

Clinical challenges in the treatment of patients with posttraumatic stress disorder and substance abuse

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Purpose of review

The aim of this article is to review the current literature on co-occurring posttraumatic stress disorder and substance-use disorder, with an emphasis on clinical aspects and emerging treatments.

Recent findings

In clinical populations (focusing on either disorder), about 25–50% have a lifetime dual diagnosis of posttraumatic stress disorder and substance-use disorder. Patients with both disorders have a more severe clinical profile than those with either disorder alone, lower functioning, poorer well being, and worse outcomes across a variety of measures. In recent years, several promising treatment programs have been developed specifically for co-occurring posttraumatic stress disorder and substance-use disorder, with one model having been established as effective thus far.

Summary

Comorbid posttraumatic stress disorder/substance-use disorder is a frequent diagnosis in clinical populations that severely affects course and outcome. Treatment approaches appropriate for this vulnerable population need to be evaluated further and implemented in routine practice.

Keywords

comorbidity, posttraumatic stress disorder, substance-use disorder, treatment

Introduction

Over the past few decades, the importance of co-occurring posttraumatic stress disorder (PTSD) and substance-use disorder (SUD) has become increasingly apparent. This article provides an overview of clinical challenges in this population and the emerging evidence on effective treatments. Note that we cover diagnostically based studies for PTSD/SUD only; the literature on trauma *per se* in SUD patients is beyond the scope of this review (e.g. [1,2]).

Prevalence of posttraumatic stress disorder/substance-use disorder

Epidemiological research has established high rates of comorbid PTSD and SUD. Among people with lifetime PTSD, lifetime SUD is estimated at 21–43%, compared with 8–25% in those without PTSD [3]. Even higher rates are found in clinical populations. For example, up to 75% of combat veterans with lifetime PTSD also met criteria for lifetime alcohol abuse or dependence [3]. In clinical SUD samples, the prevalence of lifetime PTSD ranges from 26 to 52% [4–7], and for current PTSD the range is 15–41% [5,8–13].

The prevalence of PTSD varies by sample. For example, current PTSD is more prevalent in females than in males: typically about twice the rate (e.g. [4,7,9]). Moreover, some substances of abuse show a higher association with PTSD than others (e.g. ‘harder drugs’ and polydrug use compared with alcohol or cannabis [14]). In a recent epidemiological survey of the Australian general population, PTSD was found in 24% of those with amphetamine-use disorder and in 33% of those with opioid-use disorder compared with 5.4 and 5.2% of individuals with alcohol-use disorder or cannabis-use disorder respectively [15^{••}].

Relationships between posttraumatic stress disorder and substance-use disorder

Several explanations have been proposed for the high level of PTSD/SUD comorbidity (e.g. [14,16–19]). First, PTSD can lead to SUD. As one example from a developmental perspective, childhood traumatic stress may challenge maturing self-regulatory mechanisms on both the neurobiological and behavioral levels, thereby increasing the risk for later SUD. Throughout life, it is observed that people with PTSD may ‘self-medicate’ with substances as a way of coping with overwhelming PTSD symptoms. Second, SUD is known to heighten the

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Abbreviations

CBT cognitive behavioral therapy
PTSD posttraumatic stress disorder
SUD substance-use disorder

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likelihood of trauma exposure, hence the risk of PTSD (the high-risk hypothesis). Third, SUD can also lead to a higher probability of developing PTSD after trauma exposure, due to a higher psychological and biological vulnerability for the disorder in individuals with chronic substance abuse (the susceptibility hypothesis). Fourth, and finally, the PTSD/SUD relationship may be mediated by a third variable, such as disconstraint [20], and deficits in coping skills [21].

Although there is no single explanation for the PTSD/SUD relationship and different pathways are not mutually exclusive, the notion that PTSD has an important influence on the development of SUD has received the most empirical support. For example, a series of laboratory studies has found evidence for the impact of trauma-related cues on craving for substances [22,23[•], 24,25]. Participants with PTSD reported higher levels of craving in response to trauma-related cues than to neutral cues. Moreover, alcohol craving and distress in response to trauma images decreased in patients receiving six sessions of trauma-focused imaginal exposure, but did not change in control patients [23[•]]. In other studies of patients with PTSD/SUD, greater use of substances was associated with situations involving unpleasant emotions, physical discomfort and interpersonal conflicts than with situations involving pleasant or neutral situations [26,27]. Similar associations were found between PTSD status and reasons for relapse in recently abstinent patients [28,29]. For instance, Ouimette *et al.* [29] found that PTSD/SUD patients were more likely to report substance use in response to negative emotions than in response to substance cues, in the first 6 months after treatment. A study by Back *et al.* [30] reported direct relationships between PTSD symptoms and current substance use in a small sample of cocaine-dependent patients. Eighty-six percent reported an increase in substance use when PTSD symptoms increased and 64% reported a decrease in substance use when symptoms of PTSD improved. In another study, improvement in PTSD symptoms appeared to have a greater impact on alcohol treatment response than the reciprocal relationship [31]. However, it is also clear that substance use can maintain and exacerbate PTSD symptoms [16].

Clinical differences and treatment outcome

Patients with both PTSD and SUD have a more severe clinical profile than those with either disorder alone [14]. They have earlier onset of substance abuse and more years of problematic use [11,32], they report more polydrug use [4,12], and they have greater severity of current substance use [4,8,33]. However, it is worth noting that other studies have not found greater severity of substance use among those with PTSD [11,34,35^{••}]. Those with PTSD/SUD also report worse physical health, poorer well being, more cognitive distortions,

and more interpersonal problems [4,33,34,36[•],37]. For example, in a recent study of 133 patients with SUD [36[•]], comorbid PTSD was associated with higher self-reported chronic cardiovascular symptoms and chronic neurological symptoms. They reported poorer well being and functional status, particularly in terms of mental health functioning. However, when controlling for major depression and panic disorder, the associations were reduced, suggesting that worse health status and well being in patients with PTSD may be partially explained by the presence of other psychopathology.

PTSD/SUD patients are more likely to meet criteria for additional psychiatric disorders, especially major depression and anxiety disorders [11,34,38]. In a study of 122 cocaine-dependent patients, those with PTSD had a higher rate of both additional Axis I and Axis II disorders than those without PTSD [34]. Similarly, among 91 cocaine-dependent patients [38], 89% of those with PTSD had an additional anxiety disorder and 69% had an additional affective disorder, compared with 17 and 26% respectively in the non-PTSD group. Large epidemiological surveys also find high rates of co-occurring disorders among those with PTSD and SUD [15^{••},39]. In a study by Mills *et al.* [15^{••}], for example, almost two-thirds of those with PTSD/SUD had an additional affective disorder, and about half had a comorbid anxiety disorder. Personality disorders also were highly prevalent (62%). All of these disorders were significantly more frequent in individuals with PTSD/SUD than in those with SUD alone or neither disorder. Also, consistent with findings from clinical studies, individuals with PTSD/SUD experienced poorer physical health and greater disability than those with SUD alone.

In addition to worse physical health and more psychiatric comorbidity, PTSD/SUD patients with early and complex trauma tend to present with a variety of additional problems [18]. They suffer from impulsivity and suicidal ideation [40], self-destructive behavior [41], and vulnerability to revictimization [42]. Findings on dissociation in patients with SUD have been inconsistent [43]. Recent studies point to lower rates of dissociative symptoms in alcohol-dependent patients [13,43] than in samples that include patients who also have other SUDs [40].

Moreover, PTSD interferes with patients' ability to benefit from SUD treatment. Studies in different samples of patients with SUD suggest that those with PTSD have a poorer adherence to treatment and a shorter duration of abstinence [21,44]; they are more likely to be readmitted and have a higher use of services [4,19], and they have consistently worse outcomes across a variety of measures [45]. They are also perceived as more difficult to treat by clinicians than those with either disorder alone [46]. Whereas the negative influence of comorbid PTSD on

treatment outcome is clear, more research is needed on the nature of this relationship. In a small sample of women with PTSD/SUD, re-experiencing symptoms at baseline was a significant predictor of relapse in the following 6 months [47]. In contrast to this, the findings of a more recent study suggest that improvement of PTSD status rather than PTSD symptoms at baseline predict substance use outcome [11]. Furthermore, it has been proposed that psychopathology or general distress might impede treatment for substance abuse in patients with PTSD/SUD rather than PTSD *per se* [9,11], although this notion has not been supported by the results of a recent pharmacological trial [48]. Finally, SUD patients with and without comorbid PTSD are also known to differ on other proximal determinants of treatment response, such as social support and coping strategies [21,34]. Thus, more research is needed on a wide variety of issues that have been raised in the literature and which will, it is hoped, obtain further clarification in the decades ahead.

Psychotherapy treatment

A variety of psychotherapy treatments have been developed for PTSD/SUD. Here we cover only those with at least one published study; that is, at least at the level of a pilot (no case reports). Also, we address only those specifically designed for the dual diagnosis (not models for one or the other diagnosis that have been tested in PTSD/SUD samples). For a detailed description of the models and their studies, see Najavits [35^{••}] and Najavits *et al.* [45].

Seeking safety

The seeking safety model is a present-focused model that offers 25 topics to teach coping skills for PTSD and SUD in four domains: cognitive, behavioral, interpersonal, and case management. The treatment was designed for both sexes, all types of trauma and substance abuse, and group or individual modality. It is the only model thus far established as effective for the dual diagnosis, with consistent positive findings in 16 studies including randomized controlled trials and multisite studies (e.g. [49,50]). It has a variety of dissemination materials including a website (www.seekingsafety.org), training videos, and foreign-language translation.

Concurrent treatment of posttraumatic stress disorder and cocaine dependence

This 16-session individual therapy [51,52] combines existing therapies that had already been established as effective separately for PTSD and SUD [e.g. cognitive behavioral therapy (CBT) for substance abuse and exposure therapy for PTSD]. An uncontrolled pilot study indicates positive outcomes [52].

Transcend

Transcend is an integrated 12-week partial hospitalization program for military veterans. It combines CBT,

constructivist, psychodynamic, and 12-step models. An uncontrolled pilot [53] found positive results on a sample of clients who entered with 30 days of abstinence.

Substance dependence posttraumatic stress disorder therapy

This 40-session individual therapy [54], later renamed assisted recovery from trauma and substances (ARTS), combines existing therapies that were already established as effective for PTSD and SUD separately (e.g. CBT for substance use and stress-inoculation training for PTSD). A pilot study [55] compared it with 12-step facilitation treatment, but found no outcome differences and thus combined data across the models (thus making it difficult to determine results for substance dependence PTSD therapy itself).

Collaborative care

Collaborative care is a prevention model rather than a treatment model, designed for medically injured trauma survivors at risk for developing PTSD and alcohol-use disorder. It combines existing models for the disorders (e.g. motivational interviewing, CBT, case management) with dose and treatments varying by clients' presentation. It has one study [56], a comparison with treatment as usual, with positive results.

Pharmacological treatment

Only a few studies to date have examined pharmacological treatments in PTSD/SUD patients. In one study, Trafton *et al.* [57] assessed the effects of opioid substitution therapy among 255 opioid-dependent veterans. In this prospective observational trial, substitution therapy was as effective at reducing substance use in patients with comorbid PTSD as it was in patients without the disorder. One year after treatment both groups showed similar reductions in substance use, but patients with PTSD received higher doses of opiate medication and attended more psychosocial treatment sessions. In another study, Brady *et al.* [58] examined the effects of sertraline in 94 alcohol-dependent patients with PTSD in a randomized, double-blind, placebo-controlled trial. Patients in active treatment received a fixed dose (150 mg/day) of sertraline over a 12-week period. Examination of average alcohol consumption during the treatment period revealed no significant differences in the sertraline and placebo groups. Furthermore, no significant difference in response was found for symptoms of PTSD. However, in a post-hoc cluster analysis [58], a significant improvement became apparent in sertraline-treated participants with less-severe alcohol dependence and early-onset PTSD. Finally, a recent trial compared the effects of disulfiram and naltrexone with placebo in male veterans with alcohol dependence and different comorbid psychiatric disorders [59[•]]. Patients received either disulfiram or no disulfiram and were in addition randomized to naltrexone or placebo,

resulting in four different study groups. Of the 93 patients with PTSD and comorbid alcohol dependence, individuals receiving naltrexone, disulfiram or both medications had better outcomes after 12 weeks of treatment than the placebo group in terms of drinking days per week and consecutive days of abstinence. In addition, favorable effects on PTSD symptoms were observed in patients with disulfiram compared with those on naltrexone. However, as the authors point out, several limitations make the interpretation of these results difficult, including the potentially confounding effect of abstinence and the open administration of disulfiram. Nevertheless, the findings of this study suggest that both medications are safe and effective for alcohol-dependent patients with PTSD and should be considered for clinical management.

Conclusion

Comorbid PTSD/SUD represents a frequent diagnostic combination that severely affects course and outcome. More research is needed on a variety of issues, including the ways in which the two disorders influence one another and the special clinical needs of such patients. Given the high prevalence of PTSD/SUD comorbidity, it is important to further develop and evaluate treatment approaches appropriate for this vulnerable population and implement them into routine practice.

References and recommended reading

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- of special interest
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Additional references related to this topic can also be found in the Current World Literature section in this issue (p. 640).

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