there should be good reasons to deviate from evidence-based treatment standards, EMDR could fulfill an additional role in resolving memories of past events of ridicule or rejection, particularly when these are likely to be activated when the client is confronted with a social event. Although in consultation sessions clinicians frequently report the use of EMDR as remarkably effective in cases of social phobia, such cases are rarely described and published. An exception is a case reported by Sun and Chiu (2006), who reported the successful treatment of a psychiatric outpatient with long-lasting social phobia. Unfortunately, because EMDR treatment was combined with mindfulness training, it does not support the use of EMDR as a sole treatment of social phobia.

Specific Phobia

Specific phobia is a condition highly prevalent in the general population (American Psychiatric Association, 2000) and one that amounts to an unreasonable or irrational fear related to exposure to specific objects or situations. As a result, affected persons tend to actively avoid direct contact with these stimuli.

With regard to the onset of phobias, it has been found that, like in cases of PTSD, particularly highly disruptive emotional reactions (i.e., helplessness) during an encounter with a threatening situation have the greatest potential risk of precipitating specific phobia (Oosterink, de Jongh, & Aartman, 2009). Some types of specific phobias (e.g., those involving fear of choking, road traffic accidents, and dental treatment) display remarkable commonalities with PTSD, including the reoccurrence of fearful memories of past distressing events that are triggered by the phobic situation or object but may also occur spontaneously (de Jongh, Fransen, Oosterink-Wubbe, & Aartman, 2006). To this end, it is conceivable that EMDR may be an effective treatment for specific phobias. An important advantage of using EMDR compared to exposure-based treatments is that the use of in vivo exposure for a variety of phobias (e.g., flight phobia, wasp phobia) may be difficult to carry out.

Although there are a large number of uncontrolled case studies using EMDR with specific phobias, only two controlled case reports have been published. These demonstrate positive effects on both fear and avoidance in claustrophobia and dental phobia (de Jongh, van den Oord, & ten Broeke, 2002; Lohr, Tolin, & Kleinknecht, 1996).

Recently, a cross-sectional study was conducted investigating the comparative effects of EMDR and trauma-focused cognitive-behavioral therapy (TF-CBT) among a sample of 184 people suffering from travel fear and travel phobia (de Jongh, Holmshaw, & Hodder, 2009). TF-CBT consisted of imaginal exposure added with elements of cognitive restructuring, relaxation, and anxiety management. In vivo exposure during treatment sessions was discouraged for safety and insurance reasons, but patients were expected to confront difficult situations without the therapist (e.g., returning to the scene of the accident, self-exposure to cars, or other anxiety-provoking cues). Patients were considered to have completed treatment when it was agreed that the patients' improvement had plateaued or that they were unlikely to make significant further progress in treatment. The mean treatment course was 7.3 sessions. No differences were found between both treatments. Both treatment procedures were capable of producing equally large, clinically significant decreases on measures indexing symptoms of trauma, anxiety, and depression as well as therapist ratings of treatment outcome.

Despite the potential of EMDR as a treatment of specific phobias, randomized controlled outcome research has remained limited to three studies in total. All pertained to the treatment of spider phobia and were carried out by the same research group (Muris & Merckelbach, 1997; Muris, Merckelbach, Holdrinet, & Sijsenaar, 1998; Muris, Merckelbach, van Haaften, & Mayer, 1997; for a review, see de Jongh,

ten Broeke, & Renssen, 1999; see also Table 1). In one study, 24 subjects were randomly assigned to either EMDR treatment, imaginary exposure, or a no-treatment control group (Muris & Merckelbach, 1997). Both the EMDR and the imaginary exposure group received 1 hour of treatment, while the control group waited for 1 hour. All procedures were followed by in vivo exposure. Although EMDR resulted in strong changes on the Subjective Units of Distress Scale, only the exposure group showed improvements on a measure of approach behavior. In another study, one session of EMDR was compared to one session of in vivo exposure treatment using a crossover design with spider-phobic children (Muris et al., 1997). In vivo exposure was found to be superior in reducing avoidance behavior. The third study also focused on the effectiveness of EMDR among children by comparing the effects of EMDR with those of vivo exposure and computerized exposure (Muris et al., 1998). All treatments were followed by a session of in vivo exposure. EMDR resulted in significant improvement on a measure of self-reported fear and appeared to be significantly more effective than the computerized exposure treatment. However, in vivo exposure was found to produce superior treatment results with regard to approach behavior.

OCD

OCD is characterized by recurrent obsessional ruminations, images, or impulses or recurrent physical or mental rituals that are distressing and time consuming and that cause interference with social and occupational function (American Psychiatric Association, 2000). Common obsessions relate to contamination, accidents, and religious or sexual matters; common rituals include washing, cleaning, checking, and counting.

As research shows that clients with OCD respond relatively well to cognitive-behavioral interventions (i.e., exposure and response prevention and cognitive therapy) EMDR will generally not play an important role in the treatment of OCD. However, there may be exceptions. For example, there is evidence to suggest that stressful events precipitate this disorder and that in some cases a causal link between severe trauma and the onset of OCD can be identified (see De Silva & Marks, 1999). Therefore, it could be argued that if the condition has a direct and known onset and the client's memory of that event is still emotionally charged, it may be helpful to desensitize the memory and to evaluate its effect on the client's symptomatology. However, case reports on the treatment of OCD with EMDR are sparse, and the effects reported in the literature show that EMDR has limited potential to contribute to the treatment of this condition (Bae, Kim, & Ahn, 2006; Corrigan & Jennett, 2004).

GAD

GAD is defined as excessive and uncontrollable worry about a number of different life events and accompanying somatic symptoms of anxiety, such as agitation, tiredness, trouble concentrating, irritability, muscle tension, or sleep disturbance (American Psychiatric Association, 2000). GAD is considered to be a condition that loads most highly on neuroticism and for which unique influences in terms of onset appear to be rare (Mineka, Watson, & Clark, 1998). However, there is evidence to suggest that in individual cases, the specific cognitive dynamic of GAD could be rooted in multiple disturbing experiences in a client's learning history (Roemer, Molina, Litz, & Borkovec, 1997). When it is possible to assess memories of such specific experiences, theoretically EMDR could deliver a contribution to a general cognitive-behavioral treatment plan.

The only example in this area evaluating the potential effectiveness of EMDR is a study among four clients using a multiple-baseline-across-participants design (Gauvreau & Bouchard, 2008). This study, which included 15 treatment sessions of EMDR, showed that EMDR treatment was effective in reducing worry and associated anxiety. Self-report measures and clinician-administered measures indicated that after EMDR treatment and at 2 months follow-up, all participants no longer met the diagnostic criteria of GAD, two of which were in full remission.

Discussion

Based on the assumptions of Shapiro's AIP model, it could be argued that if EMDR is capable of accelerating recovery from pathology that have arisen from disturbing life events, a large proportion of individuals suffering from an anxiety disorder may benefit from EMDR. To this end, it remains unfortunate to note that, now, 20 years after its introduction, support for EMDR's efficacy for other conditions than PTSD is still scarce. There is randomized outcome research for panic disorder and specific (i.e., spider) phobia, but for the other anxiety disorders (i.e., social phobia, OCD, and GAD), well-designed clinical trials or even less rigorous forms of outcome research are completely lacking. The results of the studies that have been conducted look promising but are certainly not convincing. It would seem that EMDR is

generally more effective than no-treatment control conditions or nonspecific interventions but less effective than existing evidence-based interventions. Regarding the treatment of spider-phobic children, for instance, one long-session EMDR has been found to be significantly more effective than computerized exposure treatment but also less effective than an in vivo exposure. Concerning panic and agoraphobia severity, EMDR appeared to be significantly more effective than a wait-list control condition, but with regard to panic attack frequency, no differences could be detected. A limitation of the studies on panic disorder is the lack of an empirically supported intervention as a control condition. Therefore, it is not clear how EMDR would compare with, for instance, a cognitive-behavioral treatment approach. An intriguing result was that with regard to treatment efficacy, EMDR and those who were asked to just associate on the target memories of earlier significant panic experiences in a relaxed state (ART condition) did equally well. However, since there is evidence that a greater reduction in physiological dearousal during confrontation with a traumatic memory is significantly associated with a positive treatment outcome (Sack, Hofman, Wizelman, & Lempa, 2008), it is questionable whether the use of ART, as applied in this study, was a credible attention-placebo control condition as was stated by the authors.

One of the explanations for the suboptimal results of the randomized clinical trials is that these studies had many limitations in terms of shortcomings in adhering to the EMDR protocol (de Jongh et al., Shapiro, 1999). These include the lack of a number of elements key to EMDR, such as the "future template" and the preparation of clients for future interactions with potentially anxiety-eliciting stimuli or situations. In addition, it is not clear whether, within the limited number of sessions, more than one target was processed and thus whether the lack of improvement could be explained by the limited amount of treatment time spent on the adequate processing of relevant memories and related affective material. To this end, treatment may have provoked chains of associations, emergence of childhood memories, and a release of painful affect that could not subsequently be processed. For example, Goldstein and Feske (1994) indicate that on some occasions following a session, patients reported an increase in stress: "Typically, this followed a session in which new and upsetting material arose near the end of a session and could not be processed during that session" (p. 360). Unfortunately, they failed to explain how they dealt with such complications in case this happened at the end of the fourth treatment session, as the occurrence of emotionally laden memories may have exerted negative effects on patients' functioning after therapy. In addition, it is difficult to understand why a treatment course as short as four sessions in total was chosen, as Feske and Goldstein themselves stated that even 10 to 16 sessions of the most powerful treatments rarely result in positive outcomes in cases where panic disorder is complicated with agoraphobia (Feske & Goldstein, 1997). Indeed, according to the international guidelines on the treatment of panic disorder, a typical treatment course of panic disorder should consist of approximately 16 to 20 hours and include supervised "homework" sessions lasting approximately 4 months (National Institute for Clinical Excellence, 2004).

A more general question is why EMDR proponents have not been able to demonstrate the additional value of EMDR over and above alternative (i.e., cognitive-behavioral) treatment approaches. It would certainly come as no surprise if the disappointing results of the controlled outcome research have led many people (including grant providers) to believe that EMDR has no additional value in the treatment of anxiety disorders. The question is whether the latter is true. For example, when considering the literature on specific phobia, it is surprising to note that while in vivo exposure generally is considered to be the treatment of choice for specific phobia, empirical evidence on the long-term outcome is weaker than many of us believe (Choy, Fyer, & Lipsitz, 2007). Of the total of 14 controlled studies that have been carried out, only eight included a control condition, and these addressed only a very limited array of phobia subtypes (i.e., animal phobia, water phobia, height phobia, flying phobia, and claustrophobia; Choy et al., 2007). While some types of phobia have proven to be remarkably responsive to a primarily cognitive-behavioral treatment approach, other phobia subtypes appear to be associated with a high dropout rate and low treatment acceptance. Based on these discrepant findings, it has been hypothesized that when participants display a relatively low level of anxiety, in vivo exposure would be the best treatment alternative, while for phobias with a traumatic background or a high initial level of anxiety, EMDR may be more profitable (de Jongh & ten Broeke, 2007). The latter would, for instance, generally be the case in dental phobia or choking phobia (see de Jongh & ten Broeke, 2007; de Roos & de Jongh, 2008). It would certainly be enlightening to test these hypotheses in controlled outcome studies.

Given the dearth of controlled outcome research on the application of EMDR for anxiety disorders and the limitations of these studies, questions about

the relative efficacy of EMDR for the treatment of anxiety disorders remain largely unanswered. The contrast between the lack of empirical evidence on the one hand and the promise that EMDR could elegantly fit into a therapeutic plan aimed to treat anxiety on the other is striking. Yet the future of EMDR as a therapeutic method will for an important part depend on the research that it initiates. To this end, exactly 10 years ago, after having reviewed the literature on specific phobia, de Jongh et al. (1999) concluded, "The empirical support for EMDR with specific phobias is still meager; therefore, one should remain cautious. However, given that there is insufficient research to validate any method for complex or trauma related phobias, that EMDR is a time-limited procedure, and that it can be used in cases for which an exposure in vivo approach is difficult to administer, the application of EMDR with specific phobias merits further clinical and research attention" (pp. 69–70). Now, 10 years later, not much seems to have changed, and it has become even clearer that these conclusions pertain not only to specific phobia but also to the full spectrum of anxiety disorders, except PTSD.

Clearly, it is of utmost importance that advocates of EMDR become more aware of the need of publishing their cases, and researchers should put more effort in applying for grants on research evaluating the effectiveness of EMDR in relation to other empirically validated treatments in terms of outcome and patient satisfaction. Research should focus on answering the question whether there are any anxiety disorders that are more amenable to EMDR than to exposure treatments. Further, research hypotheses could be that relapse rates are lower after an initial treatment with EMDR in which emotionally charged targets are desensitized prior to the beginning of a regular cognitive behaviorally based intervention and that such a combination of EMDR and CBT is associated with greater efficiency than either treatment given alone. However, only careful treatment delivered by suitably trained people who able to demonstrate that their clinical practice adheres to the treatment protocols and using thoughtful case conceptualizations and desensitization of all targets that are needed to fully resolve the disturbing material could address these issues appropriately.

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