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Original article

Eye movement desensitization and reprocessing (EMDR) therapy in the treatment of victims of domestic violence: A pilot study

Eye movement desensitization and reprocessing (EMDR) therapy dans le traitement des victimes de violences conjugales : étude pilote

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ABSTRACT

Introduction. – The purpose of this study was to determine the effectiveness of EMDR in reducing PTSD symptoms, anxiety and depression.

Method. – Thirty-six women participated in this study; 12 were treated with EMDR, 12 received eclectic psychotherapy, and 12 were assigned to the control group.

Result. – Women in the EMDR condition showed significantly reduced PTSD and anxiety compared with those in the eclectic psychotherapy condition. The two psychotherapy approaches led to significantly reduced scores (PTSD, depression, anxiety) after treatment compared to the control group. These effects were maintained at the 6-month follow-up. Finally, effect sizes for the IES and STAI scores were greater for the subjects in the EMDR condition.

Conclusion. – This study met our expectations in the sense that our findings confirm the advantages and the potential of EMDR.

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R É S U M É

Introduction. – Cette recherche décrit les effets du traitement EMDR sur les victimes de violences conjugales.

Objectif. – Le but de cette étude était de mettre en évidence l'efficacité de l'EMDR dans la réduction des symptômes d'ESPT, d'anxiété et de dépression.

Méthode. – Trente-six femmes ont participé à cette étude, 12 ont été traitées avec l'EMDR, 12 avec une approche de psychothérapie éclectique et 12 ont été assignées au groupe témoin.

Résultat. – Les femmes ayant bénéficiées de la thérapie EMDR ont vu leurs scores aux différentes échelles (ESPT, dépression, anxiété) baisser significativement, comparativement à ceux de la condition psychothérapie éclectique. Les deux approches psychothérapeutiques ont conduit à des scores significativement plus réduits après traitement que ceux obtenus par le groupe témoin. Ces effets se sont maintenus six mois après l'intervention. Enfin, les tailles d'effet pour les scores IES et STAI sont plus élevées pour les sujets traités avec la thérapie EMDR.

Conclusion. – Cette étude a répondu à nos attentes montrant ainsi tout l'intérêt de l'approche EMDR.

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1. Introduction

Domestic or intimate partner violence (IPV) is a major public health problem. IPV, defined as “behavior within an intimate relationship that causes physical, sexual, or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviors” (WHO, 2010), is a violation of human rights and a health problem facing women around the world. Although women may be violent with men (Straus, 1999), and IPV occurs in same-sex relationships (Tjaden & Thoennes, 2000), globally the greatest burden of IPV is borne by women at the hands of men (Breiding, Black, & Ryan, 2008; Tjaden & Thoennes, 2000; WHO, 2010). A survey found that 25% of women reported experiencing partner violence during their lifetime (Tjaden & Thoennes, 2000). The term “partner violence” includes violence perpetrated by current or former spouses or partners and includes components of physical violence, sexual violence, the threat of physical or sexual violence, or psychological and emotional abuse. These specific components of partner violence can be considered together or separately. In all cases, this violence is a devastating experience for women and their families. The percentage of women who experience domestic violence in France and in the United States is approximately 30% (Bowman, 2003). Domestic violence takes the form of abuse, which at times may even seem minor, and which is perpetrated by a partner in a context of control and coercion. According to the law, domestic violence constitutes a form of intentional violence, perpetrated by a partner, which is an aggravating circumstance (Hajbi, Weyergans, & Guionnet, 2007).

In this paper, we focus particularly on the psychological consequences of physical violence perpetrated against women by their partners. PTSD is one of the most frequent mental health consequences of IPV, with a mean prevalence of 64% in abused women (Golding, 1999). Cascardi, O’Leary, & Schlee (1999) reviewed a number of studies on abused women and found that the rate of PTSD ranged from 31 to 84%, with modal rates ranging between 45 and 60%. Other studies examining posttraumatic stress disorder in battered women have identified a strong positive correlation between the severity of abuse and the intensity of PTSD symptomatology (Astin, Ogland-Hand, Coleman, & Foy, 1995; Vitanza, Vogel, & Marshall, 1995). Moreover, PTSD symptoms in abused women can last for a long time after the end of the abusive relationship (Woods, 2000). Gabyray-West, Fernandez, Hillard, & Schoof (1990) used a combination of interviews and questionnaires and showed a prevalence of PTSD of 37% among women who had experienced this type of violence. Bargai, Ben-Shakhar, & Shalev (2007) found that this rate can vary between 33 and 83%. Existing evidence indicates a strong and consistent association between psychological distress or depression and domestic violence. For instance, the prevalence of domestic violence among women diagnosed with depression is twice that of the general population (Dienemann et al., 2000). Physical abuse has been identified as one of the most important risk factors for suicide among women. Women reporting domestic violence are two to three times more likely to be depressed than women without a history of domestic violence (Petersen, Gazmararian, & Clark, 2001; Bauer, Rodriguez, & Stable, 2000). Comparative and systematic studies have rarely focused on the treatment of psychological disorders resulting from domestic violence (Johnson & Zlotnick, 2006), even though this issue is of crucial importance for public health. We were challenged by how best to help women who experienced traumatic domestic violence. A psychological trauma treatment approach called Eye Movement Desensitization and Reprocessing (EMDR) was introduced by Shapiro in 1989. We thought that this treatment method might be useful because it is time-efficient, which is significant in the context of domestic violence, since the

amount of time available for treatment in health care institutions is often limited. Although controversial from the beginning, the approach has gained wider acceptance and is today recommended in international guidelines for treatments as one of a few evidence-based treatments of choice for trauma victims (APA, 2004; INSERM, 2004). The EMDR psychotherapy approach consists of a structured treatment package (Shapiro, 2001) and integrates techniques from cognitive behavioral, psychodynamic, and body-oriented therapy. EMDR is a complex therapy with many elements (Solomon & Shapiro, 2008). Processes identified in EMDR include mindfulness, somatic awareness, free association, cognitive restructuring, and conditioning. These processes may interact to create the positive effects achieved with EMDR (Gunter & Bodner, 2009; Solomon & Shapiro, 2008). However, the mechanism of change in EMDR that has received the most attention in the scientific literature is eye movements and other bilateral stimulation (i.e., tones and tapping) that are used as a dual-attention task within the procedure. To date, research that has examined the effect of eye movements in EMDR has resulted in mixed and inconsistent findings. It has been demonstrated that a single session of EMDR with eye movements leads to greater reduction in distress compared to EMDR without eye movements (Lee & Drummond, 2008; Wilson, Silver, Covi, & Foster, 1996). However, other researchers have reported that EMDR with or without EMs led to significant positive, but equivalent treatment effects (Pitman et al., 1996; Renfrey & Spates, 1994). One working hypothesis to explain this mechanism concerns the evocation of a rapid-eye-movement-like brain state. Available data support the role of dreaming in the elaboration and processing of daytime experiences. Rapid eye movements seem to cause a relaxation response allowing distressing material to be processed during sleep. This is consistent with Wolpe’s reciprocal inhibition theory (Wolpe, 1990; Wolpe & Abrams, 1991), which describes the relaxation response responsible for the reduction in anxiety during systematic desensitization. Shapiro suggested that eye movements inhibit distress in the dream state and that a similar cognitive and emotional process occurs in EMDR therapy. The person processes and integrates information concerning the traumatic event, which is associated in memory with more adaptive positive emotions and cognitions. EMDR appears to enable emotional processing, allowing the individual to move from anger, fear (or shame), to calm and acceptance (or forgiveness) at the end of the therapeutic process. It should be noted that the eye movements used in EMDR have been studied by several researchers (Andrade, Kavanagh, & Baddeley, 1997; Van den Hout, Muris, Salemink, & Kindt, 2001), who have shown their direct effects on emotionality, clarity, cognitive flexibility, and memory associations.

EMDR has been recognized for its effectiveness in the treatment of PTSD in the international literature. Therefore, it may offer an effective and pertinent form of therapy for the treatment of the psychological sequelae of the domestic violence phenomena (Rothbaum, 1997; Rothbaum, Astin, & Marsteller, 2005; Shapiro, 1989). The objective of this paper is to show the healing effects of EMDR in the treatment of women who have experienced domestic violence, particularly regarding the reduction in PTSD, anxiety, and depressive symptoms. The effectiveness was tested by comparing a group of female victims of domestic violence who received EMDR therapy versus eclectic therapy for a period of 6 months to a control group.

2. Method

2.1. Participants

Thirty-six women participated in this study. The participants were either contacted by the psychologists’ office directly ($n = 14$)

Table 1
Biographical factors.

Variables	EMDR Group (n = 12)	Eclectic Group (n = 12)	Control Group (n = 12)
Age (in years) mean (S.D.)	33 (4.6)	34.4 (8.2)	35.6 (3.3)
Gender (%)			
Women	100 (12/12)	100 (12/12)	100 (12/12)
Men	0 (0/12)	0 (0/12)	0 (0/12)
Employment status (%)			
Manager	16.6 (2/12)	25 (3/12)	0 (0/12)
Office worker	50 (6/12)	41.6 (5/12)	41.6 (5/12)
Unemployed	33.3 (4/12)	33.3 (4/12)	58.3 (7/12)
Ethnicity (%)			
White	50 (6/12)	66.6 (8/12)	58.3 (7/12)
Black	25 (3/12)	8.3 (1/12)	33.3 (4/12)
North African	25 (3/12)	25 (3/12)	8.3 (1/12)
Education (%)			
French 1st level diploma	25 (3/12)	0 (0/12)	0 (0/12)
Vocational training	25 (3/12)	75 (9/12)	41.7 (5/12)
High school	41.7 (5/12)	16.6 (2/12)	33.3 (4/12)
College/university:	8.3 (1/12)	8.3 (1/12)	25 (3/12)
Marital status (%)			
Married	50 (6/12)	66.6 (8/12)	75 (9/12)
Common-law union	50 (6/12)	33.3 (4/12)	25 (3/12)
Work status (%)			
Full-time	50 (6/12)	33.3 (4/12)	41.7 (5/12)
Part-time	25 (3/12)	33.3 (4/12)	41.7 (5/12)
Unemployed	25 (3/12)	33.3 (4/12)	16.6 (2/12)
Average number of physical assaults (%)			
One assault	41.7 (5/12)	41.7 (5/12)	33.3 (4/12)
Two assaults	41.7 (5/12)	50 (6/12)	50 (6/12)
Three assaults	16.7 (2/12)	8.3 (1/12)	16.7 (2/12)
Average number: mean	1.75 (0.75)	1.66 (0.65)	1.83 (0.71)
Time elapsed between the last episode of domestic violence and the first session (in weeks)	5.3 (1.5)(min./max.: 3/8)	5.58 (1.37)(min./max.: 3/8)	6.1 (1.26)(min./max.: 4/8)

or were referred by their general practitioner ($n = 11$) or by local victims' organizations ($n = 11$) (Table 1).

The participants had to meet certain criteria to be included in the study (the presence of some inclusion criteria found minimal legitimacy in the consensus obtained between the researchers involved in this research who wanted at best a homogeneous typology of the women included in the study):

- victims of physical violence inflicted by a partner;
- the last violent episode occurred within the last three months;
- have filed a complaint with the police;
- had experienced no more than three potentially traumatic events within the 24-month period preceding the filing of the complaint, including episodes of domestic violence;
- must have given informed consent for the research protocol;
- meet DSM-IV criteria concerning PTSD (to assess PTSD, we used the Mini International Neuropsychiatric Interview–MINI–Module I (Sheehan et al., 1998; French translation by Lecrubier et al., 1997);
- live in France and not be in need of an interpreter to speak and understand the French language;
- be between 18 and 60 years of age;
- if on prescribed drugs for PTSD, depression, or anxiety, agree to keep the dosage constant throughout the study;
- agree to take part in the study for 5 to 6 months, including pre- and post-assessment, and a 6-month follow-up;
- have no psychotic or organic mental disorder;
- have no current drug or alcohol abuse;
- no contraindication, especially concerning EMDR therapy (health issues, neurological disorders, eye disorders/pain, dissociative disorders, etc.)

Reasons for exclusion: of the initial 47 participants, 23 did not meet the inclusion criteria (more than three violent episodes ($n = 10$), other potentially traumatic episodes ($n = 8$), clinical level of psychopathology ($n = 5$). It should be noted that the women who were excluded from the study did benefit from conventional psychotherapy (support therapy, EMDR, CBT) outside of the research protocol, at their request. This will be the subject of a future case study. The same inclusion criteria were used for recruiting the participants in the three groups.

The study was conducted over a period of 38 months.

All of the psychotherapists involved in the treatment of the EMDR and eclectic groups had at least 5 years experience in psychotherapy and were accredited to practice the profession of psychotherapist. In the eclectic psychotherapy condition, the patients were offered a more conventional approach based on integrated theories, methods, and techniques that make up the standard practice of psychotherapy (Jehu, 1988, 1989; Roberts & Lie, 1989). Whereas the application of the EMDR protocol can be standardized, this is evidently not the case for more eclectic approaches, which by definition are more heterogeneous. However, the comparison between EMDR therapy and a more eclectic approach to psychotherapy can be justified. First of all, the eclectic approach is by far the most commonly practiced method currently used by psychologists and psychotherapists; although they belong to specific psychotherapeutic approaches (CBT, hypnosis, support, psychodynamic), for the most part they are confronted with the need to adapt their manner of working to each patient's complexity and evolution, calling upon a combination of approaches to fit the patient's particular needs. Moreover, eclectic psychotherapy has been found to be effective in reducing trauma symptoms in adult survivors when used in a group setting (Roberts & Lie, 1989) and in individual therapy (Jehu, 1988, 1989).

As indicated by Edmond, Sloan, & MacCarty (2004), each therapist makes individual choices concerning the specific intervention approaches used in any given session based on the unique needs of each subject. The types of treatments used during the course of the study included support ($n = 12$, 100%), information ($n = 12$, 100%), interpretation ($n = 12$, 100%), relaxation exercises ($n = 12$, 100%), visualization ($n = 11$, 91.6%), cognitive restructuring ($n = 10$, 83.3%), dreamwork ($n = 6$, 50%), and hypnosis ($n = 4$, 33.3%). Three experienced psychotherapists (with at least 5 years of clinical practice) treated the subjects in the eclectic condition. None of these three professionals were involved in the treatment given to the subjects in the EMDR condition.

During a 38-month period, we established a control group of 12 women showing the same characteristics as the 12 women in the EMDR and the 12 women in the eclectic therapy conditions. These women met the inclusion criteria and agreed to answer the psychologists' questions during a six-month period, but did not wish to benefit from psychotherapy. Several reasons were given for this choice: previous negative experience ($n = 2$), lack of credibility attributed to the proposed treatment ($n = 2$), lack of trust in the field of psychology ($n = 2$), did not wish to participate in a study ($n = 2$), fear of discovering things about themselves ($n = 3$), had other priorities than psychotherapy ($n = 1$). Because of a lack of funding for the study, we were not able to use randomization to establish the groups.

The subjects were included in the protocol and were referred to different treatment centers to receive psychotherapy, not to take part specifically in an experimental design. Therefore, this study was only made possible by the good will of the patients and prescribers. In this context, the subjects were offered the choice of integrating either a strict EMDR protocol (we explained in detail the whole process, while insisting on the fact that the psychologist would follow a structured procedure), or a more conventional and eclectic approach. But we attempted to create a control group that was comparable to the EMDR and the eclectic therapy groups. Of course, the very fact of refusing psychotherapy (control group) versus accepting treatment (EMDR or eclectic therapy) is not neutral, since it introduces an important bias that does not allow for the strict comparison of the groups. Furthermore, we chose to do a follow-up at 6 months to verify if the effects were maintained.

2.2. Measures and procedure

After two preliminary interview sessions and history taking, which enabled building a relationship of trust and affiliation between the clients and the therapists/researchers, the participants were offered the option of following EMDR or eclectic therapy. The history taking made it possible to validate the inclusion criteria for the research protocol. The purpose of the study was presented as an evaluation of the therapy that we offer and as a contribution to the development of psychotherapeutic methods for the care of women who are victims of domestic violence. The protocol was explained to the participants who were asked to sign an informed consent form in order to be included in the research protocol. Before the beginning of therapy (pre-test phase), several measures were administered. These same scales were completed again after five 60-minute sessions (post-test phase), and finally at the 6-month follow-up. Subjects included in the EMDR therapy group received standard protocol treatment only, with no additional treatment method. This experimental set-up is, of course, different from what happens in a usual clinical setting, where the practitioner may integrate other approaches and methods in his practice (hypnosis, exposure). It was agreed with the participants that the treatment would be strictly limited to EMDR because of the research context.

The participants in the control group were asked to inform us if they received any type of psychotherapy or medication during the

study period; this was not the case for any of the participants. The question was asked again at each phase of the study.

The participants filled out an intake form (age, gender, number of children, education, employment status) and completed three scales (IES, STAI, and CES-D), as well as the SUDS scale used in EMDR before the first phase.

2.2.1. Impact of Events Scale (IES)

The IES assesses the severity of trauma-related symptomatology (i.e., the extent of intrusive and avoidance symptoms). We used the French version of the IES (Horowitz, Wilmer, & Alvarez, 1979; Zilberg, Weiss, & Horowitz, 1982). The IES is a 15-item self-report questionnaire measuring two dimensions of post-traumatic psychological distress: event-related intrusions and event-avoidance. The IES is one of the most widely used PTSD-related scales and has been applied to many different trauma samples (Joseph, 2000). The participants were requested to keep in mind the most traumatic event of domestic violence they could remember while answering the IES, and to indicate how frequently the comments were true during the past seven days. The frequency of each symptom was scored on a four-point scale, ranging from 'not at all' (0) to 'often' (5). The scores for the total IES range from 0 to 75, with higher scores denoting higher levels of distress. Although it is acknowledged that the IES alone is not diagnostic of PTSD, for the French version (Brunet, St-Hilaire, Jehel, & King, 2003) of the IES, it is suggested that a score of 26 is the cut-off point for a clinically significant level of trauma-related symptomatology (Kleber, Brom, & Defares, 1992). The Cronbach's alpha for the current study was .82 for the entire scale, .91 for the IES intrusion subscale and .83 for the avoidance subscale.

2.2.2. State-Trait Anxiety Inventory (STAI)

The STAI (Spielberger, Gorsuch, Lushene, Vaag, & Jacobs, 1983) was adapted and validated with a French population by Gauthier and Bouchard (1993). It includes separate measures of state and trait anxiety. We only used the state anxiety measure, which is comprised of 20 statements (items 1 to 20) focusing on how the subject feels at the present moment. It assesses feelings of apprehension, tension, nervousness, and worry. This score is expected to increase when the individual is faced with physical danger or psychological stress. The Cronbach's alpha was .61 for the State-Trait Anxiety Inventory in the current study.

2.2.3. Center for Epidemiologic Studies Depression Scale (CES-D)

The CES-D (Radloff, 1977) was developed by the Center for Epidemiologic Studies of the National Institute of Mental Health. It is a self-report questionnaire that assesses mood, somatic symptoms, interpersonal problems, feelings of inferiority, and psychomotor responses. Participants were asked to indicate the frequency with which symptoms occurred during the past week on a scale from 0 to 3, with 0 = less than one day, 1 = 1–2 days, 2 = 3–4 days, and 3 = 5–7 days. In this study, the scale's internal consistency was .79. The CES-D was translated and validated in France by Führer and Rouillon (1989).

2.2.4. Subjective Units of Distress Scale (SUDS)

The SUDS (Wolpe, 1990; Wolpe & Abrams, 1991) is an 11-point scale where 10 reflects the highest level of disturbance and 0 the lowest level or absence of disturbance. The SUDS indicates the level of distress or disturbance experienced by the individual in reaction to the target, which is activated and processed during the psychotherapy procedure. It is a subjective evaluation of the individual's negative experience during treatment and an important part of the EMDR protocol.

Two practitioners accredited by EMDR Europe (Accredited Practitioners are recognized as having demonstrated their competence

in the practice of EMDR under the supervision of an EMDR Consultant) administered the procedures according to the standard EMDR protocol, which is comprised of eight distinct phases (history & treatment planning, preparation, assessment, desensitization, installation, body scan, closure, and reevaluation). The participants were asked to focus on a target associated with an event during which they were physically assaulted. For some participants, it was necessary to process several targets associated with episodes of violence (six participants processed one target, two participants processed two targets, and four processed three targets).

The participants were then instructed to track the therapist's bilateral hand movements from left to right, and back. These bilateral eye movements lasted between 20 seconds and a few minutes, depending on the participant's emotional reaction. During this phase, the participant's reactions could be observed: memories, insights, associations, body sensations, and emotions. The participant was asked to describe what she noticed during pauses between sets of bilateral stimulation. The therapist then instructed the participant to focus on that and proceeded with another set of eye movements. In adherence to the EMDR protocol, the therapist refrained from asking the participant for any details or clarification, but rather instructed her to "just notice. . . whatever happens" and continued with the sets of bilateral stimulation until no new change or material appeared, or until only positive associations, emotions, and sensations were reported. Between sets of eye movements, the participant would describe the thoughts, feelings, and sensations that had emerged.

Although processing begins by focusing on a specific event or experience, associations with other events will arise during sets of bilateral stimulation, as well as thoughts and beliefs concerning oneself, and even imaginary material. The emotional state changes rapidly along with changes in cognitions. Changes on the SUDS scale also inform the therapist's decision to continue processing the initial event, to end it, or to proceed to process other targets.

As in Scheck, Schaeffer, & Gillette's (1998) protocol, the two therapists administering the procedures were instructed to assess the extent to which each session complied with Shapiro and Forrest's (1997) standard protocol on a five-point scale from 1 (not satisfied with compliance to the standard protocol) to 5 (totally satisfied with compliance to the standard protocol). The first therapist who administered 35 sessions obtained a global satisfaction score of 4.28 (0.71) while the second therapist obtained a score of 4.44 (0.48) for 25 sessions. Ideally, sessions should be filmed and validated by an independent rater, but this was not possible in this study and constitutes one of its limitations. Since this study was exploratory, we did not have the human or financial means to analyze between 60 and 70 potential hours of videotapes. Measures were administered by independent psychologists who were not informed of the results before the end of the study.

If no difference existed between the EMDR, eclectic, and control groups at pre-test, we would, however, expect to see significant differences between the three groups on the IES (total score, intrusion, and avoidance), on the STAI, and on the CES-D after five sessions (post-test phase) and after 6 months (follow-up). We expect that after treatment, the scores of the subjects in the two groups on the different scales, and particularly those of the group benefiting from EMDR therapy, would be reduced over time, while the scores of the subjects in the control group would not show any change. More precisely, we expect (hypothesis 1) that at post-test and follow-up, the participants in the EMDR and eclectic therapy conditions will have lower scores on all scales compared to pre-test values, indicating a reduction in manifest symptoms. Such a result should not be observed for the control group. We also expect (hypothesis 2) that the subjects treated with EMDR will have significantly lower scores on various scales at post-test and follow-up compared to the eclectic therapy group. Similarly, we expect (hypothesis 3) that subjects

Table 2

Means (M) and standard deviation (SD) for outcome variables by condition (groups) for different phases.

	EMDR Group (n = 12)		Eclectic Group (n = 12)		Control Group (n = 12)	
	M	SD	M	SD	M	SD
<i>IES Total</i>						
Pre-test	54.08	11.2	54.83	11.1	50.75	9.8
Post-test	29.3 ^a	5.1	38.4 ^b	4.4	47.6 ^c	5.1
Follow-up	25.1 ^a	4.06	35.2 ^b	6.1	44.1 ^c	6.1
<i>IES Avoidance</i>						
Pre-test	27.4	10.2	27.2	10.2	24.6	9.4
Post-test	15.1 ^a	4.9	19.5 ^b	3.1	24.1 ^c	3.7
Follow-up	12.7 ^a	2.4	17.2 ^b	3.8	22.7 ^c	5.2
<i>IES Intrusion</i>						
Pre-test	26.6	3.3	27.5	4.1	26.08	4.9
Post-test	14.3 ^a	4.1	19.1 ^b	5.1	23.6 ^c	4.09
Follow-up	12.4 ^a	3.2	18.2 ^b	2.9	21.4 ^b	5.3
<i>STAI Trait</i>						
Pre-test	55.6	7.6	57.8	6.3	58.3	7.2
Post-test	39.2 ^a	6.1	44.9 ^b	4.9	53.08 ^c	6.12
Follow-up	35.1 ^a	3.6	44.3 ^b	5.57	52.1 ^c	5.06
<i>CES-D</i>						
Pre-test	14.3	8.4	12.4	6.2	15.5	5.07
Post-test	7.6 ^a	2.6	8.6 ^a	3.2	14.2 ^b	3.5
Follow-up	7.4 ^a	1.5	9.1 ^b	2.6	13.1 ^c	2.16

Means in the same line that do not share the same subscript differ at a Bonferroni corrected alpha level of $p < .05$; IES Total: Impact of Event Scale, Total Scale; IES Intrusion: Impact of Event Scale, Intrusion subscale; IES Avoidance: Impact of Event Scale, Avoidance subscale; CES-D: Center for Epidemiologic Studies Depression Scale; STAI Trait Anxiety: State-Trait Anxiety Inventory, Trait Anxiety scale.

treated with eclectic therapy will have significantly lower scores at these two phases compared to the control group. Finally, we expect (hypothesis 4) that the perceived disturbance score (SUDS), which is specific to EMDR, will be significantly lower at post-test than at pre-test, and that this reduction will be maintained after 6 months.

3. Results

MANOVA analyses of variance were conducted for the different dependent variables on the basis of Group (EMDR versus Eclectic versus Control) \times Assessment phase (pre-test versus post-test versus 6-month follow-up). Results revealed (Table 2) statistically significant between-group differences (EMDR, eclectic therapy, and control) at post-test ($n = 36$; Pillais = .95; $F = 5.46$; $p < .001$). The alpha level was set at .05 for the multivariate tests. Subjects treated with EMDR presented significantly lower scores on all scales except the CES-D depression scale than subjects in the eclectic therapy group and subjects in the control group. The scores of the participants in the EMDR and eclectic therapy conditions on the CES-D were not significantly different, even if both groups had scores that are significantly lower than those of the control group. Wilks' lambda (10, 58) = .12, $p < .001$; IES Total, $F(2, 36) = 41.47$, $p < .001$; IES Avoidance, $F(2, 36) = 15.04$, $p < .001$; IES Intrusion, $F(2, 36) = 12.97$, $p < .001$; CES-D $F(2, 36) = 14.76$, $p < .001$ and STAI Trait Anxiety, $F(2, 36) = 17.09$, $p < .001$.

Outcomes also showed statistically significant between-group differences at the 6-month follow-up ($n = 36$; Pillais = .99; $F = 7.6$; $p < .001$). The subjects in the EMDR condition presented significantly lower scores for the five dependent variables compared to the eclectic therapy and control conditions. In all cases, the subjects in the eclectic therapy group presented significantly lower scores than the control group, except for the intrusion score on the IES, Wilks' lambda (10, 58) = .09, $p < .001$; IES Total, $F(2, 36) = 35.58$, $p < .001$; IES Avoidance, $F(2, 36) = 18.66$, $p < .001$; IES Intrusion, $F(2,$

Table 3
Mean effect size (Cohen's *d* for repeated measures) estimates for the different groups according to measures and the different phases.

Variables	EMDR Group (<i>n</i> = 12)	Eclectic Group (<i>n</i> = 12)	Control Group (<i>n</i> = 12)
<i>IES Total</i>			
Pre-test/post-test	2.6	1.2	0.3
Pre-test/follow-up	2.9	1.3	0.9
<i>IES Avoidance</i>			
Pre-test/post-test	1.6	0.7	0.07
Pre-test/follow-up	1.5	0.8	0.2
<i>IES Intrusion</i>			
Pre-test/post-test	2.3	1.7	0.8
Pre-test/follow-up	3.1	1.5	1.5
<i>STAI Trait</i>			
Pre-test/post-test	2.1	1.4	1.04
Pre-test/follow-up	2.4	1.6	1.12
<i>CES-D</i>			
Pre-test/post-test	0.8	0.6	0.5
Pre-test/follow-up	0.7	0.4	0.6
Means (SD)	2.31 (0.56)	1.27 (0.36)	0.74 (0.5)

36) = 15.68, $p < .001$; CES-D $F(2, 36) = 22.01$, $p = .000$, and STAI Trait Anxiety, $F(2, 36) = 40.84$, $p < .001$.

There was a significant effect of time, Wilks' lambda (2, 32) = .11, $p = .001$. The pre-test mean was significantly greater than the average of the post-test, Wilks' lambda (1, 35) = .20, $p < .001$ and of the 6-month follow-up, Wilks' lambda (1, 35) = .11, $p < .001$. This contrast was significant for all five outcome measures, for the EMDR group ($p < .02$) and for the eclectic therapy group ($p < .05$). For the control group, a significant reduction of scores on the CES-D, the STAI Trait Anxiety, and the IES Total ($p < .05$) was observed between pre-test and the 6-month follow-up. The post-test mean was significantly different from the 3-month follow-up mean, Wilks' lambda (1, 35) = .64, $p < .001$. The contrast was significant only for the STAI Trait Anxiety and the IES Total in the EMDR condition ($p < .03$) and only for the IES Total in the eclectic therapy condition ($p < .001$) and the control condition ($p < .007$).

The SUDS was only evaluated for the participants in the EMDR group. Results indicated a significant effect of time, Wilks' lambda (2, 10) = .024, $p < .001$. At pre-test, the SUDS was significantly ($p < .001$) higher (mean = 8.4, S.D. = 1.08) compared to the mean SUDS at post-test (mean = 2.08, S.D. = 0.79) and follow-up (mean = 1.91, S.D. = 0.6). The last two scores were not significantly different.

Treatment effect size (ES). There is some controversy about how to compute effect sizes when you have matched groups or repeated measures. In order to analyze our results, we chose to follow the proposition made by Cohen (1988) who suggests that in the case of a repeated measure, an evaluation of the size effect (*d*) can be made on the basis of the relationship between the mean differences divided by the standard deviation of the differences. Thus we calculated an index *d* for size effect for each group and for each measure between the pre-test and the post-test, and after 6 months (Table 3).

It can be observed that the treatment effect size for the EMDR therapy (ES = 2.31) is almost twice that of the eclectic therapy (ES = 1.27). The difference is statistically significant ($F(2, 23) = 21.6$, $p < .001$) between the EMDR group and the other two groups ($p < .001$). However, no difference exists between the eclectic group and the control group ($p = .11$). The greatest effect size is shown in the EMDR group for the reduction of intrusive symptoms (ES between 2.3 and 3.1). It may be noted that the effects of therapy are particularly important for anxiety symptoms, but less so for the depressive symptoms.

4. Discussion

The purpose of this study was to evaluate the effectiveness of EMDR treatment on women experiencing intimate partner violence compared to eclectic psychotherapy and a control condition, in producing a decrease in PTSD, anxiety, and depression symptoms as well as the SUDS, which measures the level of psychological distress. Results were encouraging and partly consistent with our expectations. In line with our first hypothesis, it appears that the treatment of victims (EMDR and eclectic) of violence is always positive on a psychological level. Indeed, on all measured variables, EMDR and eclectic therapy treatment both led to a significant decrease in scores on IES, STAI, and CES-D scales at post-test and at a 6-month follow-up compared to the pre-test; this was not the case for the control group. Therefore, the passage of time is not sufficient to improve the situation of IPV victims who are often in a situation of recurring events. Hence, if nothing is done to offer them psychological treatment, there is a risk of accumulation of violent events and of their psychological consequences.

Concerning our second hypothesis, it appears that EMDR treatment is significantly more effective than eclectic therapy as measured at the post-test and follow-up phases for all five measured variables in this study. If this difference is less on the CES-D (no difference between the two therapy conditions at post-test), it is particularly manifest for the intrusion score, which in itself probably highlights a difference in action mechanisms between the two therapy approaches. In eclectic treatment, the therapists taught the participants techniques to cope with their symptoms, to make them more manageable, which may have contributed to the women's perceptions of the therapist as responsible for the effects. In EMDR, the therapists activated the adaptive information processing mechanism through the EMDR protocol and followed the client's process to a point of resolution, perhaps instilling a greater sense of self-efficacy. While it is possible to follow advice on how to manage avoidance symptoms or anxiety, it would seem particularly difficult to fight or to protect oneself from intrusions, which are typical of trauma reactions. The decrease in intrusive symptoms reveals a fundamental curative action, which treats the psychological impact of violence, and is characteristic of EMDR therapy, but much less so in eclectic therapy. However, the latter approach does show some effectiveness since it has significantly different outcomes compared to the control group. In our study, our therapists were less preoccupied with the therapeutic relationship than by the respect of the protocol and by symptom resolution. Because of the experimental context, the EMDR therapists did not focus their intervention on the therapeutic alliance as much as the eclectic therapists, who did not have to follow a strict protocol. Most therapy approaches consider the quality of the client-therapist relationship as important, if not essential, to the resolution of trauma. In this regard, the practice of EMDR in a clinical setting generally integrates emphasis on a strong therapeutic alliance with the specific procedures and working mechanisms of EMDR.

The third hypothesis is partially validated: while the scores for most measures are significantly lower for the eclectic group than for the control group, outcomes on the IES intrusion subscale do not show any significant difference, particularly at the 6-month follow-up.

As expected by the fourth hypothesis, the participants treated with EMDR showed greater symptom reduction than the group of women who did not benefit from any treatment. Regarding the SUDS, which evaluates the individual's level of disturbance, we observed a considerable decrease between pre-test and post-test, and this decrease stabilized and was maintained over time. EMDR therapy is recognized as effective in the treatment of PTSD. To the best of our knowledge, EMDR has never been studied with victims of domestic violence. It appears that EMDR represents a suitable

intervention in the treatment of the psychological symptoms of this complex issue. It is rapid, since after five sessions, there was a decrease in anxiety and PTSD symptoms as well as in SUDS, and the effect sizes were greater than for eclectic therapy. This is a noteworthy achievement considering the existing literature on domestic violence. It is adaptable, because this population, often seen as “volatile”, is not always able to invest an important amount of time in therapy. Frequent changes and moves between centers, housing problems, the need to rebuild one's life socially, professionally, and family-wise, and the lack of means, often make it difficult, if not impossible, for these women to engage in therapy, which is not on top of their list of priorities.

Although the results are interesting, this study presents several limitations that somewhat reduce the significance of the outcome. First, it was not possible to randomize the subjects in the groups. This limitation is often found in the literature and is relative in our opinion. Effectively, the randomization of patients in studies on psychotherapy is actually difficult because clinical practice is not randomized; therefore, randomization creates an artificial situation since it ignores the fact that patients in psychotherapy actively choose their own treatment. Thus, the principle of randomization would be a limit in this type of study. Therefore, although we took precautions to control as many parameters as possible, we cannot be certain that the three groups were equivalent. The control group was comprised of women who chose not to follow EMDR treatment but who accepted to complete the measures during each of the three phases. We must admit this is a process that can be difficult to put into practice. However, it must be acknowledged that unlike studies in pharmacotherapy, no equivalents of placebos are used in studies in psychotherapy. Non-specific psychological treatments (which are supposed to resemble a placebo), administered to patients in control groups, are not “neutral” in the same way as a placebo is “neutral” in pharmacology, because they produce psychological effects without considering if they are clinically significant.

Because of a lack of time, means, and availability, the EMDR sessions could not be evaluated by an independent expert. Therefore, the homogeneity of the EMDR treatment could be questioned, even though each therapist attempted to assess whether his or her practice was in keeping with the standard protocol. Our findings show that therapeutic effects are present, although it would have been preferable to have an external validation for scientific purposes. Here too, because of the obligation to use therapy textbooks in EMDR, which is necessary to globally determine the active principle of the tested treatment, one can have some reservations as soon as one strays from laboratory conditions. This is even completely contradictory with a certain spontaneity and adaptability, even with the capacity to think, that constitute the basic ingredients for treating complex troubles, which are not precisely studied in randomized control studies due to the definition of troubles, the creation of homogeneous groups, and the duration and complexity of the treatments (longer than those of an isolated trouble). Based on the reanalysis of the recordings of the NIMH study on depression (Elkin, 1989), which was unanimously considered to be of great methodological quality, Ablon and Jones (2002) showed that the therapist has an important degree of variability within a given model.

Furthermore, the measurement of treatment outcome was entirely based on simple subjective measures. It would have been interesting to include physiological measures given that a recent study on the treatment of PTSD found eye movement covaried with physiological arousal, and that overall arousal decreased with additional eye movement sets (Elofsson, von Scheele, Theorell, & Sondergaard, 2008).

Generally speaking, and in spite of certain difficulties in its implementation, this study met our expectations in the sense

that our findings confirm the advantages and the potential of EMDR. However, if no additional proof is required to demonstrate EMDR's effectiveness in the treatment of PTSD, further research is needed on its ability to reduce other manifestations such as depressive symptoms, stress, or anxiety, as well as its potential to strengthen adaptive skills, feelings of self-efficacy, quality of life, or self-esteem. The challenge of the future will no doubt reside in demonstrating the variety of clinical applications for which EMDR can be effective.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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