

*PTSD/Substance Use Disorder
Comorbidity: Treatment Options and
Public Health Needs*

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PTSD/Substance Use Disorder Comorbidity: Treatment Options and Public Health Needs

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Abstract

Purpose of review Posttraumatic stress disorder (PTSD) commonly co-occurs with substance use disorder (SUD) and is challenging to treat. We review all behavioral therapy models

with at least one randomized controlled trial in a current PTSD/SUD population. We identify factors in selecting a model for clinical use, emphasizing a public health framework that balances the need for evidence with the need for feasibility in frontline settings. *Recent findings* Seven published models and 6 unpublished models are reviewed. Public health considerations for choosing a model include the following: whether it has been studied across a broad range of SUDs and in complex SUD patients; whether it can be conducted in group modality; its appeal to patients and providers; its cost; workforce requirements; and its ability to reduce substance use in addition to PTSD. *Summary* There are two broad types of models: those that originated in the PTSD field versus the SUD field. Overall, the latter are stronger on public health factors and more feasible in SUD settings. Published models in this category include Relapse Prevention, BRENDA, and Seeking Safety. PTSD/SUD research is at an early stage and there is a need for methodology that quantifies “level of burden” (patients’ socioeconomic disadvantages) across trials.

Introduction

It is well established that posttraumatic stress disorder (PTSD) commonly co-occurs with substance use disorder (SUD) and predicts a worse course than either disorder alone [1]. What is less established, however, is how to treat the comorbidity. This review addresses

behavioral therapies for PTSD/SUD, which is the primary treatment modality for this population. We focus on a public health framework that balances the need for evidence with the urgent need for treatments that are feasible in frontline settings.

A public health approach

Various models have been studied with PTSD/SUD samples, including both *integrated* treatments designed to address both disorders at the same time and more traditional *single* treatments that address only one or the other. Some prior reviews have focused primarily on integrated treatments [2, 3], but it is useful to consider any treatment, especially those that already are widely adopted, the workforce is trained in them, and they are less costly to implement.

Such considerations are especially relevant to SUD treatment systems, which are under-resourced relative to the mental health field and have a less-trained workforce with fewer advanced degrees [4, 5]. In short, it is important to shift from the perspective that the only consideration in choosing models is whether they outperform others (a “horserace” paradigm), and instead identify whether they meet a reasonable standard of evidence and *also* meet the standard of being feasible in real-world settings (a public health paradigm).

Indeed, there are some surprising results in randomized controlled trials (RCTs) in which a comparison condition that is easier to implement performs as well as the experimental condition. In the PTSD field, transcendental meditation is performed as well as Prolonged Exposure Therapy (PE), which is widely labeled a “gold standard” treatment [6]. And in one of the largest SUD studies ever conducted, four sessions of Motivational Enhancement Therapy were not

significantly different than 12 sessions of Cognitive Behavioral Therapy (CBT) or Twelve-Step Facilitation [7].

PTSD/SUD treatment options

Each model listed here is manualized and has one or more peer-reviewed RCTs conducted with a population that met DSM criteria for current SUD and current PTSD (full or subthreshold). Each model achieved positive results at end of treatment, which is the time point with the strongest internal validity for an RCT. We identified models based on a comprehensive literature review of PTSD/SUD treatments [8], plus a search for additional RCTs in PubMed using the terms "PTSD substance abuse randomized controlled trial."

Models with a published manual

We start with models that have a published treatment manual as these are easiest for providers to obtain. They are listed by year of the first edition of the manual. One RCT citation is provided per model to illustrate its evaluation in a PTSD/SUD sample.

Relapse Prevention (RP, 1985) [9, 10] is one of the earliest and most widely used models in the SUD field. It is a group or individual cognitive behavioral (CBT) approach that offers practical strategies to prevent substance relapse, such as identifying high-risk situations and thinking traps and building confidence in abstaining from substances.

Eye Movement Desensitization and Reprocessing (EMDR, 1995) [11, 12] is one of the most studied and widely adopted PTSD models. It is an individual model that uses guided eye movements or other bilateral stimulation (light/sound) to promote trauma processing. It addresses four channels: trauma image, belief, body sensation, and emotion. Although not formally identified as a PTSD exposure therapy, we include it in that category as its primary focus is processing trauma memories.

Prolonged Exposure (PE, 1998) [7, 8] is one of the most studied PTSD therapies. It is an individual CBT model that guides patients to confront (be "exposed" to) trauma memories by telling the detailed story of their trauma and approaching reminders of it while tolerating painful emotions that arise.

BRENDA (2001) [13, 14] is an individual model designed for use with SUD pharmacotherapy. Its name signifies its elements: Biopsychosocial evaluation; Report results to the patient; Empathic approach; Needs that are collaboratively identified; Direct advice on how to meet the needs; and Assess reaction and adjust advice.

Seeking Safety (SS, 2002) [15, 16] is the earliest evidence-based model designed for PTSD/SUD and the most widely adopted and studied. It is a present-focused group or individual CBT approach that teaches coping skills for both disorders (e.g., asking for help, honesty, creating meaning, healing from anger, and coping with triggers).

Concurrent Treatment of PTSD and Substance Use Disorders using Prolonged Exposure (COPE, 2015) [17, 18] is an individual model that combines two existing CBT models, one for PTSD and one for SUD (PE and RP, respectively, both described above).

Creating Change (CC, in press) [19, 20] is a new group or individual PTSD/SUD model that addresses the past using the style and format of present-focused Seeking Safety. Topic examples include honor your survival; memory in trauma and addiction; and influences—family, culture, and community.

Models without a published manual

The models below are not published but contacting the study author is an option for obtaining them. They are listed in order of their first RCT.

Integrated Cognitive Behavioral Therapy (ICBT, 2011) [21] is an individual model designed for PTSD/SUD with three components: patient education; mindful relaxation to manage negative emotions and cravings; and flexible thinking for cognitions, emotions, and behaviors. Another version of ICBT is for military veterans in group modality [22].

Individual Addiction Counseling (IAC, 2011) [21] is an individual SUD model that combines two evidence-based manuals: individual drug counseling from the National Institute on Drug Abuse Cocaine Collaborative Study and twelve-step facilitation from the National Institute on Alcohol and Alcoholism (NIAAA) Project MATCH.

Structured Writing Therapy for PTSD (SWT, 2013) [23] is an individual model that uses writing assignments, cognitive reappraisal of trauma-related thoughts, and social sharing to reprocess painful trauma memories.

Integrated Treatment (IT, 2013) [24] is an individual model for PTSD and alcohol use disorder (AUD). PTSD is addressed with exposure therapy and cognitive restructuring and AUD via the Project MATCH CBT manual and the NIAAA COMBINE Study Behavioral Intervention Manual.

Alcohol Support (AS, 2013) [24] is an individual SUD model that offers generic manualized support plus an AUD focus identical to IT above.

Modified Prolonged Exposure (mPE, 2016) [18] is an individual model that adapts PE for SUD settings via shorter sessions (60 minutes rather than 90) and adding SUD education and breathing techniques.

Considerations when selecting a model for PTSD/SUD

We focus here on how to choose a model to address both disorders. The points are relevant to any treatment setting, but we place particular emphasis on SUD settings because they are the primary locale for PTSD/SUD patients to receive counseling (especially for those with severe SUD). Mental health programs often refer out SUD patients, but SUD programs do not routinely refer out PTSD patients. All of this paper's authors are SUD treatment experts who also have expertise in co-occurring disorders.

Consider whether the model has been tested across a broad range of SUDs

PTSD trials have consistently excluded SUD patients, historically and continuing into the present [27, 28]. Remarkably, some recent PTSD/SUD trials have also had SUD exclusions, though almost solely in trials of exposure-based PTSD models (EMDR, PE, mPE, IT, COPE). Exclusion examples are

cannabis dependence [29]; past month opioid use current substance dependence other than nicotine or cannabis [14]; benzodiazepine use [26]; use of a benzodiazepine greater than 40 mg of diazepam [29]; severe substance dependence [24]; intravenous drug use [30]; continuous use of heroin or cocaine [11]; and current substance dependence other than nicotine or cannabis [14]. Furthermore, some studies focus just on PTSD and alcohol use disorder (AUD) rather than drug use disorder [14, 16, 24], with AUD being easier-to-treat patients generally [31]. Of the models listed earlier, those tested in the broadest range, without SUD exclusions, are RP, ICBT, SWT, SS (e.g., [10, 20, 32–35]), COPE (two of its three studies [18, 36]), and CC.

Consider whether models have only been tested within intensive SUD treatment

If so, their safety and capacity to produce positive outcomes without such concurrent treatment is unknown. Their generalizability is also unclear as most PTSD/SUD patients do not obtain intensive SUD treatment due to lack of resources, access, or motivation. The SWT trial required SUD inpatient treatment or a day program, and SWT was initiated only after 4–6 weeks of abstinence [23]. One ICBT/IAC trial required a 6–8-week SUD intensive outpatient program (IOP) followed by a 12-week continuing care group [37]; another occurred in SUD IOP or methadone maintenance [21]. The mPE study occurred in a 6-week intensive residential SUD treatment [25, 26]. Such concurrent treatments were described as “treatment as usual” or “standard care,” so when evaluating a model, read articles closely to explore this issue. Models studied without intensive SUD concurrent treatment are RP, EMDR, SS, IT, AS, COPE, CC, and ICBT (one of its three studies [22]).

Consider whether studies included complex SUD patients

A major challenge for PTSD/SUD patients, aside from the disorders themselves, are associated life challenges and comorbidities [38]. Some studies have excluded these, obtaining an easier-to-treat sample than would generally occur in frontline programs. Examples include the SWT study, which excluded patients with suicidal ideation or borderline personality disorder [23]; a COPE study that excluded for any self-harm in the past 6 months [36]; an ICBT study that excluded for psychiatric hospitalization in the past month (other than SUD-related) [22]; and the PE study, which excluded if the presenting trauma was assault by a current intimate partner [39]. Thus far too, among the models in our list, only SS has been studied in a PTSD/SUD incarcerated or homeless sample [8].

Consider whether the model can be conducted in group modality

SUD treatment primarily occurs in group rather than individual counseling. Yet thus far, of our list, only RP [34] and SS [32, 34, 35] have been studied in group modality for PTSD/SUD; and an adapted version of ICBT used

mixed individual/group modality [22]. Various models may work in groups even though not yet studied that way, such as ICBT, IAC, and AS, which are present-focused models, and CC, which was designed for groups or individuals. However, exposure-based PTSD models delve into painful trauma narratives and thus are unlikely to be a group option, especially in SUD settings. When weighing treatment studies, be aware too that it is generally harder to achieve positive PTSD outcomes in group modality [40].

Consider the workforce

The SUD treatment workforce is historically very different from that in mental health [5]. There is more reliance on peer workers, advanced degrees are less common, and they are paid less. They are often openly in SUD recovery and, though not as openly, often suffered trauma too. Models in our list that originated in the PTSD field have eligibility and training requirements that are typically unrealistic for SUD staff (e.g., EMDR, PE, COPE). EMDR and PE require licensure and an advanced degree in a mental health field or supervision by someone with these. To be listed as a provider on their website requires certification after intensive training and supervision of multiple cases [41, 42]. COPE requires a graduate degree in mental health, formal training in CBT and PE, and ongoing supervision [17]. In contrast, models in our list originating in the SUD field have minimal or no training requirements and are explicit that providers do not need advanced degrees (e.g., RP, SS, and BRENDA). SS, for example, does not require training or certification outside of publishable clinical trials, and any provider can be listed on its website [43]. It is also the only model studied with peers in a PTSD/SUD sample [44].

Consider the cost of treatments

The cost of treatments for PTSD/SUD patients is rarely specified or studied in RCTs but is a major consideration for frontline programs. Costs vary based on the factors named above (group versus individual modality, training, workforce requirements, etc.). Session length also matters: models designed for SUD settings can be conducted in 60 minutes (RP, SS, ICBT, IAC), whereas PTSD exposure therapies are 90 minutes [18, 24, 30, 36] (except mPE which was reduced to 60 for SUD settings and SWT, a writing intervention). Training costs also vary substantially. Each certified PE therapist pays \$1500 for training plus \$6000 for consultation and required audiotape review of two training cases [45]. In contrast, models such as RP, SS, and BRENDA require just the book cost. Several models in our list have had formal cost-benefit analysis: EMDR, 100% chance that benefits will exceed cost; SS, 71%; and RP, 55% [46]¹. Finally, money was used as an incentive for treatment attendance for one model, PE, which has had persistent dropout problems [47, 48]. PTSD/SUD patients were paid up to

¹ PE is also listed on that website but was not analyzed distinct from various other CBT models.

\$480 for attending up to nine PE sessions [49]. This increased attendance, though it is unclear that SUD programs would be willing to afford such costs.

Consider treatments that reduce substance use

This point may seem obvious but is worth emphasizing because the PTSD/SUD studies consistently find that it is easier to reduce PTSD than SUD. There are far more findings for a model outperforming a control on PTSD than SUD (e.g., [11, 21, 26, 36, 50]). Even more surprising, SUD-only models do not focus on PTSD, yet some—RP, BRENDA, IAC, and AS—nonetheless decreased PTSD [10, 14, 24, 34, 37]. PTSD thus appears easier to treat than SUD, which is considered a chronic, relapsing condition, particularly in complex cases [51]. It is often called a disease of denial—using is an attempt to feel better and is self-reinforcing, so it takes a long time to “own” the diagnosis and become motivated to address it. In contrast, PTSD is inherently aversive with symptoms such as flashbacks and nightmares.

Consider the patient population

For example, PE has achieved better results in PTSD-alone studies than in PTSD/SUD. In the latter, it did not outperform BRENDA (a SUD-only model) on either PTSD or SUD [14]. ICBT did not outperform treatment-as-usual on PTSD or SUD in a sample of military veterans [22] but in community samples outperformed IAC to some degree (on SUD in one study [37] and on PTSD in another [21] [22]). There may also be differences based on race, gender, sexual orientation, social identity, and trauma or substance type. One PTSD/SUD study found that religious affiliation moderated response to treatment, for example [52].

Consider the models' appeal to patients and providers

Some models are not widely adopted despite positive evidence. PE has had low adoption and implementation in community settings [48, 53] and in the Department of Veterans Affairs, which conducted a multi-year roll-out of it [54, 55]. PTSD exposure therapies have also had premature dropout in general [47, 48] and in PTSD/SUD samples (e.g., [14, 36, 48, 55]). SS is the only model whose adoption and maintenance have been formally researched among PTSD/SUD providers. In a Los Angeles County Department of Mental Health evidence-based practice initiative spanning several years and 59 agencies, SS was used by 93% of respondents (the second most adopted of six models rolled out) and sustained by 84% of them [56]. A 12-year follow-up to the NIDA Clinical Trials Network multisite SS study showed strong continued use and attitudes toward the model [57••]. Finally, a survey of 205 Veterans Affairs staff who provide treatment to PTSD/SUD patients identified clear preferences among eleven PTSD, SUD, or PTSD/SUD models [58]. The top three models were SS, RP, and motivational interviewing, all rated as significantly more helpful than PE (#8 of the eleven models) and EMDR (#11), for example. Patients' relative ratings of the models have not yet been studied but would be interesting to pursue.

Consider methodology issues

It is beyond our scope to explore detailed discussion of RCT methods, but a few points are relevant. Independent testing of models, in which the developer is not part of the study team, is essential as it is the least subject to bias [59]. Only three models in our list have been independently tested thus far in PTSD/SUD samples: RP, EMDR, and SS. Equally important, all studies should meet developer-approved training and fidelity standards. Two SS studies did not meet that standard [60, 61], which limits the scientific validity of their conclusions. Readers should also look for explicit conflict of interest statements by model developers [59]; some articles are not transparent that a study author is also the model developer (e.g., [2]). Finally, it is important to read beyond study abstracts. As one quite egregious example, a study of SS versus twelve-step facilitation (TSF) reported no significant differences between them in the abstract, yet perusing the text yields the crucial information that the study appears never to have been completed (only 9 patients were randomized to TSF versus 31 to SS) [62].

Observations

Amid the many models, we can make a few general points. Overall, a more sophisticated approach is needed for selecting treatments for PTSD/SUD patients. RCTs are an important step to ascertain treatment impact [63], but too often they are seen as the endpoint for treatment recommendations rather than a starting point. We can imagine a more useful treatment comparison grid for frontline providers and programs that would list the *different models in columns* (RP, EMDR, etc.) and *major factors to consider in rows*. The latter would include evidence (how many studies, key findings, patient and provider samples, etc.) plus additional rows with implementation factors such as those described in this paper (group versus individual modality, session length, cost, training and certification, concurrent treatments, etc.).

In short, conclusions and policy should be based on a public health framework that evaluates not just evidence but also real-world implementation. This broader lens is not simply practical but also more scientifically valid as it accounts for a fundamental flaw in the horserace paradigm: there is currently no metric to compare the “level of burden” of patient samples. “Level of burden” refers to patients’ number and types of disadvantages that weigh them down—not just PTSD and SUD but also homelessness, suicidality, criminal-justice involvement, cognitive impairment, poverty, domestic violence, social isolation, and disparities based on race, ethnicity, and gender [64]². As described earlier, even some PTSD/SUD studies have selected easier-to-treat samples by excluding patients based on substance type and severity and complicating factors such as suicidal ideation and self-harm. To compare treatments

² “Complexity” is sometimes used to describe these disadvantages, but we prefer “level of burden” as it keeps the focus on patients’ experience of hardship rather than the provider-centric concept of “complexity.”

without accounting for patients' level of burden is "apples-and-oranges": models that do well with easier samples may perform less well with harder ones. PE, for example, thus far performs better for PTSD-alone than PTSD/SUD [14].

A public health paradigm also strengthens the conversation about how to interpret treatment evidence. It takes into account that it is easier to obtain positive results for individual than group treatments, for longer sessions than shorter ones, and with well-trained providers than less-trained ones. The paradigm also shifts away from the unproductive focus of trying to find models that outperform others. Decades of both PTSD and SUD research show that manualized treatments perform similarly overall and that occasional small findings for one model or another do not represent a consistent larger pattern, especially for complex patients [65–68]. PTSD/SUD research is at an early stage, but here too no one treatment is the winner; instead there are various models from which to choose. This has been called the "no wrong door" approach [69].

To provide a case example of how a public health approach might apply to PTSD/SUD, consider RP, which has been a mainstay of the SUD field since the 1980s. It is low cost, present-focused, easy to understand by patients and providers across settings and can be conducted in groups or individually. It does not require an advanced degree, training, certification, or lengthy sessions. In PTSD/SUD populations, it has shown a remarkable ability to reduce not just SUD, which would be expected, but also PTSD [10, 34, 70]. Yet the choice of RP does not preclude adoption of other models. SS, for example, which addresses both PTSD and SUD, has the same characteristics as RP and already has very wide adoption, sustained enthusiasm, and a positive evidence base across many studies [8, 50, 71]. PTSD writing therapy may be another useful option. Although it has just one PTSD/SUD study, its practicality and reduced demands on providers make it a promising option, especially in more recent versions of it [72, 73]. Offering options may increase engagement, especially as SUD-only models such as RP do not directly address PTSD.

Continuing our case example, providers could also take the level-of-burden concept to identify treatments that may be best for specific patients. This could be a simple checkmark form to identify disadvantages described earlier (homelessness, poverty, etc.). Patients with higher levels of burden might be steered toward easier-to-tolerate models. Even for patients with lower levels of burden, it is questionable whether harder-to-tolerate models offer any advantage over easier models. Only one study thus far directly compared two integrated treatments for PTSD/SUD, one present-focused (SS) and the other past-focused (COPE) [30], but unfortunately, the study was compromised by its lack of developer-approved standards for the SS arm [60, 74]. An earlier review by Roberts et al. [75] is sometimes cited as confirmation that exposure-based models outperform others for PTSD/SUD, but it identified its conclusions as "preliminary" given the limited quality and number of trials [71]. The PTSD/SUD literature is at an early stage, and no model or type of model consistently outperforms any other. Based on the larger PTSD literature described above, it may be unlikely in the future as well.

When identifying treatments for adoption, it is thus important to avoid premature conclusions. Unfortunately, there are overstatements and major inaccuracies at times. A recent review of COPE by its developer and other

colleagues stated that it “has three trials showing that it is more effective than SUD only treatment” [2] (p. 192). But results for the full sample at end of treatment, the most rigorous test, showed otherwise. In one study, COPE *underperformed* RP on SUD, with no difference between them on PTSD [70]. In two other studies, it was no different than either RP or treatment-as-usual on SUD, though was better on PTSD [18, 36]. The authors concluded that, “The data are clear that trauma focused exposure-based treatments should be offered to patients with PTSD/SUD” [2] (p. 192). This sweeping conclusion is remarkable in the context of so few studies, with none independent of the developer, and such limited findings. The same review also states that, “It is also clear that SS, which was widely adapted [sic] partly because it was the first therapy to address both PTSD and SUD, is not more effective than SUD only or SUD treatment as usual” (p. 192). Yet SS was not the first PTSD/SUD therapy (see, e.g., [76, 77]). And an independent meta-analysis of SS with over 1900 patients found positive results for the model, more on PTSD than SUD (consistent with the broad PTSD/SUD literature, described earlier), and more in comparison with treatment-as-usual than active comparison treatments (also consistent with the broader literature) [50]. A recent summary by an independent team concluded that “...in rigorous research investigations [SS] has demonstrated efficacy in reducing PTSD symptoms and substance use” [71] (p. 201).

Broadly speaking, there are two treatment types studied thus far for PTSD/SUD: those originating in the PTSD field, such as exposure-based models, and those originating in the SUD field (e.g., RP, BRENDA, SS, IAC). Each field has its own culture and assumptions. This makes for invigorating growth as each informs the other but at times produces clashes. SUD treatment has long been a world apart from mental health treatment, outside of it a grassroots movement by people in recovery [5, 78]. PTSD treatment developers stated early on that their treatments were not a good first choice for patients with co-occurring SUD (e.g., [79]). Recently, there have been important attempts to study PTSD treatments in PTSD/SUD samples. But in the process, there have been some major “misses” that insufficiently attend to the SUD side of the equation. For example, a recent six million dollar RCT approved for funding would be the largest PTSD/SUD trial ever conducted [80]. It has a primary outcome of PTSD *but not SUD*, yet states that its results will inform recommendations for PTSD/SUD treatment.

Another example is the 2017 American Psychological Association Clinical Practice Guideline (CPG) for PTSD [81]. It took the extraordinary step of strongly recommending classic PTSD treatments such as PE for adult patients with PTSD—even if they have co-occurring SUD and even while confirming that such treatments lack research evidence in PTSD/SUD patients (p. 80). They noted internal disagreement within the CPG committee on this recommendation (p. 80), but in the end it was made. The CPG generated unusual backlash for clinical insensitivity and over-reliance on limited data, with an issue of the APA journal *Psychotherapy* devoted to critiques of it [82]. For example, “...students and professionals who apply the treatments identified by the APA PTSD Guideline as ‘strongly

supported'...may inadvertently overwhelm some clients with complex trauma presentations, which could result in poor outcomes or even harm" [83].

A few final examples of an apparent disconnect between PTSD and SUD cultures come from journal articles when exposure-based models do not find a positive result on SUD. There are repeated affirmations that at least "substance abuse didn't worsen" [2, 14, 36, 70]; and one article questions the goal of abstinence from substances as it "may be particularly problematic in the context of active PTSD symptoms" [2]. Such statements are questionable, especially for severe and chronic SUD. Descriptions of some PTSD/SUD samples provide important reminders about the reality of their lives [8]. "All had childhood-based PTSD; average of near-daily substance use; most had active suicidal ideation and/or plan; all had substance dependence, primarily drug rather than alcohol" [84]; "Most were violent offenders with serious mental illness, including bipolar/psychotic; child sexual abuse; average of 15 life stressors; in minimum, medium, or maximum security" [85]; "Primarily unmarried mothers, 35% with parental rights terminated by legal system, due primarily to SUD; 69% had problems with multiple substances, and substantial percentage used substance(s) daily; 77% had prior SUD treatment; 35% had major depression, 19% bipolar I or II" [86].

Conclusion

SUD treatment settings are the primary place that PTSD/SUD patients receive counseling, especially if they have a major SUD. There are now various models relevant to this important population. The next phase of work will be to clarify which evidence-based approaches are able to meet their needs in ways that are sustainable and sensitive to the frontline realities of service settings and the patients they serve. Evidence is necessary, but not sufficient. We identify several models that are especially relevant to SUD settings, e.g., Relapse Prevention, BRENDA, and Seeking Safety. We note that most models originating in the PTSD field (e.g., Eye Movement Desensitization and Reprocessing, Prolonged Exposure, Concurrent Treatment of PTSD, and Substance Use Disorders using Prolonged Exposure) have less evidence at this point for PTSD/SUD and also greater feasibility barriers, such as costly training, supervision, and workforce requirements; individual rather than group modality; and dropout issues. Such models are also more emotionally difficult for patients to tolerate, and the PTSD/SUD literature as yet lacks clear evidence on whether they offer benefit over the easier-to-tolerate models that originated in the SUD field. We also suggest that the next generation of research should quantify and address patients' level of burden (socioeconomic and other disadvantages).

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Compliance with Ethical Standards

Conflict of Interest

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Human and Animal Rights and Informed Consent

This article does not contain any studies with human or animal subjects performed by any of the authors.

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- Of importance
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