EMDR-based treatment of psychotraumatic antecedents in illicit drug abusers

A report of two cases

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Summary

The co-occurrence of PTSD and of substance use disorder (SD) is known to be very high. However the question of whether and how to treat such patients remains largely unanswered in the EMDR community. We report on two cases of EMDR-based treatment of heavily affected SD patients in whom psychotraumatic antecedents were identified. EMDR sessions focused on trauma-related material and not on the expression of cue-induced drug craving. The treatment appeared to be a difficult and challenging endeavour. However, some beneficial effects on general comfort and on drug consumption could be observed. A long stabilisation phase was mandatory and the standard EMDR protocol needed to be conducted with much flexibility. Interestingly, there was no provocation of a prolonged psychological crisis or of relapse. Experiencing of emotional stress could be limited to the sessions and dissociation could be absorbed with specific well-known techniques without permanently increasing drug craving. These observations are discussed in relation to previously published concepts of using EMDR in the field of trauma and substance abuse.

Key words: substance use disorder, addiction, PTSD, EMDR, comorbidity, dissociation

Introduction

In 2000 EMDR (eye movement desensitisation and reprocessing) was recognised to be one of the gold standard treatments of posttraumatic stress disorder (PTSD) [1]. Its beneficial effects on PTSD symptoms have been documented in many studies in the past 20 years (for review see [2, 3]). Since the emergence of EMDR in the clinical practice, clinicians have strived to evaluate the feasibility and efficacy of EMDR for other psychopathological manifestations in which components of implicit learning and maladaptive processing of the emotional memory are present. In fact, both anxiety disorders and substance use disorders (SD) can be understood as disorders of learning and memory [4, 5], and thus can be seen as symptoms rather than as causes. According to the adaptive information processing (AIP) model [6] – EMDR connects the dysfunctionally stored memory to the adaptive information processing abilities of the individual, which have been kept in a blocked state since the occurrence of the traumatic event. Adaptive reprocessing of the once blocked information occurs during EMDR. As a consequence the exaggerated expression of conditioned responses is reduced by strengthening inhibitory circuits found in cortical and subcortical brain structures [7]. For this reason, EMDR seems to be particularly promising in the treatment of both anxiety disorders and SD.

In 1994, Shapiro et al. [8] had already reported on the use of EMDR in the treatment of co-occurring PTSD and SD. The underlying assumption was that treating early traumatic incidents that contributed to both, the development of PTSD and SD would strengthen the patient's emotional coping capacities. By achieving this, the patient would be less reactive to the various triggers that normally provoke intense emotional stress and contribute to relapse into substance use. A treatment plan containing three phases was suggested. Initially traumatic material associated with drug abuse was to be treated. Secondly, the cue circumstances that stimulate drug craving should be addressed. Eventually, options for more adaptive strategies and decisions in the future should be developed [8].

In the following years several treatment manuals based on the standard EMDR procedure were presented. The contributions of Vogelmann-Sine, Popky and Hase put more and more emphasis on the hypothetical capacity of the EMDR procedure to diminish the patient's reactivity to specific cues which lead to drug consumption [9–11]. This reactivity – called craving – is specifically learned in the history of each patient and the fact that the patient is not able to inhibit the craving efficiently ("point-of-no-return-reactivity") is one of the main criteria of an addictive disorder [12]. In analogy to the "subjective units of distress" (SUD) scores that are normally used in the standard EMDR protocol, the "level of urge" (LoU), which measures the presence and intensity of craving to consume a substance, was introduced into the protocols. In a randomised controlled trial (RCT) comparing effects of an EMDR-based treatment protocol with effects of the usual treatment of SD patients admitted for a stay of two or three weeks in a detoxification unit, Hase et al. [13] showed that EMDR treatment

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significantly reduced the intensity of drug craving in patients being treated in the EMDR setting. The significant differences in measures of drug craving were observed in the pre- and post-treatment evaluations, as well as in the one month follow-up evaluation. To our knowledge the study of Hase is the only report on an RCT of EMDR efficacy in SD. Several reports on small patient numbers have been published recently describing the promising use of EMDR in the treatment of sex addiction [14], continuing care during recovery from active SD [15] or treatment of comorbid PTSD and alcohol dependence [16].

A question for clinic and research: how can one implement EMDR in patients with ongoing drug consumption?

In the 2001 EMDR textbook Shapiro reminds us that "dual diagnoses and active drug abuse are generally used as exclusion criteria" for entering an EMDR treatment (page 343) [17]. There is no doubt that prolonged abstinence contributes to better results in therapy, as compared to therapy in patients with continuous or intermittent substance abuse. However, many patients suffering from severe and chronic drug abuse will not be able to engage in any psychotherapeutic process as most psychotherapists consider ongoing substance abuse to be an exclusion criterion for therapy. This refusal of psychotherapy in severely affected SD patients is based on a plethora of clinical observations dictating that a psychiatric patient has to be stabilised before she or he can enter a psychotherapeutic, typically somewhat confronting, setting. However, interestingly, there is no sustained scientific evidence for the claim that patients presenting active substance abuse should generally be excluded from psychotherapeutic interventions [18]. Nevertheless, the "safety first" claim along with the achievment of "stabilisation" is part of the phase-oriented treatment scheme which has been adopted as the cornerstone in the treatment of complex trauma patients [19]. Therefore, the question of how to deal with ongoing substance use is crucial when assessing indications for psychotherapeutic interventions in SD patients. As many SD patients present comorbid symptoms related to simple or complex trauma, and as in both disorders, SD and PTSD, the emotional memory is known to be altered in very similar manners [20], this population would be a highly challenging target for EMDR therapy. According to our clinical observations, active drug abuse can occur in a patient, who has achieved stabilisation for many of her or his daily life problems. Therefore, active drug use must not necessarily be considered as an indicator that the patient has not been yet stabilised or that therapists should refrain from orienting such a patient to enter the integrative phase of treatment.

Ongoing substance use can be conceptualised as the manifestation of the patient's favourite strategy of emotional coping, which is maladaptive – of course – but which the patient still finds to be the best way to deal with the stressors of daily life.

Neuroscience has revealed that SDs are disorders of learning and memory [5]. The preeminent problems of SD patients in the psychiatric clinics are of a behavioural character, and are not due to physiological adaptation. The maladaptive behavioural expressions of the so-called "addiction memory" (AM) are the lack of control once the subject has started to consume the drug and the presence of intense drug craving when confronted with drug cues. Other manifestations of the AM are the modified perception of salience, even after long periods of abstinence, and the persisting drug use even if the patient has to face severe aversive consequences associated with his drug consumption [21, 22]. Very often, these expressions of AM are coupled with the various clinical manifestations of patients having survived complex trauma, such as the shifting between action systems observed in dissociative disorder and a considerable instability in the relational domain. The high comorbidity between PTSD and SD has been very well documented in numerous studies [23].

In contrast to the many behavioural manifestations, physiological adaptations observed in chemical dependency, mainly the occurrence of tolerance under continuing use and of withdrawal when the use of drug is suddenly stopped, do not represent the major clinical problem in SD patients. In fact, even if tolerance and withdrawal are efficiently treated by a substitution therapy, patients continue to amass psychosocial difficulties, and they often relapse into drug consumption. All these manifestations in well substituted patients can be considered as expressions of the AM, but also as symptoms of unprocessed traumatic material in those SD patients who have psychotraumatic antecedents.

In the EMDR treatment case of an alcohol-addicted woman, reported by Abel [16], the patient was accepted for therapy despite persistent and problematic consumption of alcohol at the beginning of the therapy. This woman did not receive any psychiatric medication. The patient responded well to the EMDR treatment that was completed using various stabilisation techniques and focused on both traumatic content and drug craving inducing cues (according to the specific protocol proposed by Hase [9]). During the treatment process the patient improved considerably with regard to trauma-related difficulties, but also with regard to alcohol consumption. A period of two years of sobriety was observed (up to publication of the report).

The study of Marich [15] on women treated by EMDR during recovery from drug addiction also revealed many highly encouraging results that were assessed by means of a phenomenological evaluation. As the patients were treated in a drug-free and secured environment ("sober house") for long periods of time (average length of stay 29 months), the observations obtained in this setting cannot be easily compared with those of the report of Abel, or those presented here. In a recent review by O'Brien & Abel [24] the many EMDR-related intervention techniques in the field of SD were presented with regard to the stages of change concept known from motivational interviewing. The authors concluded that the question of how to deal with unachieved sobriety when considering treating SD patients with EMDR still remains to be explored.

The aim of this case report is to demonstrate that in addition to non-medicated alcohol abusers, severely affected and heavily medicated, illicit drug abusers can also benefit

from an EMDR-based treatment setting. Episodically, and even regularly occurring drug consumption might not be considered an exclusion criterion as long as the patient remains otherwise stable. We present the treatment evolution of two patients who have been followed in a methadone maintenance treatment for many years before being accepted for psychotherapy. Careful clinical observation revealed manifestations of complex PTSD in the one and of discreet dissociative symptoms in the other patient. When being assessed for psychotherapy, both patients were known to have active ongoing drug abuse. As the patients repeatedly asked to receive specific psychotherapeutic support as they suffered from psychotraumatic reminders, they were eventually included in the psychotherapy programme with the goal to benefit from EMDR-based treatment techniques.

Setting and assessment

The two patients were followed in a psychotherapeutic setting according to the institutional rules of the Psychiatry Department of the Centre Universitaire Hospitalier Vaudois, Lausanne, Switzerland.

In our clinical practice we accept SD patients for psychotherapy – regardless of the fact that they are still consuming drugs, or that they are heavily medicated, as long as the patient is able to come regularly to the weekly sessions, is not intoxicated during the session and has a sustained interest to explore his or her psychological difficulties by means of specific psychotherapeutic interventions. The technique of EMDR and various complementary methods were explained in a detailed and appropriate manner to the patients. The therapist, a certified EMDR practitioner, was regularly supervised by an officially recognised EMDR supervisor, on the basis of video recordings. Psychotherapy was conducted as a complementary offer, in addition to a psychosocial supportive treatment, conducted by a designated social worker ("case manager"). The case manager was regularly informed about the psychotherapy, and collaborative sessions with the patient, the case manager and the psychotherapist were held every two months.

Patients were informed that the therapist would take a one year leave for a sabbatical training abroad after 10 months of treatment. However, the case manager would carry on the ongoing supportive follow-up and a replacement psychiatrist was also assigned in order to be able to respond to possibly emerging psychiatric needs. Both patients agreed to enter the therapeutic process under these circumstances. Names and biographical information on the cases presented in this report have been altered in order to prevent identification.

Initial evaluation of the two patients was obtained using the Dissociative Experiences Scale (DES) [25] and the adapted three item cocaine craving scale developed by Weiss et al. [26, 27]. The DES is widely used in the field of clinical research on dissociative disorders. The 28 questions of this screening questionnaire sum up to a score ranging between 0 and 100. The higher the DES score, the more likely it is that the person has a dissociative disorder. However, as the DES is a screening instrument, not all subjects with elevated DES scores actually have a dissociative disorder and conversely the presence of a dissociative disorder can not be ruled out in all subjects with low DES scores. The three item cocaine questionnaire allows rapid assessment of the intensity of drug craving. The questions specifically address the patient's reactivity towards cues leading to drug craving. The composite score ranges from 0 to 27. Every three point increase of the composite score corresponds to a 10% likelihood of drug use in the subsequent week (e.g. a score of 6 equals a likelihood of about 20% that the patient will use the drug in the following week). Moreover the composite score can be ranged on three levels, with scores of 1 to 5 equalling mild craving, 6–11 moderate craving and 12–27 severe craving. We used the three item questionnaire for assessing the craving for "the drug of choice" of the investigated patient, which was the substance considered of most relevance for his habitual emotional coping. Thus, the scores are related to the craving for midazolam in the one and to craving for heroin in the other patient.

The three item craving score was assessed once a month, whereas DES scores were repeated after 8, 24 and 30 months.

In the patient suffering from complex PTSD, the intensity of PTSD symptoms in relation to the identified traumatic event was assessed using the revised Impact of Event Scale (IES-R) [28, 29]. The total score of this 22-item questionnaire ranges between 0 and 88. Generally, higher scores are correlated with the diagnosis of PTSD. The IES-R has been extensively used in clinical research. The IES-R was assessed at the beginning of the psychotherapy and after 6, 24 and 30 months.

As this patient also presented many somatoform symptoms, especially a chronic pain syndrome, we also assessed the 5 and 20 question versions of the Somatoform Dissociation Questionnaire (SDQ-5, -20). The composite score of the SDQ-20 ranges between 20 and 100. Scores superior to 30 are highly correlated with various forms of somatoform dissociation (somatoform disorder, dissociative disorder not otherwise specified, dissociative identity disorder) [30, 31]. The SDQ-5 is an abbreviated form of the SDQ-20; scores higher or equal to 8 are strongly correlated with the presence of a dissociative disorder [32].

Patient 1

Peter, a 53-year-old man diagnosed with a complex PTSD and dependency on opiates and benzodiazepines, asked for treatment with EMDR for his PTSD symptoms. He was abstinent from heroin consumption but illegally consumed midazolam three times per week when entering the therapy. Peter started smoking cannabis at the age of 15 years. For the past 30 years he had a variable use of mainly alcohol and benzodiazepines, this use might often have corresponded to a diagnosis of abuse or even dependency. Interestingly, he only began a regular consumption of heroin at the age of 30. The actual methadone maintenance treatment was initiated four years before entering the psychotherapy program. However, there had been at least one additional period of methadone maintenance treatment in the past. Peter also consumed cannabis on a daily basis. His medication prescribed in the outpatient addiction unit was the following: methadone 125 mg/d, oxazepam 200 mg/d, flurazepam 30 mg/d, escitalopram 30 mg/d, mirtazapine

15 mg/d, tramadol 300 mg/d, and chlorprothixene 30 mg/d. Initial evaluation showed an IES-R score of 60, a DES score of 39.6 and a midazolam craving score of 14.

In addition to his psychiatric problems, Peter suffered from joint problems. He was in frequent need of considerable amounts of pain medication (tramadol) and of physical therapy. Complementary investigation revealed a SDQ-5 score of 13 and a SDQ-20 score of 48. Thus, the presence of somatoform dissociation is highly probable as a further component in the range of the many manifestations of Peter's complex PTSD.

Peter was divorced; he was the father of one child and of three grandchildren. He lived on social welfare. His main daily occupation was the care of his grandchildren.

Presenting problems

Peter presented many clinical symptoms due to the presence of complex PTSD. These symptoms were mainly recurrent episodes of depressive mood, frequent intrusive symptoms (nightmares), emotional numbing and a high level of avoidance of all kinds of stimuli with any association to the trauma. Peter's chronic and ongoing substance abuse can be conceptualised as one further behavioural mechanism of avoidance.

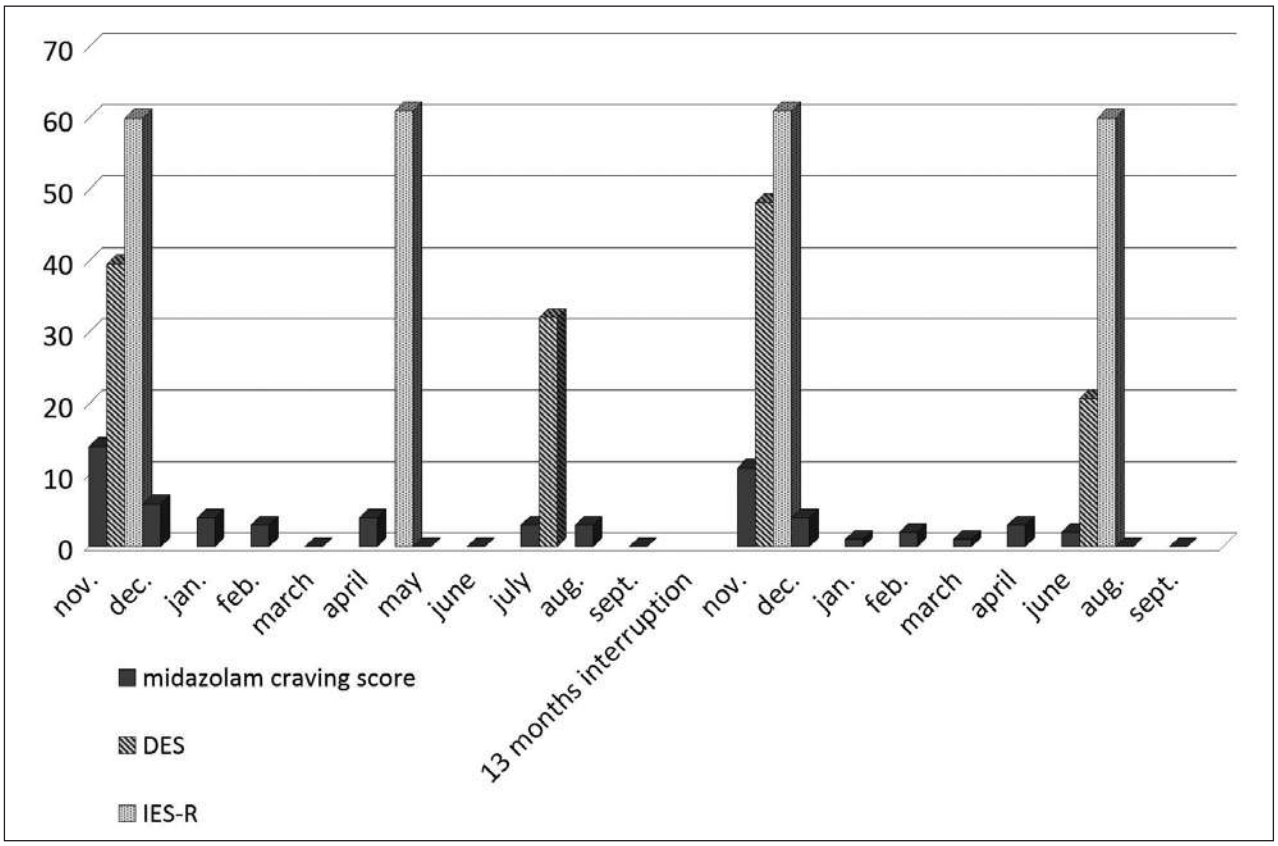
Peter had been held in captivity for seven months in a distant country when he was 19 years old. As he belonged to a family opposed to the autocratic government of that country he underwent "special treatments" as a political prisoner. These treatments were repeated acts of torture, including electrical shocks and rape.

Description of treatment

The evolution of midazolam craving score, DES, and IES-R scores are shown in figure 1.

During the first nine months of treatment several techniques that are commonly used to prepare patients for EMDR treatment were repeatedly applied. In the first three months "safe place" exercises, as well as the wedging technique were practised on many occasions in order to strengthen the patient's personal resources to allow him to cope efficiently with stressful emotions due to internal or external triggers. Peter collaborated well in these exercises, he regularly practised the "safe place" when outside the therapy and he efficiently reconnected to memories and feelings of success (as a skilled basketball player) in his youth. Consumption of cannabis and alcohol remained at the habitual level (almost daily consumption of alcohol and cannabis). The patient did not normally come intoxicated to the therapy sessions, but there were two exceptions. When the patient arrived intoxicated, a short non-psychotherapeutic session was held with acknowledgement of the problem of intoxication and with the agreement to pursue the psychotherapy at the next sober session. With regard to the major problem of illicit midazolam consumption the patient soon became abstinent from taking this drug. After three months of therapy, Peter made some vague allusions to the traumata he had endured whilst he was a political prisoner more than 30 years previously. Given that even the slightest contact with the traumatic material was extremely painful, the CIPOS technique (constant installation of present orientation and safety) according to J. Knipe [33] was added to

Figure 1 Patient 1, Peter: evolution of midazolam craving scores, DES and IES-R scores.



the treatment tools and practised on several occasions. SUDs were typically very high at the beginning of the CIPOS exercise, but then gradually decreased to a bearable level. After five months of psychotherapy, a standard EMDR session focusing on a stressful incident that was not related to the major trauma of his youth was proposed. Peter chose to work on a relational conflict with his ex-wife. During phase 3 of the standard EMDR protocol an affective bridge with older, highly traumatic material occurred and Peter asked to stop the EMDR process. The session was completed with a safe place exercise and Peter left the therapy feeling well again. The following sessions until the departure of the therapist for his sabbatical were used to continue the work on stabilisation and on progressive, soft confrontation with the trauma using the aforementioned techniques. At the last session, Peter explicitly wished to reveal the character and circumstances of the torture he endured at the age of nineteen. For the first time ever in his long treatment in psychiatric services, Peter gave a short resume of the traumatic events that occurred whilst he was a political prisoner.

When the therapist returned from his one year sabbatical, Peter asked to resume the psychotherapeutic process. Global evaluation showed that both midazolam craving score and DES score were elevated in comparison to the values obtained at the last evaluation during the therapy about 14 months previously. Peter indicated that he had progressively started to take midazolam, three to four times a week. There had also been some episodic consumption of heroin during the preceding months without therapy. Alcohol use, however, now occurred only very occasionally. Peter continued to smoke cannabis daily, as he had in the past decades. Psychotherapy resumed in the same setting as before. Many sessions were dedicated to practising the safe place exercise, the wedging technique, as well as the CIPOS procedure. Peter worked well with these methods, and a considerable reduction of anxiety and avoidance with regard to the traumatic memory was observable (in the CIPOS SUD ratings). In addition, a reduction in drug consumption was observed during this time. Peter used illegal midazolam about twice a month. Finally, after six months of further stabilisation, standard EMDR protocol was proposed. Peter wished to work on an introductory – not extremely stressful – event of his imprisonment (negative cognition "my life is in danger"; positive cognition "it's over now"). Initial SUD related to this event was 6, and descended to 0 throughout the complete EMDR protocol. One week later, phase 8 revealed a SUD of 4 for the same event. Another complete EMDR session was conducted, yielding again a SUD of 0. The following week, Peter wished to work on his trauma again. He chose a highly stressful incident which occurred during his internment (negative cognition: "I am so full of shame"; positive cognition: "this was in the past"). Initial SUD was 6, which descended to 0 through phase 4. Phase 5 also went very satisfactorily. However, during phase 6, the body scanner, new traumatic and highly disturbing material emerged. While processing this material with eye movements, suddenly Peter's cell phone rang, which abruptly interfered with the emotional processing. As a consequence Peter wished to stop the processing. The session ended with a long safe place exercise. Unfortunately, after this cell phone incident Peter did not want to resume the classic EMDR procedure. Weekly sessions with complementary techniques were proposed for the following five months. Drug use remained at a low level. Finally, Peter declared that he would like to put the psychotherapeutic process "on hold". Peter and the therapists agreed that from now on he would be followed in the habitual "treatment as usual" setting of the outpatient clinic and that he could ask for a new psychotherapy procedure with "his" therapist, or another, as soon as he felt "ready".

Patient 2

Guido, a 36-year-old man was diagnosed with borderline personality disorder and opiate dependency. Heroin consumption occurred two to three times per month when beginning the psychotherapy. Guido started multiple substance use at the age of 16 years. He had been taking heroin on a more or less regular basis since the age of 20. Methadone treatment, associated with psychosocial counselling, was initiated 32 months before he entered psychotherapy. The daily dosage of methadone was 70 mg/d. Once general stability on the social level was acquired, EMDR-based therapy was proposed as he complained of intractable insomnia due to trauma-like events during his childhood. Initial evaluation showed a DES score of 7.8 and a heroin craving score of 17.

Guido described a difficult childhood and adolescence, mainly because of recurrent conflicts with his father. Guido blamed his parents for having frequently humiliated him and complained that his father had pushed him into several professional trainings in jobs he clearly did not like. As a result he did not invest in his professional experiences and did not obtain any professional certification. He had only ever worked for short times in nonqualified jobs. He had been receiving a medical incapacity pension for five years because of a highly symptomatic personality disorder. Guido was divorced and the father of a 14-year-old girl, who lived with her mother.

Presenting problems

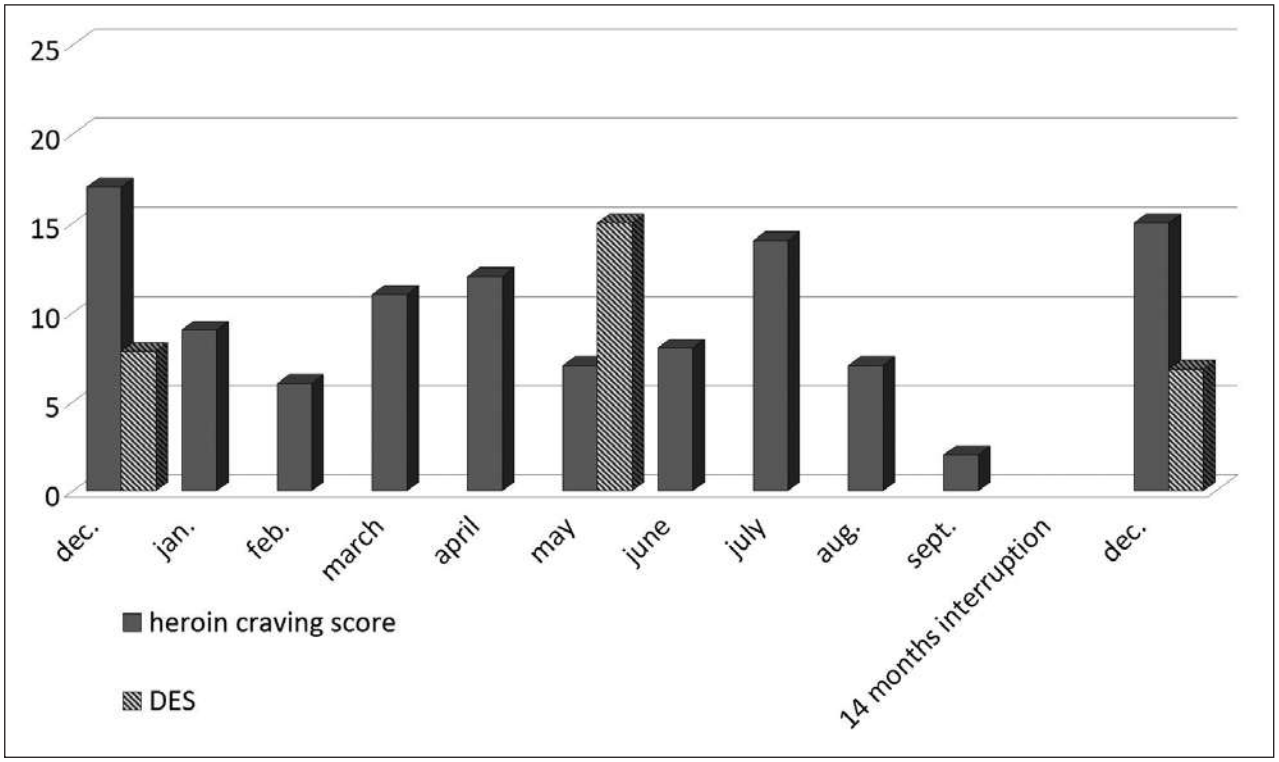
Guido's main complaint was that he had considerable difficulties falling asleep in the evening. He spontaneously associated this evening insomnia with the repeated and highly stressful intrusions he underwent as a boy between the age of 5–11 years, when his father, suffering from alcoholism, on returning home regularly woke him in order to make him witness his suffering.

Description of treatment

The evolution of heroin craving score, and DES-scores are shown in figure 2.

In the first three months safe place exercises, as well as the wedging technique, were practised repeatedly in order to strengthen the patient's personal resources to allow him to cope efficiently with stressful emotions due to internal or external triggers. Guido collaborated well in these exercises, and he occasionally practised the "safe place" when outside the therapy. An important resource, which was built up by

Figure 2 Patient 2, Guido: evolution of heroin craving scores, and DES scores.



means of the wedging technique, was the feeling of strength, confidence and perseverance when he remembered being a young father, going to work imagining a bright future. Use of heroin decreased somewhat during this time period. Guido only consumed heroin once or twice a month. After three months of preparatory psychotherapy, standard EMDR sessions were proposed. For the first EMDR session Guido chose to work on a stressful relational situation with his ex-wife. SUD decreased from 7 to 1 but "some anxiety remained somewhere". Finally, still during phase 4, Guido felt "detached" and asked to stop the process. This kind of "detachment" typically occurred during the subsequent EMDR sessions. Guido chose several highly stressful events from his youth that dealt with a pervasive conflict with his father. Only two of five EMDR sessions could be completed, the remaining three were incomplete as Guido showed negative signs of dissociation (fatigue, difficulties in concentration or ability to respond) so that he asked to stop the process. Interestingly, on one of these occasions, Guido verbalised a strong desire to consume heroin. When Guido left the session, the therapist proposed several contact backups by telephone for the following hours. Guido agreed, but did not respond to this offer. At the next session he indicated that he had sniffed some heroin after the previous EMDR session. He somewhat reassured the therapists by saying: "Don't worry about this, consuming heroin is one of the few things I can handle very well ..." DES scoring repeated after six months revealed a considerable increase (15 in comparison to 7.8 at the beginning). This finding, together with the observation that Guido frequently shifted into a dissociative state when dealing with emotionally stressful stimuli, were integrated into the therapy. Guido agreed that the dissociative numbing, as well as active drug consumption, were quite similar mechanisms he used in a rather automated way to escape from stressful emotion. As a consequence of this, Guido remained much more vigilant in his daily life with regard to his dissociative tendencies. Overall drug consumption remained low for the rest of the therapy. When the therapist had to end the therapy because of his sabbatical stay abroad, Guido wrote him a letter in which he expressed his gratitude by acknowledging that without the EMDR therapy he would never have felt encouraged to explore the difficult events of his life.

After 14 months, the therapist met Guido again to evaluate his progress. Guido explained that he had been able to maintain abstinence from heroin for four months after the end of the therapy. He had then resumed his habitual heroin consumption with one or two heroin sniffs per month. Guido still thought that he had to "resolve some issues with his father" and in addition he was ashamed about the fact that he still used heroin. However, he felt less concerned by these questions, as he had developed a relationship over several months with a socially integrated woman, who was not using drugs. His most important goal was to become progressively reintegrated into professional life.

Discussion

Therapy with patients who still use substances

One major concern when starting psychotherapy with patients who are still active substance users is the question of how to conceptualise substance use. Ongoing substance use is viewed by many therapists as a key hindrance even to the proposal of psychotherapy. Professionals normally argue that psychoactive substances interfere with the emotional

and cognitive processing of autobiographical information, and for this reason many professionals refrain from proposing psychotherapy to patients who still actively use drugs. The claim of chemical interference on information processing is undoubtedly true. However, substance use is commonly interpreted as a strategy of emotional coping as the patient tries by self-administration of a psychoactive substance to deal with a highly stressful emotional situation [34]. Therefore active drug abuse can be considered as one of the individual's personal emotional coping tools acquired throughout implicit learning processes during childhood and adolescence [35]. This puts substance use in analogy with other behavioural strategies that are learned during development and then repeatedly manifested by patients (e.g. eating disorders, avoidance tendencies in many anxiety disorders). The maladaptive manifestation of strategies of emotional coping contributes to the many difficulties that psychiatric patients – especially those suffering from personality disorders – have to face. Therefore, some specialists name these disorders "adaptation disorder" rather than "personality disorder" [36].

Inhibitory control over active substance use, as well as over many other maladaptive behaviours related to coping with highly salient stimuli is regulated by the same cerebral regions of the prefrontal cortex [20]. For this reason psychotherapy should be accessible to all patients in whom deficiency of the inhibitory circuitry towards the automated, maladaptive responses to salient stimuli has become evident. Psychotherapy should be proposed regardless of the fact that these automated responses become manifest in forms of drug consumption, or fearful avoidance. EMDR as a method that is hypothesised to achieve a more adaptive integration of information [6], appears to be particularly promising in the field of SD and anxiety disorders.

Of course, it is mandatory prior to proposing EMDR (or other forms of integrative psychotherapy) to address the many problems of SD patients in the medical, economical and relational domains. In many cases, stabilisation can be achieved by means of a substitution therapy, coupled with psychosocial counselling. Substitution therapy can help to "pacify" the brain that has lost its homeostasis due to drug addiction, as the regularly taken medication contributes to the development of a more stable allostatic state [37].

Both patients described in this report benefited from long lasting opiate (and benzodiazepine) substitution therapy. For both patients an allostatic equilibrium was achieved. However, the patients continued to suffer from psychological manifestations due to trauma-related life experiences. When correctly substituted, actual drug consumption is much more likely to be the manifestation of the once learned, maladaptive way of emotional coping, then a response to the physiological symptoms of drug craving. Substitution therapy can effectively reduce drug craving but, to the present day, integrative psychotherapy is the only way to address the maladaptive processing of information that underlies the manifestation of stress-induced, automated drug consumption.

One difficult question arises from the observation in this report that DES scores were rather low in Guido, who frequently showed dissociative symptoms during therapy. The considerable difficulty of identifying the presence of dissociative symptoms in SD patients was discussed by McDowell et al. [38]. In a study using the DES as a screening instrument, 4 (8.2%) out of 49 SD patients with DES scores below 10 were found to have a dissociative identity disorder [39]. Therefore, the somewhat contradictory findings in Guido's case call for the development of psychometric instruments more suitable to assess dissociative symptoms in SD patients. The DES was not designed for this purpose and there are no specific items in the DES questionnaire that point to specific dissociative symptoms that might be typical for SD patients.

Particularities with regard to EMDR

As both patients explicitly asked to benefit from a psychotherapy that would focus on traumatic events they had identified in their past, and as concurrent drug consumption can be considered as an epiphenomenon of maladaptive emotional coping, the EMDR treatment of the two cases described here was focused on the processing of traumatic material. Processing of the addiction memory (AM) [13], which is activated during drug craving, was not the aim of these EMDR therapies, all the more because both patients were on high-dose chemical substitution for their "drug of choice".

The question of where to orient EMDR treatment in patients with comorbid PTSD and SD, on rather "first craving – then trauma," or the opposite "first trauma, then craving" has undergone some debate in the past. Popky, who considers ongoing substance use not to be an exclusion criterion for his DeTUR (Desensitisation of Triggers of Urge and Relapse) protocol ("abstinence is preferred, but not mandatory") reported several cases of treatment of craving triggers [40]. Interestingly, in his report there are two cases of patients who had considerable psychotraumatic antecedents (case number 5 and 6). In the case number 5 (methamphetamine abuse; multiple traumata during childhood) the therapist soon switched to the standard EMDR procedure in order to reprocess these traumata. After one standard EMDR session the patient abandoned further EMDR exploration. The case number 6 (suffering from sexual compulsivity) also had considerable psychotraumatic antecedents, as he had been "sexually, physically and emotionally abused" during childhood. Craving provoking triggers closely related to insurmountable relational problems were identified through therapy and were in the focus of EMDR-based treatment for many months. These examples show that emergence of traumatic material in SD patients with traumatic comorbidity is common and needs to be addressed in the treatment plan.

Some of the patients treated in the study of Hase had a comorbid PTSD diagnosis (9 out of a total of 30 patients) [13]. During the rather short stay in the detoxification unit, patients benefited from two EMDR sessions focusing on the AM. Interestingly, no emergence of traumatic material was observed in that study in the comorbid PTSD patients.

This finding has not been replicated by the observations of this article's first author in his practice, working in an outpatient clinic setting with severely affected and often highly medicated SD patients with comorbid PTSD. The first

author had several times proposed working on craving inducing triggers, using the LoU (Level of Urge) and other concepts described by Hase and Popky. In most cases, therapy was rapidly abandoned. Patients complained that the therapy focused too much on something (which was effectively occurring drug consumption) that they normally managed well, and that was "vital" for their daily coping with stress and emotion. In addition, when EMDR protocols focusing on craving worked on highly relevant triggers within social interaction, traumatic material frequently emerged. In these cases, patients either abandoned therapy or asked to enter the standard, trauma focused EMDR protocol.

The authors therefore think that in SD patients with comorbid PTSD who still actively use their "substance of choice", it would be unrealistic to try to reduce their substance use, as this use is part of their very personal competence in affective regulation. Modification of maladaptive strategies of emotional coping can only be achieved when the underlying nonintegrated memories have been reprocessed according to the API model [6]. Once this traumatic integration has been achieved, EMDR-based techniques focusing on the AM may be indicated, as the AM still maintains its "point-of-no-return" reactivity towards craving triggers for a very long time period and this probably independently of the reactivity related to traumatic material [12, 13]. Thus, the literature and our current observation seem to corroborate the initial recommendation of Shapiro who wrote that EMDR treatment plans for patients suffering from both, trauma and SD, should take into "*account (1) the disturbing memories (...) that are driving substance abuse behaviour, (2) the present circumstances that stimulate the desire to use drugs (along with the physical concomitants of the desire itself), and (3) a template for appropriate future choices*" [8].

Both our patients needed several months of preparation. In the case of Peter, the first complete EMDR session took place after 15 months. Many preparatory techniques, which are commonly taught in the EMDR training seminars, such as the "safe place", the wedging technique and the CIPOS techniques were very well accepted by the patients. These techniques contributed to the reduction of avoidance tendencies that were observable in both patients. With regard to the standard EMDR procedure, this technique worked quite well in the case of Peter, where it was possible to reprocess one important traumatic event. Unfortunately, when processing another, even more stressful traumatic event, the ringing of the patient's cell phone disrupted the process and from that session on the patient no longer wished to resume the standard EMDR protocol. As a consequence of this incident, we now ask our patients to empty their pockets and to put all their electronic devices in a side room (therapists do the same). The fact that the IES-R scores of Peter remained at a very high level throughout the therapy is probably attributable to the fact that Peter was unable to benefit from more EMDR sessions (due to avoidance induced by the cell phone incident), rather than to the assumption that EMDR is not efficacious in PTSD patients with comorbid active SD. Indeed, in most studies investigating EMDR treatment of PTSD a minimum of 5 to 10 EMDR sessions are performed in order to obtain measurable therapeutic effects [41, 42].

During EMDR sessions with Guido, many difficulties emerged that were related mainly to the occurrence of dissociative symptoms. It is important to note that drug consumption occurred once as a direct consequence of an EMDR session. This "complication" is not really surprising as long as one can accept that substance use figures among the favoured, and often well managed, emotional coping strategies of SD patients. Drug consumption occurring during the therapeutic process (which is not limited to the 50- or 90-minute session in the therapist's office) should not be interpreted as complication or failure, as long as this clinical manifestation remains well integrated in the patient's habitual coping mechanisms, and as long it is not associated with exposure to extraordinary health risks. In order to prevent more serious complications, the therapist should monitor any signs and indicators for therapy-related drug consumption. If there is any doubt about the possibility of therapy-related drug consumption, the therapist should offer a high availability to meet the patient's needs to deal with disturbing emotion by resuming integrative exploration, rather than by acting out the wish for drug consumption.

What is important to underline is the fact that in both cases the long-term craving and use of drugs was not increased, as shown by the craving scores and the self-reports of Peter and Guido. In the case of Peter, there was a considerable decrease in craving and consumption throughout the therapeutic process. For Guido, the craving scores remained rather high, but he indicated a slight reduction in his consumption on his self reports. Both patients acknowledged a recommencement of a more frequent substance use, occurring several months after the therapist had left for his abroad stay. Peter resumed his therapy, after a break of 13 months, with an elevated craving score, but he rapidly stabilised craving and drug use at a very low level. This observation points to the question of whether the observed improvement is related to the establishment of a therapeutic relationship or if it should be seen as a specific effect resulting from EMDR-based psychotherapy. It is well established that the presence as such of an empathetic and collaborative relationship between patient and therapist is correlated with considerable improvement in the patient's psychiatric symptoms [43]. The two cases presented here do not allow for any assumption about a specific efficacy of EMDR-based treatment on SD patients with comorbid psychotraumatic antecedents to be made. However, these examples show that EMDR-associated techniques, as well as EMDR itself, are feasible in this severely affected patient population. As said early in this article, the co-occurrence in traumatised SD patients of automated, stress-related responses in the form of compulsive drug craving, as well as in manifestations of exaggerated fear reactions, make these patients highly interesting – and also challenging – for EMDR therapists, and scientists.

The authors hope that the observations of this report will contribute to an evolution through which traumatised drug abusers, who often suffer from various forms of stigmatisation and segregation, will receive more interest from clinicians and researchers, in order to benefit from the most appropriate care.

Treatment implications

1) EMDR-based treatment is feasible in severely affected drug abusers
2) Extensive stabilisation of the patient using flexible adaptation of EMDR-related techniques is mandatory
3) In patients for whom substance use is part of their daily, "well trained" emotional coping strategies it might be preferable to treat the underlying unprocessed traumatic memories first. Persisting compulsive drug craving might be addressed by specific EMDR-protocols at a later phase of treatment.
4) Dissociation occurring during treatment has to be addressed carefully as it can bridge into drug craving and consumption. In this case the therapist should display a high availability to resume the integrative exploration, rather than leaving the patient alone, as she or he might possibly act out the wish for drug consumption.

References

1 Chemtob CM, Toli DF, van der Kolk BA, Pitman RK. Eye movement desensitization and reprocessing; in Foa EB, Keane TM, Friedman MJ, editors. Effective treatments for PTSD: practice guidelines from the International Society for Traumatic Stress Studies. New York: Guilford Press; 2000.
2 Cloitre M. Effective psychotherapies for posttraumatic stress disorder: a review and critique. CNS Spectr. 2009;14:32–43.
3 Bisson J, Andrew M. Psychological treatment of Post-Traumatic Sress Disorder (PTSD). Cochrane Database Syst Rev. 2007;18;3 (CD003388).
4 Mineka S, Oehlberg K. The relevance of recent developments in classical conditioning to understanding the etiology and maintenance of anxiety disorders. Acta Psychol (Amst). 2008;127:567–80.
5 Kelley AE. Memory and addiction: shared neural circuitry and molecular mechanisms. Neuron. 2004;44:161–79.
6 Solomon RM, Shapiro F. EMDR and the Adaptive information processing model – potential mechanisms of change. J EMDR Pract Res. 2008;2: 315–25.
7 Bergmann U. EMDR's neurobiological mechanisms of action: A survey of 20 years of searching. J EMDR Pract Res. 2010;4:22–42.
8 Shapiro F, Vogelmann-Sine S, Sine LF. Eye movement desensitization and reprocessing: treating trauma and substance abuse. J Psychoactive Drugs. 1994;26:379–91.
9 Hase M. CravEx: An EMDR approach to treat substance use and addiction. In: Luber M, editor. Eye Movement Desensitization and Reprocessing (EMDR) scripted protocols: special populations. New York: Springer Publishing; 2010.
10 Vogelmann-Sine S, Sine L, Smith NJ. EMDR to reduce stress and trauma-related symptoms during recovery from chemical dependency. Int J Stress Manage. 1999;6:285–90.
11 Popky AJ. The Desensitization of Triggers and Urge Reprocessing (DeTUR) protocol. In: Luber M, (ed): Eye movement Desensitization and Reprocessing (EMDR) scripted protocols: special populations. New York: Springer Publishing; 2010.
12 Heyne A, May T, Goll P, Wolffgramm J. Persisting consequences of drug intake: towards a memory of addiction. J Neural Transm. 2000;107: 613–38.
13 Hase M, Schallmayer S, Sack M. EMDR reprocessing of the addiction memory: pretreatment, posttreatment, and 1-month follow-up. J EMDR Pract Res. 2008;2:170–9.
14 Cox RP, Howard MD. Utilization of EMDR in the treatment of sexual addiction: a case study. Sex Addict Compuls. 2007;14:1–20.
15 Marich J. Eye movement desensitization and reprocessing in addiction continuing care: a phenomenological study of women in recovery. Psychol Addict Behav. 2010;24:498–507.
16 Abel NJ. EMDR treatment of comorbid PTSD and alcohol dependence: a case example. J EMDR Pract Res. 2010;4:50–9.
17 Shapiro F. Eye movement desensitization and reprocessing: basic principles, protocols, and procedures. 2nd ed. New York: Guilford Press; 2001.
18 Clarkin JF, Levy KN. The influence of client variables on psychotherapy. In: Lambert M, editor. Handbook of psychotherapy and behavioral change. New York: Wiley; 2004.
19 Courtois CA, Ford JD. Treating complex traumatic stress disorders: an evidence-based guide. New York: Guilford Press; 2009.
20 Peters J, Kalivas PW, Quirk GJ. Extinction circuits for fear and addiction overlap in prefrontal cortex. Learn Mem. 2009;16:279–88.
21 Boning J. Addiction memory as a specific, individually learned memory imprint. Pharmacopsychiatry. 2009;42 Suppl 1:S66-S68.
22 Wolffgramm J, Galli G, Thimm F, Heyne A. Animal models of addiction: models for therapeutic strategies? J Neural Transm. 2000;107:649–68.
23 Jacobsen LK, Southwick SM, Kosten TR. Substance use disorders in patients with posttraumatic stress disorder: a review of the literature. Am J Psychiatry. 2001;158:1184–90.
24 O'Brien JM, Abel NJ. EMDR, addictions, and the stages of change: A road map for intervention; J EMDR Pract Res. 2011; 121–30.
25 Bernstein EM, Putnam FW. Development, reliability, and validity of a dissociation scale. J Nerv Ment Dis. 1986;174:727–35.
26 Weiss RD, Griffin ML, Hufford C, Muenz LR, Najavits LM, Jansson SB, et al. Early prediction of initiation of abstinence from cocaine. Use of a craving questionnaire. Am J Addict. 1997;6:224–31.
27 Weiss RD, Griffin ML, Mazurick C, Berkman B, Gastfriend DR, Frank A, et al. The relationship between cocaine craving, psychosocial treatment, and subsequent cocaine use. Am J Psychiatry. 2003;160:1320–5.
28 Horowitz M, Wilner N, Alvarez W. Impact of event scale: a measure of subjective stress. Psychosom Med. 1979;41:209–18.
29 Weiss D: The Impact of Event Scale: Revised; in Wilson J, Tang C, editors. Cross-cultural assessment of psychological trauma and PTSD. International and Cultural Psychology Series. New York: Springer Publishing; 2007.
30 Nijenhuis ER, Spinhoven P, van DR, van der HO, Vanderlinden J. Psychometric characteristics of the somatoform dissociation questionnaire: a replication study. Psychother Psychosom. 1998;67:17–23.
31 Nijenhuis ER, Spinhoven P, van DR, Van der Hart O, Vanderlinden J. The development and psychometric characteristics of the Somatoform Dissociation Questionnaire (SDQ-20). J Nerv Ment Dis. 1996;184:688–94.
32 Nijenhuis ER, Spinhoven P, van DR, Van der Hart O, Vanderlinden J. The development of the somatoform dissociation questionnaire (SDQ-5) as a screening instrument for dissociative disorders. Acta Psychiatr Scand. 1997;96:311–8.
33 Knipe J. The method of Constant Installation of Present Orientation and Safety (CIPOS). In: Luber M, editor. Eye Movement Desensitization and Reprocessing (EMDR) scripted protocols. New York: Springer Publishing; 2010.
34 Sinha R. Chronic stress, drug use, and vulnerability to addiction. Ann N Y Acad Sci. 2008;1141:105–30.
35 Wills TA, Hirky AE. Coping and substance abuse: A theoretical model and review of the evidence. In: Zeidner M, Endler NS, editors. Handbook of coping: theory, research, and applications. New York: Wiley; 1996.
36 Svrakic DM, Cloninger RC. Epigenetic perspective on behavior development, personality, and personality disorders. Psychiatr Danub. 2010;22: 153–66.
37 Koob GF, Le Moal M. Drug addiction, dysregulation of reward, and allostasis. Neuropsychopharmacology. 2001;24:97–129.
38 McDowell DM, Levin FR, Nunes EV. Dissociative identity disorder and substance abuse: the forgotten relationship. J Psychoactive Drugs. 1999;31:71–83.
39 Karadag F, Sar V, Tamar-Gurol D, Evren C, Karagoz M, Erkiran M. Dissociative disorders among inpatients with drug or alcohol dependency. J Clin Psychiatry. 2005;66:1247–53.
40 Popky AJ. DeTur, un urge reduction protocol for addictions and dysfunctional behaviors; in Shapiro R, editor. EMDR Solutions. New York: Norton; 2005.
41 Power K, McGoldrick T, Brown K, Buchanan R, Sharp D, Swanson V, at al. A controlled comparison of eye movement desensitization and reprocessing versus exposure plus cognitive restructuring versus waiting list in the treatment of post-traumatic stress disorder. Clin Psychol Psychother. 2002;9:299–318.
42 Boudewyns PA, Hyer LA. Eye Movement Desensitization and Reprocessing (EMDR) as treatment for Post-Traumatic Stress Disorder (PTSD). Clin Psychol Psychother. 1996;3:185–95.
43 Beutler L, Malik M, Aliomohamed S, Harwood T, Talebi H, Noble S, et al. Therapist variables. In: Lambert M, editor. Handbook of psychotherapy and behavioral change. New York: Wiley, 2004.