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ORIGINAL ARTICLE

Benefits of “eye movement desensitization and reprocessing” psychotherapy in the treatment of female victims of intimate partner rape[☆]

C. Tarquinio^{*}, A. Schmitt, P. Tarquinio, J.-A. Rydberg, E. Spitz

APEMAC UE 4360 Research Department, Psychological and Epidemiological Approaches to Chronic Diseases, Health Psychology Team, Paul Verlaine de Metz University, Île du Saulcy, BP 80, 794 Metz cedex 1, France

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Summary This study sought to evaluate the effects of eye movement desensitization and reprocessing (EMDR) psychotherapy, particularly with regard to the reduction of post-traumatic stress disorder (PTSD), anxiety, and depressive symptoms, based on the treatment of 6 female participants who had been victims of intimate partner rape. All of the participants completed quantitative measures pretreatment and following each session. The measures used were the Hospital Anxiety and Depression Scale and the Impact of Events Scale, as well as the Subjective Units of Disturbance Scale used in EMDR. Participants were also administered qualitative interviews before and after the treatment in order to assess the presence of PTSD symptoms according to the Diagnostic and Statistical Manual of Mental Disorders *American Psychiatric Association (APA), 2004*. Outcomes were consistent with our expectations and showed a significant and gradual decrease in scores on the various scales during treatment. As the literature has repeatedly shown, individuals who receive EMDR treatment tend to assess themselves as feeling less and less disturbance as the therapy progresses. We also observed a significant decrease of scores on the various scales following the first two sessions. Finally, the psychological treatment based on EMDR therapy led to an important decrease in the number of PTSD symptoms. This reduction was consistent for the *American Psychiatric Association (APA), 2004* criteria under consideration (B, C, & D).

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^{*} Corresponding author.

E-mail addresses: ctarquinio@aol.com (C. Tarquinio), alischmitt@yahoo.fr (A. Schmitt), pascaletarquinio@aol.com (P. Tarquinio), jarydberg@gmail.com (J.-A. Rydberg), elisabeth.spitz@wanadoo.fr (E. Spitz).

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Introduction

According to WHO estimates, between 16 and 52% of women in the world have already been subjected to some form of violent behavior by their partner, boyfriend, or husband (Amoakohene, 2004). Specifically, studies show that on average 33% of women across the world experience violence perpetrated by their partner (husband, boyfriend, common-law spouse...) (Pan et al., 2006). The acts of violence against women being considered here can take several forms and are not necessarily physical – they can also be psychological, verbal, or sexual, such as rape. In the most severe cases, this violence can result in aggressive behavior directed at the victim herself or toward others (e.g., homicidal or suicidal behavior). 76.5% of murders committed within a couple are preceded by repeated violence. It is estimated that approximately 30% of rapes are perpetrated by the woman's intimate partner (Basile, 1999; Basile et al., 2004). According to a study by Martin et al. (2007), women who have been raped by their partner report five times more threats or suicide attempts than woman who have been subjected to other forms of violence in their couple.

We will use the definition of rape according to French Law: "Any act of sexual penetration, of any nature, perpetrated on another person, using violence, force, threat, or an element of surprise, is a rape" (article L.222-23, Code pénal, 2009). The National Crime Observatory (Observatoire National de la Délinquance) reports 890 000 victims of this type of violence, or 2.5% of women aged between 18 and 60 years old. The numbers stem from a direct poll, in which 11 200 victims aged between 18 and 60 were interviewed during the first three months of 2007 (Soulez and Rizk, 2008).

Being in a romantic relationship by no means implies having any sort of ownership of the other person's body nor any entitlement to disregard their desire or their refusal. The first important study on the subject was that of Russell (1990), based on a random sample of 930 women aged 18 or over. Outcomes showed that 14% of the 644 women who had experienced a marital relationship reported having been subjected to rape or to attempted rape by their husband or ex-husband. The prevalence rate of intimate partner rape for female victims appears to be 7.7% in the United States (Tjaden and Thoennes, 1998) and 6.8% in Quebec (Rinfret-Raynor et al., 2004). In France, Jaspard et al. (2003) conducted a study with 5908 adult women who reported that during the preceding 12 months, 0.9% had been forced in one way or another to have sexual intercourse with their partner (which amounts to approximately 200 000 women each year). These repeated rapes can leave physical and psychological scars in women who are victims of their partners (Boucher et al., 2009). The physical consequences highlighted by these authors can take the form of anal or vaginal lesions, cystitis, miscarriages, unplanned pregnancies, sexually transmitted diseases, sexual dysfunction, and chronic genital pain. Psychological sequelae can present as PTSD with intrusive traumatic elements (memories, repetitive dreams, flashbacks...), the persistent avoidance of stimuli associated with the event, hyperarousal (concentration difficulties, irritability or anger

issues, hypervigilance, exaggerated startle response...). PTSD causes significant suffering and the alteration of social and professional functioning, as well as difficulties in other areas (American Psychiatric Association [APA], 2004). Using a combination of interviews and questionnaires, West et al. (1990) revealed a prevalence of 47% of ESPT associated with domestic violence of any type. Mertin and Mohr (2002) showed that in a population of 100 women, a very important link existed between PTSD, depression, anxiety, and the exposure to domestic violence. The number of cases of PTSD that can be linked to violence against women represent a significant share of the population that suffers from PTSD (Fischbach and Herbert, 1997), since between 33 and 83% of women who have been subjected to domestic violence (of any form) appear to have PTSD (Bargai et al., 2007). It seems that women who experience sexual violence in particular within their relationships show more serious and long-lasting symptoms of post-traumatic stress (Basile et al., 2004; McFarlane et al., 2005). Intimate partner rape is a type of violence that causes significantly more PTSD and depressive symptoms than any other form of violence within a romantic relationship (Martin et al., 2007). Following this type of trauma, frequent symptoms include PTSD, depression (Campbell and Soeken, 1999), anxiety disorders and suicidal ideation (Weaver et al., 2007), and often presenting to a much more serious degree than with other types of domestic violence. Furthermore, victims show a lower self-esteem, an altered body image, a lower well-being and a weaker sense of self-efficacy (Martin et al., 2007).

In this field, EMDR therapy appears to be an interesting psychotherapeutic response in order to counteract the effects of intimate partner violence (Tarquinio et al., Soumis) and more precisely of this specifically sexual violence (Négadi et al., 2007), since this approach is clearly identified in the current international literature as effective in the treatment of PTSD and of associated reactive adaptive disorders (Rothbaum, 1997; Rothbaum et al., 2005; Shapiro, 1989). Since 1989, many publications (for a review in French, see Tarquinio, 2007) have demonstrated the efficacy of EMDR, notably in the area of the treatment of PTSD. Initially intended to treat individuals who had experienced traumatic events, the approach subsequently evolved to be applied to the treatment of several types of psychopathology (De Jongh et al., 1999; Shapiro, 1989, 2001). Research on EMDR therapy has mainly concentrated on eye movements (and other forms of bilateral stimulation) that may constitute one of the mechanisms of action in this approach. A comparison can be made with the processes engaged in rapid eye movement (REM) sleep. Indeed, rapid eye movements occur during dream states and there is more and more evidence indicating that the purpose of dreams is to elaborate and to psychologically digest real life experiences (Carskadon, 1993). It seems that when disturbing memories appear in dreams, rapid eye movements induce a relaxation response that allows these experiences to be processed. This can be likened to Wolpe's "reciprocal inhibition" (Wolpe, 1990; Wolpe and Abrams, 1991), considered to be responsible for the decrease in anxiety in his systematic desensitization treatment.

The goal of this article is to highlight the positive effects of EMDR therapy, based on the treatment of six women who had been raped by their intimate partners; specifically we will attempt to show the effects regarding PTSD symptoms, anxiety, and depression.

Patients and methods

Patients

Six women took part in this study. The participants were directly referred to the psychologists involved in the research by regional victim assistance organizations.

To be included in the study, participants needed to meet certain criteria (Table 1):

- to have been subjected to sexual assault by their intimate partner;
- to have filed a complaint with the police;
- to not have experienced any similar trauma previously or any event that might provoke any psychological reactions that resemble those being assessed in this study (PTSD, anxiety, depression). The goal was to ensure that the participants of the study had not been subjected to a previous trauma before the violent event, i.e., the intimate partner rape;
- to accept the conditions and the procedure of the research protocol and to give informed consent;
- to live in France and to be able to speak and understand French without an interpreter;
- to be aged between 18 and 60;
- in case of medication for an anxious or depressive state, participants committed to continue their medical treatment for the duration of the study;
- no addictions or substance abuse;
- no contraindication with EMDR psychotherapy (health status, neurological disorders, eye pain or ocular disorders, dissociative disorders...);
- in order to ensure a degree of homogeneity within the sample, we included victims in a period of 8 to 12 weeks following the sexual assault. It should be noted that this parameter reflected the judicial and medical journey of these women, whom we rarely had the opportunity to meet earlier. Generally they would first file a complaint (in this study, all of the subjects maintained their complaint), then they received assistance from a victims' organization within a variable timeframe (from a few days to 3 weeks later), met a medical doctor, and finally were referred to us for psychological treatment, allowing for inclusion in this study.

Clinical material

Following two initial interviews and history-taking, enabling the patients to build a sufficiently trusting relationship with the psychotherapists/researchers, we offered them EMDR treatment. The history, established during these first interviews, enabled the psychotherapist to acquire some knowledge about the patient's life and clinical situation, thus allowing the consideration of possible inclusion in the research protocol. The study was presented as a

Table 1 Participants' sociodemographic data.

Variables	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5	Subject 6
Age (in years)	25	35	35	37	26	45
Socioprofessional status	Employee	Employee	Employee	Employee	Employee	Employee
Level of education	College/university	French 1st level diploma	French 1st level diploma	College/university	High school	High school
Marital status	Civil union	Married	Married	Married	Civil union	Common-law union
Number of children	1	1	2	0	0	3
Number of EMDR sessions that were required	4	4	3	3	4	4

All subjects in this study filed and maintained a complaint.

pilot research project, aimed at assessing the effects of EMDR treatment. The beginning of EMDR psychotherapy treatment preceded the initial phase by one week; we then met each subject on a weekly basis for 60-minute sessions.

Two types of assessment (quantitative and qualitative) were performed. All participants were administered a quantitative assessment using psychological scales. The participants also took part in two more qualitative interviews, in order to allow for the more precise evaluation of the presence of PTSD symptoms.

The quantitative assessment was administered before the psychotherapy treatment, and after each session (each session lasting approximately 60 minutes). We asked each participant to complete the same form, requesting the age, gender, number of children, level of education, professional status, as well as including the Hospital Anxiety and Depression Scale (HAD), the Impact Event Scale, total score (IES), and a measure, which is used in EMDR, the Subjective Units of Disturbance Scale (SUDS).

The IES Scale (Horowitz et al., 1979; Zilberg et al., 1982) assesses the severity of symptoms related to the trauma. Composed of 15 items, this scale measures two dimensions of post-traumatic stress disorder: intrusion and avoidance (Joseph, 2000). The 15 items are scored between "never" (0) and "often" (5). A score of 26 is a significant clinical indicator of traumatization (Kleber et al., 1992). The outcomes on the intrusion and avoidance dimensions were similar. Therefore we decided to present the global results (total scores) for this scale.

Anxiety and depression were assessed using the HAD, which is based on 14 questions. Seven items address anxiety and seven focus on depression. Answers are scored between 0 and 3. The final scores vary between 0 and 21 for each component (anxiety and depression); the higher the score, the more severe the level of anxiety or depression. The HAD scale (Zigmond and Snaith, 1983) has been validated in French by Lépine et al. (1985).

The SUDS scale (Wolpe, 1990; Wolpe and Abrams, 1991) is an 11-point scale from 0 to 10, enabling the indication of the level of disturbance associated with the mental image or the activated target that is being processed during treatment. It reflects the subjective evaluation of the patient's negative feelings during treatment and is an important part of the EMDR protocol.

When it came to the qualitative assessment, we invited the participants to take part in two evaluation interviews, each lasting approximately one hour. These interviews were conducted before the beginning of therapy and enabled the history-taking and clinical assessment of these patients' situation and served to establish their possible inclusion in the study. It was important to conduct a more qualitative assessment of symptoms based on the American Psychiatric Association (APA), 2004. Indeed, in accordance with a previous study (Tarquinio et al., À paraître) conducted with female victims of intimate partner violence, we used the five symptoms of criterion B "the traumatic event is constantly relived...", the seven symptoms of C "persistent avoidance of stimuli associated with the trauma and a general numbing", the five symptoms

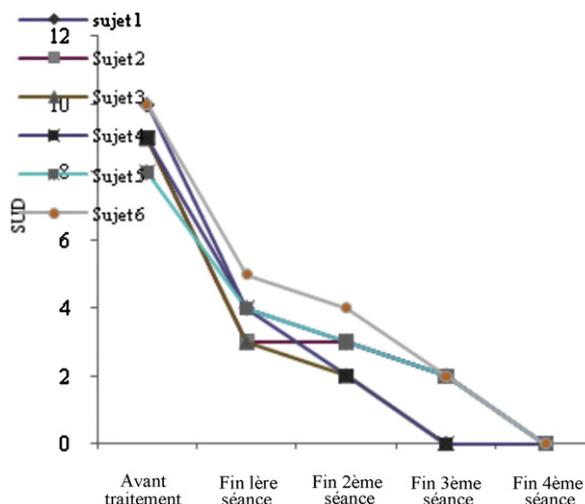


Figure 1 SUDS values for each subject pretreatment and after each session.

of criterion D "persistent symptoms revealing a general hyperactivation...".

In all cases, we noted the presence (scored as 1) or the absence (scored as 0) of symptomatic expression. So for criteria B and D, scores could vary between 0 and 5, whereas for criterion C they could vary between 0 and 7.

Two psychologists who are greatly experienced in the field of trauma conducted these interviews.

Two therapists who had been trained in EMDR therapy delivered the EMDR treatment to all participants. All followed the standard EMDR protocol with its eight distinctive phases (history, preparation, assessment, desensitization, installation, body scan, closure, and follow-up). Patients were requested to focus on a target associated with the sexual assault that they had experienced. The protocol used was the standard treatment protocol (Shapiro and Forrest, 1997; Shapiro, 2001; Tarquinio et al., À paraître).

We posited that the psychological treatment based on the EMDR therapy would lead to a significant decrease of the SUDS, HAD-Anxiety, HAD-depression, and IES scores (total score). This decrease was expected to occur gradually as the treatment progressed. Therefore we expected a significant reduction of the scores on all measures after each session. Finally, concerning the qualitative assessment of PTSD symptoms before and after treatment, we expected to observe the disappearance of B, C, and D criteria symptoms.

Results

Quantitative measures

The main results for the quantitative measures are described in Table 2. In consideration of the small size of our sample, we performed a statistical analysis using Wilcoxon's non-parametric matched-pairs signed-rank test.

Table 2 Means and standard deviations on the different scales for each session.

Scales	Pretreatment	End of the 1st session	End of the 2nd session	End of the 3rd session	End of the 4th session
SUDS 0-10	9.1 ^a (0.75)	3.8 ^b (0.75)	2.8 ^c (0.75)	1 ^d (1.09)	0 ^d
HAD-Depression 0-21	18.1 ^a (0.75)	14.8 ^b (1.7)	9.8 ^c (1.47)	8 ^d (1.2)	8.5 ^d (0.5)
HAD-Anxiety 0-21	19.5 ^a (1.04)	15.1 ^b (1.16)	11.8 ^c (1.7)	9.3 ^d (1.03)	9 ^d (0.81)
IES Total (0-75)	60.3 ^a (6.9)	35.3 ^b (6.2)	20.3 ^c (4.3)	11.6 ^d (1.9)	10.8 ^d (0.83)

The means followed by different letters (a, b, c, d) were significantly different ($p < 0.05$) for the Wilcoxon test.

Table 3 Number of symptoms (out of 5 possible) measuring the presence of intrusive thoughts (criterion B).

	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5	Subject 6	Total
Pretreatment	4	5	3	4	4	4	24
Post-treatment (after the last session)	0	0	0	0	1	1	2

Table 4 Number of symptoms (out of 7 possible) measuring the persistent avoidance of stimuli associated with the trauma and general flattening of affect (criterion C).

	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5	Subject 6	Total
Pretreatment	4	5	2	3	6	5	25
Post-treatment	1	0	0	1	2	1	5

Table 5 Number of symptoms (out of 5 possible) measuring the presence of persistent symptoms of hyperactivation (criterion D).

	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5	Subject 6	Total
Pretreatment	5	4	4	3	5	4	25
Post-treatment	1	1	0	0	1	0	7

As shown in Table 2, the mean scores on the different measures are significantly reduced from one session to the next. The differences between sessions are always significant, except between the third and the fourth session. Therefore it appears from the scores on the SUDS, HAD (anxiety and depression), and IES that the EMDR treatment decreases reactive symptoms. It is also noteworthy that the scores' reduction (Figs. 1–4) is almost linear for each of the six subjects and for all of the psychological indicators. Indeed, the decrease of the SUDS score following each session reveals how EMDR contributes to the reduction of these women's distress. Such an outcome is confirmed by the almost linear quality of the HAD depression/anxiety scores' decrease, and the same holds true for the IES total scores. It should be noted that subjects S3 and S4 only needed three treatment sessions. Following the principles that guide the conclusion of EMDR therapy (Shapiro, 2001), the therapists estimated that the goal had been reached and that the target had been processed. Interestingly, no results are significantly different between sessions 3 and 4, indicating that the fourth session didn't have the same weight as the others. This can be observed in Figs. 1–4, showing that the effects of therapy are particularly strong following the first two sessions, the slope being flatter for the last two sessions, for all measures.

Qualitative measures

From a more qualitative standpoint (Tables 3–5), we observe a considerable decrease of PTSD symptoms for each of the

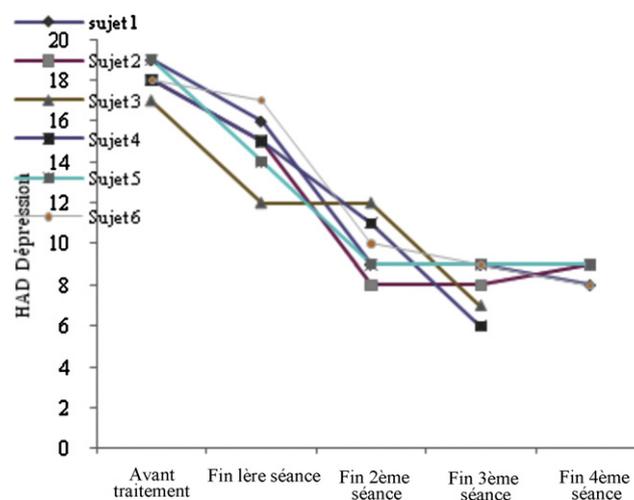


Figure 2 HAD depression scores for each subject pretreatment and after each session.

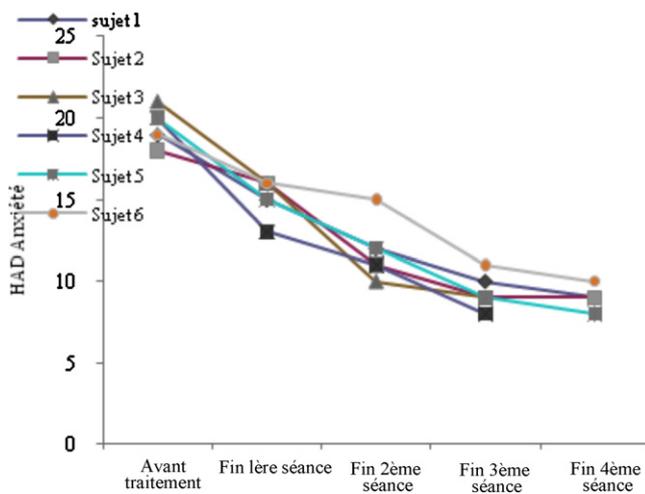


Figure 3 HAD anxiety scores for each subject pretreatment and after each session.

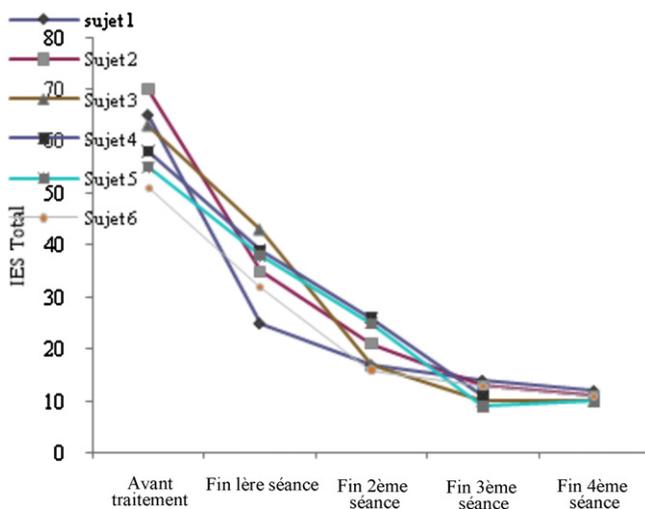


Figure 4 IES total scores for each subject pretreatment and after each session.

three American Psychiatric Association (APA), 2004 criteria, B, C, and D.

Concerning the “intrusive thoughts” (criterion B), four of six subjects in the study do not appear to show any more symptoms related to this criterion and the remaining two only show one of four possible symptoms. Generally speaking, there is a shift from a total symptomatic expression for the entire sample of 24 symptoms to merely two at the end of treatment (Table 3).

Concerning criterion C (“persistent avoidance”, Table 4), before treatment, five out of six individuals (84% of participants) presented between four and five symptoms. After EMDR treatment, these symptomatic expressions had been significantly reduced (divided by 5), changing from a cumulated total of 25 to only five for the entire group.

Finally, concerning criterion D (“hyperactivation”, Table 5), the same tendency is observed as for criteria B and C, with a clear reduction of symptoms following EMDR treatment.

All of the subjects had experienced an event during which their physical integrity had been threatened. Their reaction

to the event was expressed as intense fear, a sense of helplessness or of horror (Criterion A of the American Psychiatric Association [APA], 2004 diagnosis). All subjects showed at least one criterion B symptom, three criterion C symptoms, and two criterion D symptoms. The disturbance lasted for more than four weeks and provoked clinically significant distress, allowing for the PTSD diagnosis for all six women at the time of their inclusion in this study. After the last EMDR session, none of the participants met the American Psychiatric Association (APA), 2004 criteria for PTSD.

Discussion

The goal of this study was to assess the effectiveness of EMDR treatment for six women who had been subjected to intimate partner rape. Outcomes met our expectations and revealed a significant and gradual decrease of scores on PTSD, depression, anxiety, and perceived disturbance scales (IES, HAD, and SUDS) as treatment progressed. As shown in the classical literature, EMDR treatment leads participants to assess themselves as being less and less disturbed as treatment progresses. We observed, notably from Figs. 1–4, that the reduction in scores was particularly important during the first two sessions.

As we had hoped, the EMDR treatment led to a remarkable decrease of the number of PTSD symptoms. This decrease was homogeneous for all three criteria under consideration (criteria B, C, and D). These observations were not statistically tested.

As mentioned previously, EMDR treatment is one of the most recognized therapies for the effective treatment of PTSD. To our knowledge, apart from Négadi et al. (2007), it had not yet been applied to the treatment of victims of intimate partner rape. It appears that this psychotherapy approach can be very useful in the treatment of this type of public, allowing for the rapid reduction of symptoms that can be highly disturbing to victims. Of course, the difficulties of women who have been victims of intimate partner rape cannot be reduced to a simple symptomatic component. However, results encourage further research in the field of the treatment of women who have been subjected to intimate partner violence and more specifically the treatment of victims of intimate partner rape.

It appears that the adaptive processing, mediated by EMDR therapy, allows for the integration and “digestion” of the traumatic shock’s consequences. The initial psychotherapy phase allows for the identification of disturbing triggers (or targets) associated with the rape. The desensitization, which is at the heart of EMDR (although it is by no means the sole component), enabled the memories of the sexual assault to be processed, including related dysfunctionally stored memory networks. The confrontation with this material within the EMDR methodological framework allowed for a significant decrease of certain symptoms. This outcome is consistent with existing literature in the field. However one may wonder if the improvement of patients’ health can be reduced to this decrease in symptoms – this does not seem likely and further studies are needed to understand how self-esteem, sexual desire, coping or a renewed interest in one’s femininity are impacted by the therapy process. Although the outcomes are noteworthy, this study has sev-

eral limitations, which reduce the scope of its results. The first limitation is the small size of our sample, which precludes the generalization of our results. Our outcomes also need to be put into perspective because of our choice of subjects. Indeed, our participants were not representative of the actual clinical and social complexity of most patients that are seen by psychotherapists in their practices. Our subjects had sufficient personal and/or relational resources to be able to consider that being married or in an intimate relationship does not allow a person to do as they wish with their partner's body; they were able to recognize that they were the victims and to speak up; they also believed in the justice of their country. Moreover, women who are subjected to intimate partner rape are often also victims of physical violence (Soullez and Rizk, 2008); unfortunately, when it comes to intimate partner rape, repetition is generally the rule. Our work was inspired by a rigorous experimental framework, however modestly conducted, but interesting nonetheless, even for clinicians.

Conclusion

Globally, and in spite of certain difficulties encountered in conducting this research, our study enabled the exploration of the potential efficacy of EMDR therapy in the treatment of victims of intimate partner rape, yielding promising preliminary data. If EMDR's efficacy in the treatment of PTSD has been proven repeatedly, progress still needs to be made to assess the ability of EMDR to reduce other symptoms such as depressive and anxiety symptoms and to facilitate and reinforce adaptive skills, self-efficacy, quality of life, or self-esteem. Future research will hopefully broaden the scale of conditions to which EMDR can be applied successfully.

The assessment of the treatment of female victims of intimate partner rape has been largely neglected in the literature (Martin et al., 2007). Relatively few articles address this topic. There are a few studies on the use of "cognitive processing therapy" (CPT) or "stress inoculation therapy" (SIT) (Martin et al., 2007). But to the best of our knowledge, none have focused on the assessment of treatments.

EMDR appears to be an appropriate solution for the treatment of women who have been the victims of intimate partner violence. This study is one of the first to focus on the assessment of the treatment of this specific issue.

Disclosure of interest

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

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