Screening and treatment of posttraumatic stress disorder in patients with substance use disorders
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Chapter 1

General introduction
Introduction

The subject of this thesis is the screening and psychological treatment of posttraumatic stress disorder (PTSD) in patients with substance use disorders (SUDs). This expanding research area is of great clinical importance, as the prevalence of concurrent PTSD and SUD is high (Gielen, Havermans, Tekelenburg, & Jansen, 2012; Harrington & Newman, 2007; Kimerling, Trafton, & Nguyen, 2006; Mills, Teesson, Ross, & Peters, 2006), and PTSD appears to have a negative influence on SUD treatment outcomes (Back, Brady, Sonne, & Verduin, 2006; Ouimette, Brown, & Najavits, 1998).

First, the diagnostic criteria of PTSD and SUD are described. Second, the prevalence of concurrent PTSD and SUD is discussed, as well as the current practice with respect to screening of PTSD within substance abuse treatment centers. This will be followed by theories and empirical findings that account for the functional relationship between both disorders, addressing the consequences of this relationship for the treatment of comorbid PTSD and SUD. Finally, the rationale of the PTSD treatment studied in this thesis is considered.

Posttraumatic stress disorder (PTSD)

In this thesis posttraumatic stress disorder (PTSD) is defined according to the fourth edition of the Diagnostic and Statistical manual of Mental disorders (DSM-IV, American Psychiatric Association [APA], 1994). According to the DSM-IV, PTSD is induced by one or several traumatic experiences. Patients with PTSD have experienced, witnessed, or were confronted with actual or threatened death or serious injury, or a threat to the physical integrity of self or others. During the trauma, the person's response involved intense fear, helplessness or horror. Full-blown PTSD is diagnosed if patients suffer from the symptom clusters re-experiencing, avoidance and increased arousal after a traumatic event. Patients have to meet at least one of the five re-experiencing symptoms, three of the seven avoidance symptoms and two of the five arousal symptoms. In this thesis partial PTSD is defined as meeting symptom criteria for the re-experiencing cluster and for the avoidance/numbing cluster or the hyperarousal cluster (Blanchard, Hickling, Taylor, Loos, & Gerardi, 1994). The fifth edition of the DSM has been published in 2013 (DSM-5, APA, 2013). It’s criteria for PTSD comprise a history of exposure to
a traumatic event, followed by four symptom clusters: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity.

**Substance use disorder (SUD)**

In this thesis, substance use disorder is diagnosed according to the *DSM-IV*. It refers to a maladaptive pattern of substance use leading to clinically significant impairment or distress, occurring within a 12-month period. A distinction is made between substance abuse and substance dependence. Substance dependence is characterised by a pattern of repeated self-administration that can result in tolerance, withdrawal, and compulsive alcohol or drug taking behaviour. A diagnosis for substance abuse is given if patients experience recurrent and significant adverse consequences related to the repeated use of substances. In *DSM-5* the categories of substance abuse and substance dependence are combined into a single disorder measured on a continuum from mild to severe.

**Prevalence of PTSD among SUD patients**

Community-based studies indicate a lifetime prevalence for PTSD of approximately 7% in the Netherlands (De Vries & Olff, 2009). There is a lack of epidemiological studies investigating the prevalence of PTSD among SUD patients, which makes it difficult to compare the percentages found within the general population with those found in SUD research samples. However, a recent study addressing this issue, showed a higher prevalence of PTSD among SUD patients (37%) compared to patients without SUD (10%) (Gielen et al., 2012). These findings are in line with other data suggesting that the prevalence of PTSD among SUD patients is relatively high (ranging from 20 to 41%) (Harrington & Newman, 2007; Kimerling et al., 2006; Ouimette, Goodwin & Brown, 2006). Also, in accordance with findings for the general population (De Vries & Olff, 2009) women have shown higher rates of PTSD than men within a sample of SUD patients (Hyman, Garcia, Kemp, Mazeure, & Sinha, 2005).

Despite of the high prevalence of PTSD among SUD patients, PTSD symptoms are often not reported during SUD treatment, unless patients are asked specifically about traumatic events or PTSD symptoms (Gielen et al., 2012; Kimerling et al., 2006). Perhaps this is a logical consequence of the disorder itself as the persistent avoidance of stimuli associated with the
trauma is one of its diagnostic criteria. Another explanation may be that patients themselves do not perceive the relevance of mentioning PTSD symptoms in the context of their SUD treatment. Without screening for PTSD, approximately seventy-five percent of the patients with concurrent PTSD and SUD do not mention their PTSD symptoms during treatment (Kimerling et al., 2006). This means that PTSD symptoms remain undetected for three out of every four SUD patients. As this patient group is more severe, it is clinically relevant to recognize these patients. Therefore systematic screening of PTSD among SUD patients is recommended (Gielen et al., 2012).

**Screening for PTSD among SUD patients**

It has been suggested that treatment prognoses for patients with concurrent PTSD and SUD can be improved by new treatment interventions suited to the specific needs of this patient group (Donovan, Padin-Rivera, & Kowaliw, 2001; Driessen et al., 2008; McGovern et al., 2009; Najavits, 2007; Rash, Coffey, Baschnagel, Drobes, & Saladin, 2008). Effective detection of these patients is a necessary first step. As mentioned above, PTSD symptoms are not recognized in a large group of SUD patients (Gielen et al., 2012; Kimerling et al., 2006). The *Structured Clinical Interview for DSM-IV axis I Disorders (SCID-I)* (First, Spitzer, Gibbon, & Williams, 1996; Van Groenestijn, Akkerhuis, Kupka, Schneider, & Nolen, 1999), and the *Clinician-Administered PTSD Scale (CAPS)* (Blake et al., 1990) are generally considered to be the gold standard to formally assess the presence of PTSD. However, it would neither be efficient nor patient-friendly to conduct an extensive diagnostic PTSD interview to every SUD patient. A better alternative is to use a PTSD screening questionnaire. Then, only the patients scoring above the cutoff of the PTSD screening questionnaire can be allocated for further assessment. Preferably, a screener identifies patients with or without PTSD as precisely as possible, as is mirrored in a high sensitivity (the percentage of patients with a positive diagnosis, scoring positive on the screener) and a high specificity (the percentage of patients with a negative diagnosis, scoring negative on the screener). Another important criterion for PTSD screeners is its user-friendliness (Brewin, 2005). Preferably, it should take little time and effort to be filled out by patients, and to be interpreted by therapists (Brewin, 2005). User-friendliness is especially important for the use among SUD patients, as in many cases the screener will be offered before treatment allocation.
This means that a substantial number of SUD patients have to fill out the screener, during the intake phase of treatment, when they may be still under the influence of substances.

Considering the former remarks about important screener characteristics, the Primary Care posttraumatic stress disorder screen (PC-PTSD) (Prins et al., 2003), appears to meet the criteria of good diagnostic efficiency and user-friendliness. The PC-PTSD was developed to detect PTSD among veterans of the United States army. It’s diagnostic qualities have been evaluated within Veteran Affairs (VA) substance abuse treatment centers (Kimerling et al., 2006). The PC-PTSD showed a high sensitivity (.91), and a high specificity (.80) for the VA SUD patient group (Kimerling et al., 2006). This implicates that the screener will detect 91 out of 100 PTSD cases within a group of VA SUD patients. In a group of 100 VA SUD patients with no diagnosis for PTSD, the PC-PTSD will properly identify 80 out of 100 patients as having no PTSD. The PC-PTSD includes four yes-or-no items that refer to the PTSD symptom clusters re-experiencing, avoidance, numbing, and increased arousal. Based on findings for the VA SUD sample, it seems a promising instrument to detect PTSD among SUD patients. In the current thesis, we have investigated and cross-validated the qualities of the PC-PTSD as well as a modified version of the screener within a sample of civilian SUD patients.

The functional relationship of PTSD and SUD

There are theoretical as well as empirical grounds to assume that PTSD and SUD are highly intertwined and reciprocally related (Stewart & Conrod, 2003). There are indications that in most cases, PTSD precedes SUD (Stewart & Conrod, 2003). This lends support to the self-medication hypothesis that presumes that substances are used as a result of patients’ endeavors to surpress and avoid painful and disturbing PTSD symptoms (Khantzian, 1985; Stewart & Conrod, 2003). This hypothesized process of self-medication where PTSD leads to SUD has been recognized by patients (Back, Brady, Sonne, & Verduin, 2006; Brown, Stout, & Gannon-Rowley, 1998), and has been affirmed by experimental research (Coffey et al., 2002; Saladin et al., 2003).

An inverse relationship between PTSD and SUD has also been suggested. The high risk hypothesis (Hien, Cohen, & Campbell, 2005) proposes that substance abuse exposes individuals to more high risk situations where traumas are lurking (Hien et al., 2005). It is also possible that substance abuse maintains PTSD symptoms by interfering with trauma extinction (Stewart &
Conrod, 2003), or that it maintains emotional numbing in PTSD (Stewart, 1996). Moreover, substance use and/or withdrawal can lead to physical symptoms mirroring physical symptoms of hyperarousal experienced during trauma, which may evoke traumatic memories (Stewart & Conrod, 2003). Consequently, patients with concurrent PTSD and SUD may end up in a vicious circle: PTSD can lead to substance abuse by the process of self-medication, SUD possibly exposes patients to high risk situations that increase the probability of experiencing trauma, SUD may maintain PTSD, and SUD may trigger PTSD symptoms by withdrawal symptoms (Stewart & Conrod, 2003) (see Figure 1).

![Diagram of the vicious circle of PTSD and substance abuse](image)

Figure 1. *Vicious circle of PTSD and substance abuse*

### The treatment of concurrent PTSD and SUD

In clinical practice it is common to treat PTSD and SUD sequentially. That is, SUD is treated first, and after the successful completion of this treatment, a patient is referred to PTSD treatment (Henslee & Coffey, 2010). It is possible that this is not the most effective approach for this patient group (Najavits, 2007). The assumed relationship between PTSD and SUD, as described above, predicts an initial, but temporary, increase of PTSD symptoms when individuals stop using substances to self-medicate. Consequently, this could make patients more vulnerable for relapse in the beginning of SUD treatment, as in the initial phase of SUD treatment they have not yet experienced the possible long term benefits of abstinence. Therefore, the current sequential approach seems predestined to fail in an early phase. Several authors have suggested that treatment may be more beneficial if both SUD and PTSD are addressed within the same time...
frame (Bradizza, Stasiewicz, & Paas, 2006; Donovan et al., 2001; Ford, Russo, & Mallon, 2007; McGovern et al., 2009; Najavits, 2007). In the current thesis, we have studied the effectiveness of PTSD treatment during SUD treatment. The term effectiveness, instead of efficacy, is used to indicate that the applicability of the research findings to real-life practice is an important focus of this thesis (see also the general discussion) (Kraemer, 2000).

Generally, PTSD treatments can be divided into non-trauma-focused and trauma-focused interventions. Described briefly, non-trauma-focused interventions focus on the improvement of a patients’ coping skills to manage trauma symptoms, while trauma-focused treatments focus on detailed memories of the traumatic event and its meaning (National Collaborating Centre for Mental Health, 2005; Powers, Halpern, Ferenschak, Gillihan, & Foa, 2010). Some researchers and clinicians hesitate to implement trauma-focused treatment to SUD patients as it could be too stressful for this vulnerable patient group, triggering relapse, treatment dropout and other adverse events (Najavits, 2004; Pitman et al., 1991). However, trauma-focused treatment is the first-choice evidence-based treatment for PTSD (Institute of Medicine, 2008). In the clinical studies of this thesis the effectiveness of Structured Writing Therapy (SWT) (Van Emmerik, Kamphuis, & Emmelkamp, 2008), a trauma-focused PTSD treatment, was investigated among SUD patients. The intervention for SUD was evidence-based cognitive behavioral treatment (CBT) (Emmelkamp & Vedel, 2006).

**Structured Writing Therapy (SWT)**

SWT is a trauma-focused PTSD treatment that utilizes specific writing assignments to reprocess traumatic events. SWT has been described as an alternative set of procedures for imaginal exposure and cognitive restructuring (Van Emmerik, 2004). The therapeutic model originates from Lange, Van de Ven, Schrieken, & Emmelkamp (2001), and has been applied online (Interapy) (Lange et al., 2003; Lange et al., 2001), and face-to-face (Van Emmerik et al., 2008). SWT incorporates three phases; self-confrontation, cognitive reappraisal, and sharing and farewell. The *self-confrontation* phase focuses on the exposure to painful traumatic memories in order to ascertain extinction of the trauma. Exposure is established by detailed writings of the patient about the most traumatic event(s) he or she had experienced. The traumatic event is described in the first-person, as if it happens presently, including the reactions, thoughts and
emotions that were also present during the trauma. Participants are instructed to write without restraints and not to worry about style, spelling, grammar or chronology. In the phase of cognitive reappraisal, a patient is stimulated to perceive the event from another perspective. He or she is instructed to write a supportive letter of advice to someone close or imaginary, who (presumably) has experienced the same event. The letter has to encompass useful suggestions of how to perceive and interpret the traumatic experience, and how to live with its consequences. The sharing and farewell ritual aims to accomplish symbolic closure of the traumatic event. A final letter is written, where the patient contemplates the trauma, and its impact on life. The underlying rationale is the proven importance of sharing traumatic experiences (Schoutrop, 2000), although this final letter is not necessarily sent to the addressed person.

Results from several studies support the effectiveness of SWT in the treatment of PTSD (Lange et al., 2003; Lange et al., 2001; Van Emmerik et al., 2008). SWT has been compared to trauma-focused cognitive behavioral treatment (CBT) for PTSD including psycho-education, prolonged imaginal exposure, exposure in vivo, and cognitive restructuring. SWT proved to be equally effective for PTSD as CBT for PTSD (Van Emmerik et al., 2008), as both treatment led to improvements on intrusion and avoidance symptoms.

In the current thesis, we have investigated the effectiveness of combined treatment for PTSD and SUD in two clinical trials. In one trial, the SWT protocol was integrated with an individual outpatient CBT treatment for SUD, and in the other trial SWT was added on to an intensive group CBT treatment program for severe SUD patients.

Present thesis

The present thesis includes four studies and a systematic review regarding the screening and treatment of PTSD among SUD patients. The first study is described in Chapter 2, and focuses on the validation of the PC-PTSD screening questionnaire for PTSD in patients attending treatment for substance use. The research started in 2007. Previous research had shown there was a large, invisible, and vulnerable group of patients with concurrent PTSD and SUD within substance abuse treatment centers, and that active screening improved the detection of those patients considerably (Kimerling et al., 2006). At that time, there were only four instruments investigated within a sample of SUD patients (Coffey, Dansky, Falsetti, Saladin, & Brady, 1998; Harrington & Newman, 2007; Kimerling et al., 2006). One of those was the PC-PTSD that stuck
out because of its good diagnostic qualities and user-friendliness. As the screener had exclusively been investigated within a VA setting, we decided to validate its qualities within a civilian group of SUD patients. We also investigated whether it was possible to enhance its performances. In this study, the diagnostic efficiency of the screener was compared to an extended eight item version of the PC-PTSD and the Posttraumatic Diagnostic Scale (PDS) (Foa, Cashman, Jaycox, & Perry, 1997).

The third chapter covers an extension of the first research where the diagnostic efficiency of a modified version of the PC-PTSD was cross-validated. This modified version of the PC-PTSD will be referred to as the Jellinek-PTSD (J-PTSD) screening questionnaire.

Chapter 4 gives an overview of research into psychological treatments for concurrent PTSD and SUD. It focuses on the effectiveness of combined treatments for both disorders compared to treatments addressing one of the disorders alone. In addition, a distinction is made between trauma-focused versus non-trauma-focused therapies for concurrent PTSD and SUD.

Chapter 5 presents an RCT investigating the effectiveness of an integrated trauma-focused treatment for concurrent PTSD and SUD. In this study, SWT was integrated with individual CBT for SUD (CBT/SUD + SWT), and compared to CBT for SUD alone (CBT/SUD). The study started in 2008, and was carried out among outpatients from the Jellinek, a large substance abuse treatment center in Amsterdam, The Netherlands. Until then, only four RCTs had been published on this topic (Coffey, Stasiewicz, Hughes, & Brimo, 2006; Cohen & Hien, 2006; Hien, Cohen, Miele, Litt, & Capstick, 2004; Najavits, Gallop, & Weiss, 2006; Triffleman, 2000), and only one had investigated the effectiveness of trauma-focused treatment (Coffey et al., 2006). Promising results of the Coffey (2006) study, together with the recommendation of treating PTSD with trauma-focused treatment (Brewin, 2005), warranted further research.

During the recruitment of the outpatient study, there was a strong appeal to extend the research to more severe patients allocated to daycare or clinical care. Instead of excluding these patients for further research, we decided to perform another RCT within this group, which is presented in Chapter 6. In this study, SWT was added on to treatment as usual (TAU) and compared to TAU alone. TAU comprised an intensive cognitive behavioral inpatient or day group treatment for SUD. The final chapter encompasses the general discussion.
References


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