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Eye Movement Desensitization and Reprocessing as an Adjunctive Treatment of Unipolar Depression: A Controlled Study

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Depression is a severe mental disorder that challenges mental health systems worldwide. About 30% of treated patients do not experience a full remission after treatment, and more than 75% of patients suffer from recurrent depressive episodes. Although psychotherapy and medication can improve remission rates, the success rates of current treatments are limited. In this nonrandomized controlled exploratory study, 21 patients with unipolar primary depression were treated with a mean of 44.5 sessions of Cognitive Behavioural Therapy (CBT) including an average 6.9 adjunctive sessions of Eye Movement Desensitization and Reprocessing (EMDR). A control group ($n = 21$) was treated with an average of 47.1 sessions of CBT sessions alone. The main outcome measure was the Beck Depression Inventory II (BDI-II). The treatment groups did not differ in their BDI-II scores before treatment, and both treatments resulted in significant improvement. There was an additional benefit for patients treated with adjunctive EMDR ($p = .029$). Also the number of remissions at posttreatment, as measured by a symptom level below a BDI-II score of 12, was significantly better in the adjunctive EMDR group, the group showing more remissions ($n = 18$) than the control group ($n = 8$; $p < .001$). This potential effect of EMDR in patients with primary depression should be examined further in larger randomized controlled studies.

Keywords: controlled study; depression; eye movement desensitization and reprocessing (EMDR); adaptive information processing (AIP) model; stressful life experiences

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Depression is a severe challenge to mental health systems worldwide, and this challenge is increasing. The World Health Organization has categorized depression as one of the most disabling diagnoses in the world, estimated to affect nearly 340 million people worldwide at any one time (Greden, 2001; Murray & Lopez, 1996). Although a significant number of patients affected by depression suffer from only a single depressive episode, much of the disease burden of depression is associated with the growing recognition of the chronic and recurrent nature of this disorder. It has been estimated that 75%–90% of patients with a depressive episode, depending on the length of observation period, will have more than one depressive episode (Angst, 1992; Keller, 2002; Kupfer, 1991; Maj et al., 1992). Interestingly, one of the major risk factors for a recurrence of the disorder is an incomplete remission of the last episode (Nierenberg, Petersen, & Alpert, 2003).

The Treatment of Depression

Although options for the treatment of depression have expanded significantly in the last 20 years, the early optimism accompanying new antidepressant medications such as selective serotonin reuptake inhibitors (SSRIs) has rapidly faded. In fact, a recent meta-analysis has concluded that antidepressants have only a modest advantage over placebo, with the magnitude of benefit increasing with the severity of the depression (Fournier et al., 2010). In addition, psychopharmacological intervention is hampered by side effects (e.g., weight gain) and nonadherence problems (Hirschfeld, 2003; Kripalani, Yao, & Haynes, 2007; Reid & Barbui, 2010).

In a randomized controlled trial (RCT; Sequenced Treatment Alternatives to Relieve Depression, STAR*D), 3,671 patients with unipolar depression where treated with antidepressant drugs (citalopram 20–60 mg). The initial remission rate was 37%. Three additional levels of treatment (Level 2 being adjunctive cognitive behavioral therapy [CBT]) were offered based on response (Rush et al. 2006). The cumulative remission rate after four levels was 67% (remission defined the absence of depressive symptoms as measured in a standardized rating scale).

Psychotherapeutic interventions have a long tradition in the treatment of depression. A meta-analysis of 28 studies found that one of the major effective therapy approaches in the field, cognitive behavioral psychotherapy, reduced the relapse rate significantly in major depression compared to pharmacotherapy only. A qualitative review concluded that—among patients treated to remission—cognitive therapy reduces relapse recurrence by roughly 50% (Holon, Steward, & Strunk, 2006). However, relapse rates, even in patients who respond to psychotherapeutic treatment, were still high. In fact, 1 year after discontinuation of psychotherapy treatment for acute depression, the relapse rate was 29%, and this increased to 54% after 2 years (Vittengl, Clark, Dunn, & Jarrett, 2007).

Life Stressors and Depressive Episodes

Stress and its neurobiological correlates are significant factors in both the causation and development of depressive episodes; chronic and acute stressors, especially in childhood, are well-established contributors to the disease and can even trigger the onset of these disorders (Heim & Nemeroff, 2001; McFarlane, 2010; Nanni, Uher, & Danese, 2012). Earlier research showed that first episodes of depression are often more closely related to a specific psychosocial stressor than later episodes. In fact, later episodes of depression can be triggered by far smaller stressors or even without any noticeable stressor (Post, 1992).

The strong influence of stressful life events such as threat, loss, or humiliation on the development of depression is also evident in a recent meta-analysis of genetic studies conducted by Neil Risch and colleagues (2009). Interestingly, the only risk factor that correlated significantly with depressive episodes was the occurrence of stressful life events. The presence of a serotonin transporter gene polymorphism alone, even in combination with stressful life events, was not significantly correlated with the occurrence of depressive episodes in the same meta-analysis (Risch et al., 2009). These results concur with studies that show that traumatic life events seem to have both a close dose response and a time relationship with the occurrence of depressive episodes (Kendler, Hettema, Butera, Gardner, & Prescott, 2003; Teicher, Samson, Polcari, & Andersen, 2009; Wise, Zierler, Krieger, & Harlow, 2001). Looking at the evidence, it seems that depressive disorders may be more linked to the stress- and trauma-based disorders than is reflected in the current approaches to depression (Horwitz & Wakefield, 2007; Maj, 2012).

The hallmark disorder of trauma-based disorders (or the beta version of the International Classification of Diseases, 11th revision [ICD-11] is used, the disorders specifically related to stress) is posttraumatic stress disorder (PTSD). PTSD is a well-studied disorder, and treatment has improved significantly over the past 20 years. Studies of PTSD treatment approaches

have shown that trauma-specific treatments improve PTSD symptoms significantly better than nonspecific psychotherapy (Bisson et al., 2007; Bisson, Roberts, Andrew, Cooper, & Lewis, 2013).

Interestingly, approximately 80% of PTSD patients also suffer from significant comorbidity, especially depression. This comorbid depression tends to improve significantly if the PTSD alone is treated first, without any specific treatment for the depression (Ho & Lee, 2012; van Etten & Taylor, 1998). Nevertheless, trauma-specific treatment methods that are able to successfully treat the stressful memories which cause PTSD are currently rarely studied for the treatment of primary depressive disorders (Grey, 2011).

EMDR

Eye movement desensitization and reprocessing (EMDR) is an eight-phase psychotherapy approach that was developed by Francine Shapiro (2001). A key component of EMDR is bilateral stimulation (with, e.g., eye movements), which is applied simultaneously while the patients are focusing on the memory which is the cause of the current symptoms. EMDR is one of the most efficient psychotherapy methods for the treatment of PTSD (Bisson et al., 2013). Some studies have suggested that EMDR may be more rapid than other effective treatments (e.g., van Etten & Taylor, 1998). EMDR treatment outcomes seem to be stable over time, according to a controlled 35-month follow-up study (Hoegberg et al., 2007).

EMDR is guided by an information processing model known as the adaptive information processing (AIP) model (Shapiro, 2001). One of the key assumptions of the AIP model is that dysfunctionally stored (disturbing) memories are the cause of several mental pathologies, including PTSD, other trauma-based disorders, as well as some depression and anxiety disorders. EMDR is currently used to address a range of complaints that follow distressing life experiences (Shapiro & Maxfield, 2002).

EMDR in the Treatment of Depressive Disorders

Although originally developed to alleviate the distress caused by traumatic memories, especially those associated with PTSD, EMDR was proposed early on for the treatment of other pathologies which are not necessarily linked with traumatic events that meet the A criterion of PTSD. In fact, EMDR was already being used by clinicians for the treatment of patients with depression in the early 1990s (Marquis, 1991). Systematic studies have demonstrated the effects of EMDR on PTSD-related depression. In a randomized clinical trial, van der Kolk and colleagues (2007) compared the effectiveness of fluoxetine treatment with EMDR and a placebo pill in a PTSD population. After the intervention, the EMDR-treated group had significantly lower BDI-II scores than the fluoxetine-treated group. This finding is echoed by a recent meta-analysis on the treatment of PTSD and comorbid depression: Ho and Lee (2012) showed that EMDR seemed to have a significantly stronger effect on the comorbid depression than CBT, although the effect on the PTSD was similar.

This drop in depressive symptoms, following EMDR treatment of memories which patients experience as traumatic, seems to not be limited to PTSD patients alone. In a controlled study, Wilson, Becker, & Tinker (1995) treated a group suffering from stressful memories. Although only 54% of these patients fulfilled the criteria of PTSD (including the A criterion that describes the event as traumatic), all of them benefited from EMDR treatment, as evidenced by significant improvements in their PTSD and depressive symptoms. Both benefits were maintained at a 15-month follow-up (Wilson et al., 1995, 1997).

The first case series of two adolescents with major depression who were treated with EMDR was published in 2008. Their successful treatment required three and seven sessions, respectively, and treatment results were stable at 3 months follow-up (Bae, Kim, & Park, 2008). In both cases, EMDR was used successfully in the treatment of events which were related to changed or lost relationships but did not fit into the Criterion A category of PTSD. Rather, they could be considered as stressful life events or "attachment trauma." In another case series with longitudinal single-subject design, three depressive patients were treated with EMDR. The treatment improved the depression significantly in all three cases and had a positive effect on both the emotional–cognitive processing and long-term memory conceptual organization (Uribe, Ramírez, & Mena, 2010).

Events such as these also seem to be a specific risk factor for the emergence of depressive disorders. In a large, retrospective study, losses and separation events as well as humiliating events were significantly linked to depressive episodes 1 month later (Kendler et al., 2003).

The observation that depressive symptoms seem to be more linked with non–Criterion A events is also evident in several case reports, where depressive patients were successfully treated with EMDR, with EMDR being either the only therapy administered or as adjunctive to other therapy approaches (Broad & Wheeler, 2006; Grey, 2011; Manfield, 1998; Shapiro,

2009; Shapiro & Silk Forrest, 1997; Sun, Wu, & Chiu, 2004; Tinker & Wilson, 1999).

Unfortunately, no controlled studies have been published using EMDR as an intervention for patients diagnosed with depression alone. Thus, the purpose of this controlled study was to begin filling this gap and to explore the potential of adjunctive EMDR in patients with primary depression.

Method

Because of the German insurance system, the usual psychotherapy treatments in Germany are limited to the application of three general psychotherapy orientations: psychodynamic psychotherapy, psychoanalytic psychotherapy, and CBT. Within these basic therapy orientations, certain additional psychotherapy methods are permitted. In 2006, the German scientific advisory board for psychotherapy recognized EMDR as a scientifically based psychotherapy method for the treatment of PTSD (Scientific Advisory Board [wissenschaftlicher Beirat] Psychotherapie, 2006). Thus, most psychotherapists in Germany that are trained in the use of EMDR integrate it into their usual psychotherapy treatment approach.

Study Procedure

All patients in this study suffered from a unipolar depressive episode and were treated at the outpatient clinic of the Rhineland Academy for Psychotherapy (RHAP), a CBT psychotherapy training center in Krefeld (Germany). The standard treatment for depression at the clinic is CBT. Medication is given in separate sessions by an independent psychiatrist if needed. Between 2008 and 2012, some therapists in their last formal year of training for CBT therapy at the RHAP also received an EMDR basic training and ongoing EMDR supervision.

Patients who suffered from unipolar depression and who were assigned by chance to these EMDR-trained therapists were offered the opportunity to become part of this research study. We recruited a group of 30 patients who agreed after informed consent to be treated with adjunctive EMDR sessions included in their usual CBT treatment (treatment as usual [TAU] + EMDR).

From the beginning of the study, for every patient who started EMDR treatment, a TAU patient was randomly selected from the patients of the same clinic who fulfilled inclusion/exclusion criteria and had received CBT treatment. The TAU therapists completed their CBT training during the same time period at the institute as the EMDR therapists, but they did not receive EMDR training.

Participants

TAU + EMDR Participants. Inclusion criteria for the TAU + EMDR participants were the ability to do psychotherapy and the willingness to participate in EMDR sessions that worked with the stressful memories considered to be related to the depressive episode(s). Exclusion criteria were comorbidity with other severe psychological disorders, psychotic disorders, or PTSD. Exclusion criteria were also significant cognitive impairment, severe somatic illness that required interventions, and pending legal processes. Because of the exploratory character of the study, six patients were accepted in the study group even though they fulfilled the criteria of an additional disorder. In the control group, two patients with a comorbid diagnosis were accepted. The comorbidities in the TAU + EMDR group were panic disorder (two), social phobia, borderline personality disorder (two), and a not specified eating disorder. The comorbidities in the TAU group were cannabis abuse and alcohol abuse each in one case.

The initial TAU + EMDR sample consisted of 45 outpatients of the psychotherapy clinic of the RHAP who had a diagnosis of unipolar depression and had been assigned to a therapist from the group trained in EMDR. Of these patients, 15 were excluded from the study because 10 did not fulfill inclusion criteria and 5 declined to participate. The selected group of 30 patients was followed through treatment, and 21 patients received the full adjunctive treatment and their scores were analyzed. Of the 9 patients who did not receive the full adjunctive treatment, 1 patient declined further EMDR sessions, the other 8 did not receive the full treatment for other reasons. Three of them were patients with a comorbid disorder: unspecified eating disorder, social phobia, and 1 of the patients with borderline disorder. Eight of the 9 dropouts of the EMDR treatment did complete their TAU treatment; 1 did not complete his TAU treatment.

TAU Participants. Exclusion criteria for the TAU participants were the same as that of the TAU + EMDR participants (comorbidity with other severe psychological disorders, psychotic disorders, or PTSD as well as significant cognitive impairment, severe somatic illness that required interventions, and pending legal processes). Inclusion criterion was the successful completion of the TAU program and the inclusion criteria of the study (a diagnosis of unipolar depression and the ability to do psychotherapy).

The TAU patients had been treated by other therapists of the clinic not trained in EMDR. To match the 21 completers of the TAU + EMDR group, the

data of 21 patients who had completed TAU were randomly selected for this TAU control group for the final analysis.

Treatment

The end point of TAU and EMDR as well as of TAU treatment was determined by the therapist (and the consulting case supervisors) together with the patient by clinical criteria alone. The number of EMDR sessions which were considered a minimum for an "adjunctive EMDR therapy" in this study was three.

Therapists. All therapists in the study were psychotherapy candidates in advanced CBT training. The 14 EMDR therapists completed an EMDR International Association (EMDRIA)–approved EMDR training prior to the study. Because a single candidate can only have a limited number of patients during their training, each candidate had only one to a maximum of four patients they could treat in the study.

Treatment Fidelity. All therapists in the TAU + EMDR group and the TAU group had regular CBT supervision to control for the fidelity of their CBT treatments. This supervision was conducted after every fourth therapy session. The therapists of the TAU + EMDR group had additional regular supervision by an experienced EMDR trainer to assure the fidelity of the EMDR treatment according to the standards of EMDR Europe.

CBT Treatment. The CBT treatment followed the manuals of cognitive therapy for depression (Beck, Rush, Shaw, & Emery, 1979; Hautzinger, 2003). The therapy works systematically with dysfunctional beliefs and teaches self-monitoring of negative affect and its influence on feelings and behavior. In addition, patients are taught decision making and how to increase the frequency and quality of pleasant experiences. All CBT treatment in our study was done in individual one-on-one sessions. Homework assignments support the patients to improve abilities such as their social skills in their everyday life.

EMDR Treatment. The EMDR treatment followed the eight-phase outline of EMDR described by Shapiro (2001). EMDR targets were selected following the AIP model that looks for stressful events linked with the depression. Depending on the specific needs of the patients, the EMDR focus was to process either traumatic (Criterion A) or nontraumatic (not fulfilling Criterion A) events which had a time relationship with the current depressive episode or were possibly connected with it ("episode triggers"). During previous studies, a systematic approach has been developed, has recently been published, and is part of a current RCT study (Hofmann et al., 2014).

Measurements

The diagnosis of depression was made by an initial diagnostic interview using the Structured Clinical Interview for DSM-IV Axis-I Disorders (Wittchen, Zaudig, & Wunderlich, 1997). The interview was not done blinded but was conducted by the therapist who later treated the patient. The main outcome of the study was the level of depressive symptoms as measured by the Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996; Hautzinger, Keller, & Kühner, 2006). The BDI-II is a 21-item self-report measure with good psychometric properties. It has a high sensitivity to changes during therapy, which was what our study was looking for. Scores range from 0 to 63, with the following cutoffs: 0–13 minimal range, 14–19 mild depression, 20–28 moderate depression, and 29–63 severe depression. The test was administered at pre- and posttreatment.

Data Analysis

We recorded BDI-II scores before (BDIpre) and after (BDIpost) treatment. Data analysis was done by repeated measures analysis of variance (ANOVA) with treatment (CBT vs. CBT + EMDR) as between group factor and time (BDIpre vs. BDIpost) as within-subjects factor. The conventional alpha level of 5% (two-tailed) was used. Planned posthoc t tests were conducted to further examine the differences between scores at pretreatment and at posttreatment within and between groups.

Also, we recorded remission of depression (remission of episode vs. no remission), taking a BDIpost score of 12 as cutoff. Because these data did not meet criteria for parametric analysis, we used nonparametric Mann–Whitney U test for independent samples, $\alpha = .05$. Data were analyzed with IBM SPSS Statistics 22.

Results

The mean age of all 42 (21 + 21) patients was 40.38 years ($SD = 10.38$). Mean age of the TAU group was 40.67 years ($SD = 12.145$); mean age of the TAU + EMDR group was 40.1 years ($SD = 9.859$). The age differences between the two treatment conditions were not statistically significant at $\alpha = .05$. Also, sex differences between the two groups did not differ significantly. Of the 21 patients, 11 in the TAU + EMDR group and 15 of the 21 patients in the TAU group suffered from recurrent depressive episodes.

TABLE 1. Sample Characteristics

	TAU + EMDR group ($n = 21$)	TAU group ($n = 21$)	Statistics
Age (years)	40.1 (*SD* 9.67)	40.67 (*SD* 12.145)	$t = -.125$ (df 28)
			$p = .903$ (*ns*)
Male/female	4/17	5/16	$U = -.372$
			$p = .710$ (*ns*)
Severity of episode	1/18/2	0/21/0	$\chi^2 = .350$
F3X.0/3X.1/3X.2			$p = .573$ (*ns*)
Recurrent depression (F33.x)	11	15	$\chi^2 = .000$
			$p = 1.000$ (*ns*)

Note. TAU = treatment as usual; EMDR = eye movement desensitization and reprocessing.

The two groups did not differ with respect to severity of depression (F3x.1/F3x.2) nor in respect to chronicity (F32.x/F33.x). Results of statistical analysis of participant parameters are shown in Table 1.

The TAU + EMDR patients received on average 6.9 sessions of EMDR (range: 3–16 sessions) and completed an average of 37.58 treatment sessions of CBT, for a mean total of 44.48 therapy sessions ($SD = 11.48$). The TAU group received a mean of 47.11 therapy sessions ($SD = 7.41$). A t test for independent samples did not reveal a statistically significant difference between the number of mean sessions ($t[28] = -.631$, $p = .533$).

Analysis of Treatment Effects

Data analysis by repeated measures ANOVA revealed a significant interaction effect. A comparison between the scores of both treatment groups showed a significant interaction of treatment with time for depression scores, showing a significant difference between the effects of the two treatments ($F[1,40] = 5{,}108$, $p = .029$), indicating that patients within the TAU + EMDR group showed a different pattern of change compared to the TAU group. Posthoc tests were done to further evaluate these differences. See Figure 1.

A posthoc t test was conducted to compare BDI-II scores at pretreatment. Results showed no significant differences of pretreatment scores ($t[40] = .149$, $p = .882$), indicating that the TAU + EMDR and TAU participants did not differ in the severity of BDI-II scores at pretreatment. See Table 2 and Figure 1. Posthoc t tests were conducted to determine if the two treatments had produced a significant decrease in BDI-II scores. Results showed significant differences for both the TAU + EMDR group ($t[20] = 6.604$, $p = .000$) and the TAU group ($t[20] = 6.886$, $p = .000$), indicating that both treatments were effective in reducing symptoms of depression.

A t test was conducted to compare BDI-II scores at posttreatment. Results showed that posttreatment scores differed significantly ($t[40] = -2.675$; $p = .011$), indicating that the TAU + EMDR participants improved significantly more on depression as indexed by the BDI than the TAU patients treated with CBT alone.

Comparison of remissions, as defined by a BDI-II score of 12 or below, differed over the categories of treatment as shown by the Mann–Whitney U test ($U = 105{,}000$; $p < .001$), the TAU + EMDR group showing significantly more remissions ($n = 18$) than the TAU group ($n = 8$). See Table 2.

Medication. Six of the patients in the TAU group received antidepressant medication at the beginning of psychotherapy versus nine patients in the TAU + EMDR group. Chi-squared tests did not reveal a significant difference. During the study, four changes of medication were recommended by the psychiatrist in the TAU + EMDR group and six in the TAU group.

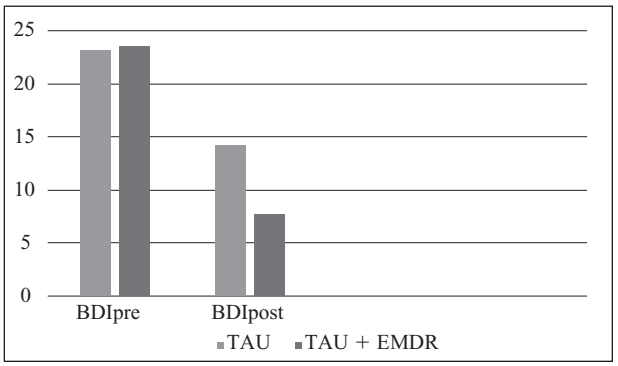

FIGURE 1. BDI-II scores under treatment conditions. BDIpre = Beck Depression Inventory pretreatment score; BDIpost = Beck Depression Inventory posttreatment score; TAU = treatment as usual; EMDR = eye movement desensitization and reprocessing.

TABLE 2. Results

	TAU + EMDR group ($n = 21$)	TAU group ($n = 21$)
BDI-II score at pretreatment	23.57 (*SD* 7.639)	23.19 (*SD* 8.892)
BDI-II score at posttreatment	7.86 (*SD* 5.452)	14.24 (*SD* 9.476)
Number of remissions	18	8

Note. Remission is defined as a Beck Depression Inventory II (BDI-II) score of 12 or more at posttreatment. TAU = treatment as usual; EMDR = eye movement desensitization and reprocessing.

All of the changes in the TAU group were first time prescriptions of antidepressant medication; one first time prescription of an antidepressant was observed in the TAU + EMDR group. Types of antidepressant medication and their distribution at the beginning of psychotherapy are given in Table 3.

Discussion

This exploratory study aimed at determining the clinical effectiveness of adjunctive EMDR sessions in patients affected by unipolar depression without PTSD. It included two groups of 21 patients each ($N = 42$) who were well-matched for age, gender, and chronicity of their depression. Both groups were treated with an average of 45.7 sessions of CBT. One group was treated with 6.9 additional sessions of adjunctive EMDR (range 3–16) within the frame of the 45.7 sessions. The other group was treated with a similar number of CBT sessions alone.

As a main result, the study revealed a significant difference in the decrease of the BDI-II scores after treatment, showing that the patients benefited from CBT and from CBT with adjunctive EMDR treatment. Results also showed a larger decrease in BDI-II scores for TAU + EMDR compared to CBT treatment alone ($p = .011$). Although CBT has been a highly effective and well-established treatment for depression for many years, adjunctive EMDR sessions may improve the beneficiary effect of the treatment in depression.

TABLE 3. Types of Antidepressant Medication

	SSRI	NASSRI	Other	None
TAU + EMDR	5	0	4	12
TAU	1	1	4	15

Note. SSRI = selective serotonin reuptake inhibitor; NASSRI = noradrenergic and specific serotoninergic antidepressants; TAU = treatment as usual; EMDR = eye movement desensitization and reprocessing.

Further analysis of our groups showed that the number of remissions of the depression (as measured by a symptom level of a BDI-II score of 12 or below) demonstrated a highly significant difference that showed the additional benefits for the group which had received adjunctive EMDR ($p < .001$). Considering that many patients fail to respond to appropriate treatment with antidepressant medication and/or psychotherapy and more than 30% do not achieve full remission after any type of current treatment, the results of adjunctive EMDR observed in this study are worth reporting and should be more deeply investigated in larger controlled studies. Also, because the patients who do not reach full remission after treatment have a higher risk to relapse, adjunctive EMDR could possibly evolve as an additional tool for relapse prevention for depression (Nierenberg et al., 2003).

As the first controlled study using EMDR in the treatment of primary depression, it is noteworthy that a limited number of an average of 6–7 EMDR sessions within the frame of 45.7 psychotherapy sessions seems to make a significant difference on the symptom level for the patients. One of the explanations of this result may be that significant stressful events may not only contribute to triggering a depressive episode but the memories of such events also could contribute to maintaining the depression. So the processing of the dysfunctionally stored memories of such stressful events with EMDR in patients with primary depression may have contributed to the significant symptom improvement in the EMDR group. This may also have contributed to the significantly higher number of remissions in the patients of this group. Also, the study could be seen as an encouragement that depressive patients, who often need several therapeutic interventions, can benefit if EMDR is integrated as an adjunctive therapy with the other therapy approaches used in their treatment.

Our study could also be seen as a confirmation of Bae and his collaborators (2008) for the selection of the memories they targeted with EMDR in their two cases of adolescent depression. In both cases, they did not target Criterion A events but significant attachment trauma events. In our study, these "attachment events" were the events which the therapists focused on during most of their EMDR sessions. Of the 21 patients who received EMDR in our study group, only 5 had reported Criterion A events which were then processed with EMDR (3 traffic accidents,

1 rape, and 1 case of domestic violence). The other patients reported stressful memories that did not fulfill the A criterion of PTSD but were also processed with EMDR. Most of these memories described relationship events that were still stressful to the patients. One was a diagnosis of a cancer relapse. Many of these events were losses, separations, or humiliating events—the very type of memories that according to the study of Kendler and colleagues (2003) are connected to the occurrence of depressive episodes.

In the EMDR model of AIP, it has been postulated that stressful life events must not only include life-threatening events (Criterion A) to become "dysfunctionally stored in memory networks" and cause present pathology. Typically, for such dysfunctional memories, the past event is still experienced as stressful by the patient in the present. This fits well with a study that shows that victims of stressful life events do not describe Criterion A events as being "more traumatic" than other stressful life events (Gold, Marx, Soler-Baillo, & Sloan, 2005).

Because EMDR is often seen as a method to treat PTSD only, this is understood as a limitation that the events which should be targeted with EMDR should be Criterion A events. At least in the case of depression, this seems not to be the case. Because attachment trauma such as losses, separations, and humiliations seem to be more connected with the development of a depressive episode than Criterion A events (Kendler et al., 2003), the processing of such memories with EMDR seems to improve the symptoms of the depressive episode.

Following these studies and the results of our study with depressive patients, it may well be that in the case of depression, it is not so important that a memory (which needs to be processed) is "traumatic" (in the sense of Criterion A of PTSD) but rather that it is still dysfunctionally stored in the sense of the AIP model and continues to produce a certain psychobiological pathology (such as creating intrusions or a subjective feeling of distress while remembering). However, this can only be tested in further systematic studies.

Limitations of this study that limit the generalizability of the results are methodological limitations such as the lack of randomization, the low number of patients, the lack of independent assessment, and the use of a self-reporting instrument as outcome. Another limitation was that for our study, we selected a control group of CBT completers from the same clinic at the same time but not a group that was randomized and followed though treatment. The fact that this study is a study of treatment completers that may have lost some more complex depression cases before analysis may lead to an overestimation of the effects of EMDR. Of the 30 TAU + EMDR patients, 9 did not complete EMDR treatment and were lost to analysis. Three of these patients were 3 of the 6 patients with serious comorbidity (a patient with social phobia, 1 with a not specified eating disorder, and 1 of the 2 borderline patients of the study). The 1 patient who had declined further EMDR sessions described an increase of stress during the EMDR session which had demotivated him from further EMDR session (this was not one of the cases with comorbidity). In both groups of our study also, the limited clinical experience of our study therapists may have played a role and limited the generalizability of the study. On the other side, the possible potential of adjunctive EMDR may be seen in the case of the 2 borderline patients of our study. Both received 45 sessions of psychotherapy. Although 1 of them received only 2 sessions of EMDR and showed no improvement at the end of the study, the other received 13 sessions of EMDR and ended therapy with significant improvement and a BDI-II score of 10.

The last limitation is currently the lack of data on the follow-up of the patients. This is one of the organizational limitations of our study which hopefully can be remedied by a multicenter controlled trial on EMDR in patients with depression who has already begun and will have a follow-up.

Despite the limitations of this study, this first controlled study that used EMDR with depressive patients can, in our opinion, encourage further studies in this field. It may be that a method such as EMDR that processes stressful memories can add to the therapeutic options in these patients and help more depressive patients to reach full remission from their depressive episodes.

Implications for Future Research

Future research using EMDR for the treatment of depressive patients should focus on randomized controlled studies. It could study the integration of EMDR with other treatments and compare it with EMDR-only interventions for different subgroups of depressive disorders.

Research could evaluate which types of patients with depressive disorders would benefit most from EMDR therapy. Given the connection between partial remissions and recurrent episodes, it is possible that the patients with depressive disorders who might benefit most from future EMDR studies could be patients with recurrent depressions. Considering the possible connection of the maintenance of depressive

symptoms and dysfunctionally stored memories and the ability of EMDR to process these, some groups of chronic depressive patients could also benefit from future EMDR studies. Also, research investigating the value of adjunctive EMDR for children and adolescents at the beginning of their "depressive careers" could be helpful. Research could also evaluate if EMDR provides a greater benefit for those children and adolescents with depression who have experienced traumatic events or losses. Also, a comparative, cost-effectiveness study could assess the potential benefit of the interventions on limited medical resources.

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