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Treating addiction with schema therapy and EMDR in women with co-occurring SUD and PTSD: A pilot study

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ABSTRACT

Background: This study aimed to examine whether the combined use of schema therapy (ST) and Eye Movement Desensitization and Reprocessing (EMDR) can improve substance use disorder (SUD) outcomes in a sample of women with co-occurring SUD and posttraumatic stress disorder (PTSD). To our knowledge, no research has examined this question in a SUD-PTSD clinical sample.

Methods: We proposed to 15 women with SUD/PTSD comorbidity a two-phase-protocol therapy: eight ST sessions associated with EMDR focused on reprocessing traumatic memory (phase A) and eight ST sessions associated with EMDR focused on reprocessing addictive memory (phase B). We evaluated addiction severity, alcohol craving, cannabis craving, PTSD symptoms, early maladaptive schemas (EMS) intensity and depressive symptoms before and after treatment.

Results: Findings indicated that eight sessions of ST combined with EMDR focused on traumatic memories (phase A) reduced PTSD symptoms and the number of EMS. Findings on phase B showed a statistically significant decrease for addiction severity and depressive symptoms.

Conclusions. This study supports the importance of providing integrative therapies for improving SUD outcomes. Overall, this study indicates that ST plus EMDR is an effective, rapid, thorough and enduring treatment for SUD-PTSD women.

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Introduction

A large portion (11–60%) of patients seeking substance use treatment also meet diagnostic criteria for post-traumatic stress disorder (PTSD, Brady, Back, & Coffey, 2004; Jacobsen, Southwick, & Kosten, 2001; Najavits et al., 2003) which tends to worsen symptoms. This negative impact is particularly true among women (Brady, 1997; Brady, Dansky, Sonne, & Saladin, 1998; Brady, Killeen, Saladin, & Dansky, 1994; Dansky, Brady, & Saladin, 1998; Najavits, Weiss, & Shaw, 1999, 1997; Zweben, Clark, & Smith, 1994). Thus, the importance of integrated treatment for both PTSD and SUD is beginning to gain widespread acceptance in addiction treatment programs (Back, 2010) and particularly among women (Hien, Cohen, & Campbell, 2005).

Few preliminary works indicate that Eye Movement Desensitization and Reprocessing (EMDR, Shapiro, 1991, 1995, 2001) may be successful and feasible within PTSD-SUD populations (Hase, Schallmayer, & Sack, 2008; Perez-Dandieu & Tapia, 2014). For example, a previous study showed that PTSD-SUD patients receiving eight sessions of EMDR + Treatment As Usual (TAU which included clinical interviews, baclofen administration and anxiolytics/antidepressants administration) scored lower on measures of PTSD and depression than patients receiving just TAU (Perez-Dandieu & Tapia, 2014). However, in this study, EMDR treatment was not associated with a significant decrease in alcohol and drug use. It is proposed that this study failed to show a use-related decrease because the early maladaptive schemas (EMS) were not addressed simultaneously with EMDR treatment (Perez-Dandieu & Tapia, 2014).

EMS can be defined as "enduring and pervasive themes about oneself, others, and the world" (Ball, 2007, p. 307). These schemas often generate high levels of negative affect and produce self-defeating consequences (Young, Klosko, & Weishaar, 2003). Research has demonstrated that EMS are more prevalent among individuals seeking substance use treatment than in nonclinical control groups (Brotchie, Meyer, Copello, Kidney, & Waller, 2004; Khosravani, Mehdizadeh, Dortai, Alvani, & Aminrinezhad, 2016; Roper, Dickson, Tinwell, Booth, & McGuire, 2010; Shorey, Anderson, & Stuart, 2011, 2012a; Shorey, Stuart, & Anderson, 2013) and more for female than for male substance users (Shorey et al., 2012a; Shorey, Stuart, & Anderson, 2012b). Schema Therapy (ST) has been developed for treating patients with chronic emotional difficulties as EMS (Young et al., 2003). However, to the best of the authors' knowledge, there are few research studies examining the treatment of SUD patients with ST (except Ball, 2007) and we are unaware of any research testing combinations of ST with EMDR treatment in SUD-PTSD populations.

This current study aims to test whether treating EMS along with traumatic memory significantly reduces substance use and PTSD symptoms. We hypothesized that combining ST with EMDR would result in better treatment outcomes than receiving EMDR alone (Perez-Dandieu & Tapia, 2014) among women with co-occurring PTSD and SUD. This hypothesis constitutes the first phase (phase A) of our study.

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Heyne and colleagues (Heyne, May, Goll, & Wolffgramm, 2000) suggest a separate memory of addiction (i.e., memories of drug effect, loss of control and drug use). The Addiction Memory (AM) is presumed to be an episodic type of memory, and its cue-reactivity and power resemble the maladaptive traumatic memory formation at the core of PTSD (Van Der Kolk, Burbridge, & Suzuki, 1997). One of the outcomes of EMDR treatment is to facilitate an association process that may further transform the dysfunctionally stored information and its integration (memories of relapse or memories of intense craving) within appropriate contextual memory networks (Shapiro, 1995; Shapiro, Vogelmann-Sine, & Sine, 1994; Stickgold, 2002). One previous study demonstrated that when EMDR targeted memory representations of intense craving or relapse, craving for alcohol reduced significantly at post-treatment and 1 month after treatment (Hase et al., 2008). However, for the authors, earlier distressing events and experiences that laid the groundwork for dysfunctional negative beliefs need to be included to maximize robust and lasting treatment effects with this complex population. We believe that EMS should be included simultaneously with addiction-specific EMDR treatment plan.

Therefore, the second aim of the current study is to extend research about the actual efficacy of EMDR in addiction by determining whether eight additional sessions of ST combined with EMDR focused on AM will significantly reduce substance use and PTSD symptoms among the same sample. We hypothesized that combining ST with EMDR focused on AM after phase A will continue to improve treatment outcomes in our sample (substance use severity and PTSD symptoms) and more particularly regarding addiction-related issues (craving, EMS and depressive symptoms). This hypothesis constitutes the second phase of our study (phase B).

Methods

Participants

The sample consisted of 15 alcohol and/or drug using women receiving treatment (as outlined later) for problematic substance use behaviors within the same clinic (an outpatient Drug Treatment Center). Table 1 presents their sociodemographic and clinical characteristics. About three-quarters of the participants also received specific addiction medications (see Table 1). Study participants were all recruited by the same practitioner. He was their treating clinician and was qualified in addiction medicine. The patients were diagnosed throughout a structured interview according to the DSMIV diagnostic features for SUD and PTSD (APA, 1994). Participants with a history of psychosis or organic mental disorder, or those reporting continuous use of heroin, were excluded because of the risk of confounding factors. Prior to treatment, patients gave written informed consent. Approval from the Regional Ethics Committee was obtained (reference number: DC 2016/181).

Measures

Primary outcome measure

Addiction severity. The Addiction Severity Index-Lite (ASI, McLellan, Luborsky, Woody, & O'Brien, 1980; McLellan et al., 1992; Brisseau, Auriacombre, Franques, Daulouede, & Tignol, 1999; for the French version) is a shortened version of the ASI, which is a semi-structured assessment used to evaluate lifetime and recent (past 30 days) problem behaviors. We focused on alcohol or drug use composite scores. Therefore, we only used the severity profile scale ranging from 0 to 9 to quantify alcohol and drug severity score. The interviewer was not the person who did the clinical intervention.

Secondary outcome measures

Alcohol craving. The 14-item Obsessive Compulsive Drinking Scale (OCDS) is a quick and reliable self-rating instrument that provides a total and two subscale scores that measure cognitive aspects of alcohol craving (Anton, Moak, & Latham, 1996; Ansseau et al., 2000; for the French version). The translated scale is psychometrically as valid as the original English scale and confirms the psychometric properties of the OCDS (Ansseau et al., 2000).

Cannabis craving. The Marijuana Craving Questionnaire (MCQ) is the only multi-dimensional instrument assessing marijuana craving (Heishman, Singleton, & Liguori, 2001; Chauchard et al., 2015; for the French version). The MCQ is a Likert-based, 12-item self-assessment instrument for situational cannabis craving measurement with four factors (compulsivity, emotionality, expectancy, and purposefulness).

PTSD severity. The PTSD Checklist Specific (PCL-S, Weathers, Litz, Herman, Huska, & Keane, 1993; Ventureyra, Yao, Cottraux, Note, & De Mey-Guillard, 2002; for the French Version) was used to assess the PTSD severity. The PCL is a 17-item self-report checklist of PTSD symptoms, the global score varying from 17 to 85. A score greater than or equal to 44 (cut-off) was considered indicative of a probable PTSD diagnosis. With a cut-off score of 44, the overall diagnostic efficiency is improved to 0.900, yielding a sensitivity of 0.944 and specificity of 0.864 and correctly identifying 17 of 18 participants with PTSD in a predominantly female population of trauma victims (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996).

Number of suractivated EMS. EMS were measured by the Young Schema Questionnaire – Short Form, Second Edition (YSQ-S2, Young, 1998; Mauchand, Lachenal-Chevallet, & Cottraux, 2011; for the French version). This questionnaire measures the activation of 15 EMS by means of 15 sub-scores that may vary from 5 to 30 (Baranoff, Oei, Cho, & Kwon, 2006; Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002). The construct validity (Welburn et al., 2002) and reliability of the questionnaire in clinical and research use (Waller, Meyer, & Ohanian, 2001) have been established.

Depression severity. The Beck Depression Inventory (BDI, Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) served as measures for depression. The BDI is a 21-item, self-report questionnaire used to evaluate cognitive and vegetative symptoms of depression.

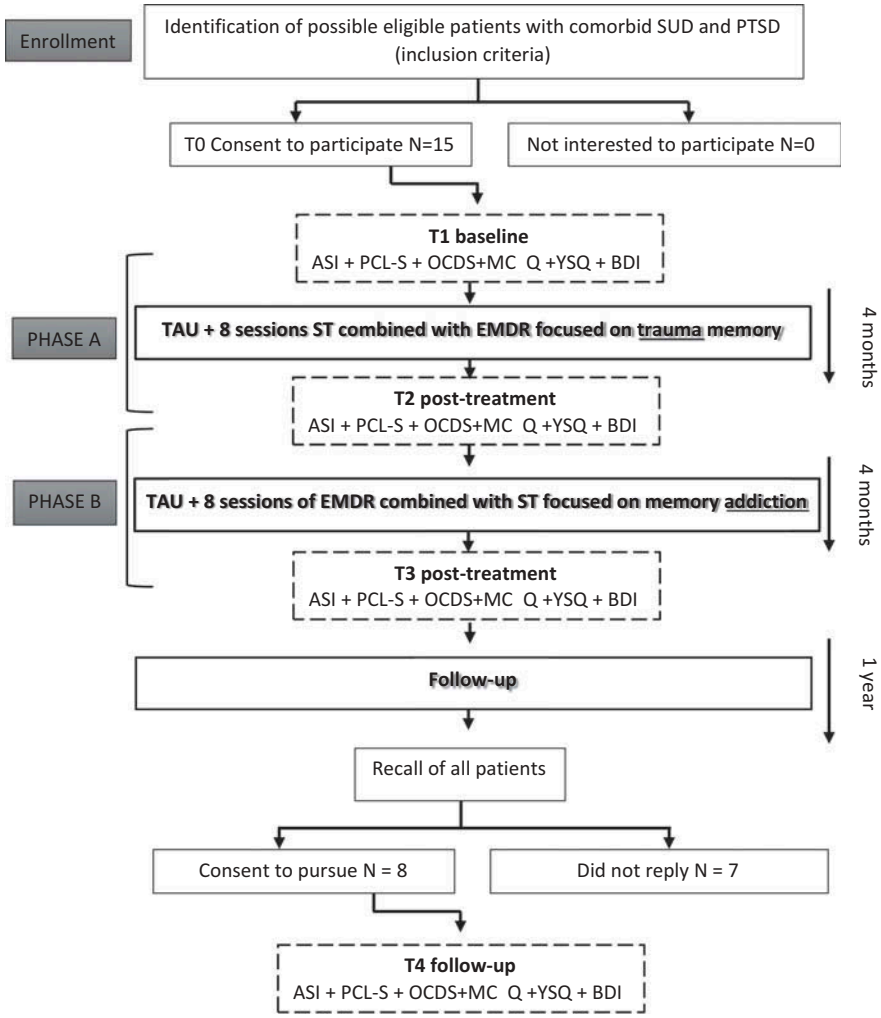

Figure 1. NB: Separate alcohol and cannabis measures were used since none of the participants used both substances as their substances of choice. However, all participants did alcohol craving and cannabis craving.

Procedure (see Figure 1)

Participants continued to receive TAU for as long as indicated by their regular treating clinicians, but at least until the end of phase B. TAU included clinical interviews with the addiction specialist, baclofen administration (for the treatment of alcohol craving), and anxiolytics/antidepressants administration (for reducing anxiety and negative thoughts). TAU also included opiate substitution treatment (methadone or buprenorphine), medications for treatment of PTSD if required, and psycho-educational interviews with social workers. Finally, TAU included social worker support to cope with the demands of everyday life and medical care with nurses. Initially potential participants were screened for PTSD with the PCL-S. If PTSD was diagnosed, and once informed consent was obtained, the remaining baseline measurements were administered (T1 baseline). After baseline, an introduction to ST and EMDR plus eight sessions of combined ST and EMDR was provided (phase A). The clinical psychologist followed a mode approach of ST similar to that described by Young and colleagues (2003) are as follows: (i) a therapeutic relationship characterized by warmth, nurturance and empathic confrontation, (ii) corrective emotional (traumatic) experiences with reparenting, and (iii) corrective cognitive experiences that lead to the development of the EMS. However, instead of using classical cognitive and behavioral techniques for addressing the third phase (iii) the clinical psychologist used EMDR technique.

The standard eight-phase EMDR procedure was used as adapted into French (Shapiro, 2007) (see Shapiro, 1995 for a detailed description of the EMDR procedure). The eight EMDR sessions focused on traumatic memories exclusively. The eight combined ST and EMDR sessions were offered on a bi-monthly basis. Thus, the whole treatment for phase A lasted four months. After a maximum of eight sessions, post-measurements were taken (T2 post-treatment). These post-measurements were followed by the second phase (phase B). Phase B consisted of eight additional sessions of ST combined with EMDR. Then the same clinician practitioner continued the ST with the same sample for eight further sessions.

Phase B differed to phase A in the nature of the memory reprocessing during the EMDR sessions. During phase B, the clinician practitioner focused only in reprocessing addictive memory (i.e., memories of drug effect, loss of control and drug use). After a maximum of eight sessions, post-measurements were taken (T3 post-treatment). A follow-up occurred after one year (T4 follow-up). Only eight

participants out of the 15 undertook this follow-up because it was difficult to find the others after one year due to life circumstances (i.e., moving).

Statistical analysis

Descriptive statistics were used to describe sample characteristics at baseline. The scores on the clinical variables were not normally distributed and were therefore analysed non-parametrically using SPSS-21 software package. To test for changes in scores on clinical measures before and after treatment Wilcoxon tests were used as appropriate. In order to reduce the chances of obtaining false-positive results (type I errors) when multiple pair-wise tests are performed on a single set of data, we used the Bonferroni correction (Bonferroni, 1936). Because six outcome measures were tested against three hypothesized predictors, a Bonferroni-adjusted significance level of 0.0028 was calculated to account for the increased possibility of type-I error. Accordingly, the authors used the Bonferroni correction to adjust the *P* value for each hypothesis to 0.0028 to neutralize this risk.

Result

Table 1 displays the characteristics of the sample. Our sample is relatively young (*M*age = 31.37) and reported addiction symptoms for many years (*M*addiction = 13.33). Most participants previously experienced traumas–mainly sexual abuse (11 women of 15) - and almost all of them encountered physical abuse or physical threatening and negligence. Most of them were poly-drug users, using alcohol and cannabis or alcohol and/or cannabis plus another drug (i.e., morphine, LSD and anxiolytics).

Table 2 displays the mean scores and standard deviation for all clinical measures at pre and post-treatment.

Regarding phase A effects, Table 3 shows that the decrease in scores of PCL-S and YSQ-S2 from pre-treatment (T1) to post-treatment (T2) is still significant ($p < 0.0028$) after the Bonferroni correction. Reduction scores of ASI did not reach the level of significance ($p = .003$). Regarding phase B effects, Table 3 reveals that the decrease in scores of ASI from pre-treatment (T2) to post-treatment (T3) is still significant ($p < 0.0028$) after the Bonferroni correction. It also shows a significant reduction of BDI scores ($p < 0.0028$). Diminution scores of YSQ-S2 did not reach the level of significance ($p = .003$). With regard to the follow-up stage, Table 3 shows that there was no significant change on any clinical score from T3 to one-year follow-up (T4).

Table 1. characteristics of the sample.

		Frequency	Mean (SD)	Percentage
Age (years)			31.27 (6.78)	
Duration of addiction symptoms (years)			13.33 (6.11)	
Trauma causing PTSD	Sexual abuse	11		0,73
	Physical abuse or threatening or aggression	15		1
	Emotional abuse	4		0,26
Work status	Employed	6		0,4
	Unemployed	8		0,53
	In training	1		0,06
Living status	Alone	6		0,4
	Alone with child	2		0,13
	With partner	5		0,33
	With partner with child	2		0,13
Substance dependence	Alcohol only	4		0,26
	Cannabis only	4		0,26
	Poly-toxicomania	7		0,46
Medication	Methadone	4		0,26
	Buprenorphine	2		0,13
	Antidepressants	10		0,66
	Benzodiazepine	9		0,6
	Other (e.g., sleeping pill)	3		0,2

NB: Trauma causing PTSD and Substance Medication can be multiple. Poly-toxicomania included alcohol and/or cannabis consumption plus at least another drug or alcohol consumption.

Discussion

This current study provided two notable findings. The first being that implementing eight sessions of ST combined with EMDR (focused on traumatic memories) among 15 women with SUD considerably decreased PTSD symptoms and the number of suractivated EMS. Analysis of PCL-S scores revealed a significant reduction, with mean scores no longer in the clinical range for

Table 2. Means (and Standard Deviation) in clinical variable scores at T1, T2, T3 and T4.

	T1 (N = 15)	T2 (N = 15)	T3 (N = 15)	T4 (N = 8)
Measures	Mean *(SD)*	Mean *(SD)*	Mean *(SD)*	Mean *(SD)*
ASI	7.9 *(1.22)*	6.4 *(0.91)*	3.3 *(1.16)*	1.1 (0.83)
OCDS	11.4 *(14.69)*	10.0 *(12.78)*	6.7 *(8.74)*	5.9 (6.45)
MCQ	42.0 *(36.83)*	34.7 *(31.18)*	23.0 *(22.07)*	13.6 (15.94)
PCL-S	60.1 *(11.77)*	37.2 *(5.14)*	31.9 *(6.97)*	28.9 (8.36)
YSQ-S2	6.3 *(1.98)*	3.5 *(1.55)*	1.2 *(1.32)*	0.5 (0.53)
BDI	18.8 *(9.5)*	17.3 *(9.22)*	9.7 *(6.13)*	7.1 (5.99)

NB: ASI – Addiction Severity Index; OCDS – Obsessive Compulsive Drinking Scale; MCQ – Marijuana Craving Questionnaire; PCL-S – PTSD Checklist Specific; YSQ-S2 – Young Schema Questionnaire Short Form, Second Edition; BDI – Beck Depression Inventory.

Table 3. Changes in clinical variable scores.

	Phase A effects T1-T2			Phase B effects T2-T3			Follow-up T3-T4		
Measures	*P* value	CI	Power	*P* value	CI	Power	*P* value	CI	Power
ASI	.003	[0.783–2.284]	0.99	.001*	[2.510–3.757]	1.00	.046	[0.154–2.132]	0.90
OCDS	.042	[0.047–2.753]	0.51	.027	[0.607–6.06]	0.71	.066	[−0.297–4.097]	0.07
MCQ	.024	[0,709–13.824]	0.66	.008	[4.696–18.771]	0.95	.109	[−1.240–6.240]	0.90
PCL-S	.001*	[15.538–30.195]	0.99	.011	[1.645–8.889]	0.97	.143	[−0.496–4.782]	0.31
YSQ-S2	.001*	[1.860–3.740]	0.99	.003	[1.230–3.300]	0.99	.564	[−0.495–0.781]	0.27
BDI	.572	[−5.332–8.399]	0.13	.001*	[4.200–11.000]	0.99	.024	[−1.362–7.076]	0.52

PTSD on PCL-S (PCL-S mean at T1 = 60.07, PCL-S mean at T2 = 37.2, cut-off = 44). Despite the lack of a control group and the small sample size in this pilot study, EMDR could be suitable for treating PTSD symptoms among women suffering from PTSD and SUD (see also Perez-Dandieu & Tapia, 2014). We suggest that EMDR is worth trying when treating clinical sample with co-occurring PTSD and SUD. Although EMS are highly stables across time (Riso et al., 2006), the current study extends the previous research that has shown that treatment for substance use results in reduced EMS (Roper et al., 2010), evidencing that schemas may be malleable after interventions (Shorey et al., 2012b). More precisely, this study suggests that ST combined with EMDR is an effective treatment for significantly improving EMS in a SUD-PTSD clinical sample.

The second notable finding of our study was that implementing eight additional sessions of ST combined with EMDR (focused on AM) among 15 women with SUD decreased addiction severity, extending the actual efficacy of EMDR in addiction (Hase et al., 2008). Thus, this current study supports the importance of treating AM to decrease alcohol and drug use severity. Taken together with phase A, these current findings indicate that addressing trauma-related issues in the first instance, did not harm subsequent addiction treatment.

Phase B was followed by a significant decrease of depressive symptoms. We suggest that modifying EMS during phase A might have started to provide beneficial outcomes for participants only at phase B. Indeed, it is well known that in the first instance those schemas often generate high levels of negative affect rather than producing self-constructive consequences (Young et al., 2003). However, EMS did not diminish through phase B, suggesting that eight additional sessions of ST were not beneficial for improving EMS.

Contrary to phase A, the decrease of PTSD symptoms was no longer significant after phase B. The main difference between the two phases was the type of memory reprocessing during EMDR treatment: traumatic memory during phase A and AM during phase B. Taken together these results might suggest that reprocessing traumatic memory was more efficient for treating PTSD than addiction symptoms, while reprocessing AM was more efficient for treating addiction than PTSD symptoms. However, there was still an important time confounding factor here.

Phase B still failed in reducing craving issues, while we thought that reprocessing specifically AM via EMDR would have succeeded on this matter. This result might suggest that craving is more treatment resistant than substance use severity (Fatseas et al., 2015).

The last part of the study was the one-year follow-up. Our findings did not reveal any significant post-follow-up increase in clinical variables suggesting that statistically significant improvements on clinical measures achieved from pre-post treatment were maintained at one-year follow-up. This finding indicates that changes made during treatment can be sustained over a 12-month period outside of treatment and supports the endurance of the measured changes in treatment outcomes.

Although the current study demonstrated the potential benefits of completing ST with EMDR in a sample of women with SUD, there are a number of limitations and related future directions for this work. Firstly, the lack of a control group. Therefore, we cannot with absolute confidence attribute the changes in clinical variables to the ST-EMDR treatment and we cannot be sure that the effects of the second SUD related intervention were not caused by the first trauma-related intervention. Secondly, all participants were females. Generalizing these findings to male with SUD might be problematic. Thirdly, the sample size was small, thus reducing statistical validity. An additional set of limitations is the use of a single clinical psychologist, the lack of adherence ratings used during treatment and the fact that seven of the participants were not available for follow up. Finally, we have no specific measure of the potential for volunteer bias. This study may not have had a typical sample of persons in addiction treatment with PTSD. It is possible that patients who did not provide informed consent were more severe and at greater risk for negative treatment outcomes, thus showing more positive results in this study than if we had used a random sample.

Conclusion

This study attempted to develop novel treatment approaches for PTSD-SUD using the combined use of ST and EMDR. The current study advocates the potential of such integrative treatment to effectively reduce both PTSD and SUD symptomatology. Future research could compare our two-phase-protocol therapy with a counterbalance protocol. If the results of our study hold, a new PTSD-SUD treatment protocol for processing addictive and traumatic memory could potentially improve relapse prevention in treating patients suffering from alcohol and drug dependency.

Disclosure of potential conflicts of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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