



## PTSD and SUD Research Brief

### Overview

- ✓ Posttraumatic stress disorder (PTSD) and substance use disorder (SUD) often co-occur. This co-occurrence is associated with a worse, more costly, and more complex clinical course than either disorder alone.
- ✓ However, there are effective treatments—some for PTSD and SUD individually, and some for treating posttraumatic stress and substance use problems concurrently.
- ✓ See our [Co-occurring PTSD and Substance Use Disorders Clinician Fact Sheet](#) for information on prevalence, reasons for co-occurrence, and information about treatment.

On the pages that follow, we have highlighted key articles on co-occurring PTSD and SUD across the following areas:

- ✓ [Conceptual Frameworks](#)
- ✓ [Assessment](#)
- ✓ [Intervention](#)

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## Featured Conceptual Framework Articles

Elman, I., & Borsook, D. (2019). **The failing cascade: Comorbid posttraumatic stress- and opioid use disorders.** *Neuroscience & Biobehavioral Reviews*, 103, 374-383. doi: 10.1016/j.neubiorev.2019.04.023

- ✓ Elman & Borsook discuss how stress involvement in the course of opioid use disorder (OUD) is generally accepted, but questions remain about the underlying neurobiological mechanisms. Their detailed literature review concluded that alterations in reward- and stress-related circuits may make PTSD patients susceptible to developing OUD even in the absence of prior opioid exposure. Reward alterations may be therapeutic targets.

Haller, M., & Chassin, L. (2014). **Risk pathways among traumatic stress, posttraumatic stress disorder symptoms, and alcohol and drug problems: A test of four hypotheses.** *Psychology of Addictive Behaviors*, 28(3), 841-851. doi: 10.1037/a0035878

- ✓ Haller & Chassin tested four different models of the potential relations between PTSD and SUD. The study found the strongest support for the self-medication hypothesis, such that PTSD symptoms predicted higher levels of later alcohol and drug problems, over and above the influences of pre-trauma family risk factors, pre-trauma substance use problems, trauma exposure, and demographic variables.

Khantzian, E. J. (1997). **The self-medication hypothesis of substance use disorders: A reconsideration and recent applications.** *Harvard Review of Psychiatry*, 4(5), 231-244. doi: 10.3109/10673229709030550

- ✓ The self-medication hypothesis proposes that people with SUD use substances primarily to relieve or control painful emotions or experiences. Khantzian reviews evidence from diagnostic studies, clinical observations, and empirical studies for and against this hypothesis. The specific case of comorbid PTSD and SUD is discussed.

Norman, S. B., Myers, U. S., Wilkins, K. C., Goldsmith, A. A., Hristova, V., Huang, Z.,...Robinson, S. K. (2012). **Review of biological mechanisms and pharmacological treatments of comorbid PTSD and substance use disorder.** *Neuropharmacology*, 62(2), 542-551. doi: 10.1016/j.neuropharm.2011.04.032

- ✓ Norman et al. review biological mechanisms that are potentially implicated in the development and maintenance of comorbid PTSD and SUD including neurotransmitter and HPA dysregulation, shared genetic risk factors, and structural differences in the brain. They also review relevant pharmacological treatments that have been studied.



## Featured Assessment Articles

McCauley, J. L., Killeen, T., Gros, D. F., Brady, K. T., & Back, S. E. (2012). **Posttraumatic stress disorder and co-occurring substance use disorders: Advances in assessment and treatment.** *Clinical Psychology: Science and Practice, 19*(3), 283-304. doi: 10.1111/cpsp.12006.

- ✓ McCauley et al. review the prevalence, etiology, and assessment practices as well as advances in the behavioral and pharmacologic treatment of comorbid PTSD and SUDs. They note that psychosocial treatment options have increased substantially and that integrated approaches are fast becoming the preferred model for treatment.

Read, J. P., Bollinger, A. R., Sharkansky, E., Ouimette, P. (Ed.), & Brown, P. J. (Ed.) (2003). **Assessment of comorbid substance use disorder and posttraumatic stress disorder.** *Trauma and substance abuse: Causes, consequences, and treatment of comorbid disorders* (pp. 111-125). Washington, DC, US: American Psychological Association.

- ✓ Read et al. use this chapter to review theoretical and procedural approaches to the comprehensive assessment of comorbid PTSD and SUD. The authors outline widely used assessment measures as well as methods to enhance accurate assessment of PTSD and SUD symptoms, discuss the importance of assessing other comorbidities and present procedural and provider issues that may affect assessment.

Zambrano-Vazquez, L., Levy, H. C., Belleau, E. L., Dworkin, E. R., Howard Sharp, K. M., Pittenger, S. L., Schumacher, J. A., & Coffey, S. F. (2017). **Using the research domain criteria framework to track domains of change in comorbid PTSD and SUD.** *Psychological Trauma: Theory, Research, Practice, and Policy, 9*(6), 679-687. doi: 10.1037/tra0000257

- ✓ Zambrano-Vazquez et al. discuss the Research Domain Criteria (RDoC) Project, launched by the National Institute of Mental Health. This project proposes domains of functioning as a way to conceptualize the overlap between comorbid conditions and inform treatment selection. The findings provide preliminary evidence of how the RDoC domains of functioning may change with evidence-based treatments, and discuss assessment and treatment of comorbid PTSD and SUD using the RDoC framework.



## Featured Intervention Articles

Back, S. E., Killeen, T., Badour, C., Flanagan, J. C., Allan, N. P., Ana, E. S., Lozano, B., Korte, K. J., Foa, E. B., & Brady, K. T. (2019). **Concurrent treatment of substance use disorders and PTSD using prolonged exposure: A randomized clinical trial in military veterans.** *Addictive Behaviors, 90*, 369-377. doi: 10.1016/j.addbeh.2018.11.032

- ✓ Back et al. tested the effectiveness of an integrated treatment that incorporates prolonged exposure (Concurrent Treatment of PTSD and Substance Use Disorders Using Prolonged Exposure; COPE) compared to Relapse Prevention (RP) among veterans. Results suggested that COPE was superior to RP in reducing PTSD symptoms and diagnoses and that both interventions reduced SUD severity.

Coffey, S. F., Schumacher, J. A., Nosen, E., Littlefield, A. K., Henslee, A. M., Lappen, A., & Stasiewicz, P. R. (2016). **Trauma-focused exposure therapy for chronic posttraumatic stress disorder in alcohol and drug dependent patients: A randomized controlled trial.** *Psychology of Addictive Behaviors, 30*(7), 778-790. doi: 10.1037/adb0000201

- ✓ Coffey et al. studied the effectiveness of a modified version of prolonged exposure (mPE), with and without a motivational enhancement session, compared to a health-information control condition. Results revealed that participants who received mPE had greater reductions in PTSD symptoms. There were no group differences in substance use at follow-up; all groups reporting very high percentage (85.7-97.9%) days abstinent.

Hien, D. A., Levin, F. R., Ruglass, L. M., López-Castro, T., Papini, S., Hu, M.-C., Cohen, L. R., & Herron, A. (2015). **Combining seeking safety with sertraline for PTSD and alcohol use disorders: A randomized controlled trial.** *Journal of Consulting and Clinical Psychology, 83*, 359-369. doi: 10.1037/a0038719

- ✓ Hien et al. tested whether there were benefits to combining Seeking Safety with sertraline. Participants were randomly assigned to receive a partial-dose (12 sessions) of Seeking Safety with either sertraline or placebo. PTSD symptoms improved in both conditions, but the sertraline condition had a greater reduction in PTSD symptoms at end-of-treatment, 6- and 12-month follow-up. Both conditions improved on AUD severity at all time points with no significant differences by condition.



Hien, D. A., Smith, K. Z., Owens, M., López-Castro, T., Ruglass, L. M., & Papini, S. (2018). **Lagged effects of substance use on PTSD severity in a randomized controlled trial with modified prolonged exposure and relapse prevention.** *Journal of Consulting and Clinical Psychology, 86*, 810–819. doi:10.1037/ccp0000345

- ✓ Hien et al. tested how patients' substance use impacted PTSD change over treatment using data from a randomized controlled trial of Concurrent Treatment of PTSD and SUD Using Prolonged Exposure (COPE) and Relapse Prevention Therapy (RPT). RPT and COPE both significantly reduced PTSD and did not increase in SUD symptoms.

Kaysen, D., Schumm, J., Pedersen, E. R., Seim, R. W., Bedard-Gilligan, M., & Chard, K. (2014). **Cognitive processing therapy for veterans with comorbid PTSD and alcohol use disorders.** *Addictive Behaviors, 39*, 420-427. doi: 10.1016/j.addbeh.2013.08.016.

- ✓ Kaysen et al. examined whether CPT was tolerated and effective for veterans with comorbid PTSD and alcohol use disorder (AUD). Participants completed an average of 9 sessions of CPT with no significant difference between AUD diagnostic groups (current AUD, past AUD, no AUD) on the number of CPT sessions completed. All groups reported significant reductions in PTSD and depression.

Norman, S. B., Trim, R., Haller, M., Davis, B. C., Myers, U. S., Colvonen, P. J., Blanes, E., Lyons, R., Siegel, E. Y., Angknaw, A. C., Norman, G. J., & Mayers, T. (2019). **Efficacy of integrated exposure therapy vs. integrated coping skills therapy for comorbid posttraumatic stress disorder and alcohol use disorder: A randomized clinical trial.** *JAMA Psychiatry, 76*, 791-799. doi: 10.1001/jamapsychiatry.2019.0638

- ✓ Norman et al. compared changes in PTSD symptoms and number of drinking days for veterans who completed a course of an integrated exposure-based intervention (COPE) and a coping-focused intervention (Seeking Safety). PTSD symptoms decreased for both groups, with a greater decrease for those in COPE ( $d = 0.41$ ). The percentage of heavy drinking days improved in both conditions and did not differ between groups.

Schäfer, I., Lotzin, A., Hiller, P., Sehner, S., Driessen, M., Hillemacher, T., Schäfer, M., Scherbaum, N., Schneider, B., & Grundmann, J. (2019). **A multisite randomized controlled trial of Seeking Safety vs. Relapse Prevention Training for women with co-occurring posttraumatic stress disorder and substance use disorders.** *European Journal of Psychotraumatology, 10*, 1577092. doi: 10.1080/20008198.2019.1577092

- ✓ Schäfer et al. randomly assigned women receiving outpatient community mental health treatment in Germany to one of three study conditions: 1) Seeking Safety plus TAU, 2) Relapse Prevention plus TAU, and 3) TAU alone. All groups showed comparable decreases in PTSD severity over the course of the study. Relapse Prevention was more effective than TAU alone in reducing the number of substance-free days and alcohol severity, but not drug severity. Seeking Safety did not differ from either Relapse Prevention or TAU on these outcomes.



Simpson, T. L., Lehavot, K., & Petrakis, I. L. (2017). **No wrong doors: Findings from a critical review of behavioral randomized clinical trials for individuals with co-occurring alcohol/drug problems and posttraumatic stress disorder.** *Alcoholism: Clinical and Experimental Research*, 41(4), 681-702. doi: 10.1111/acer.13325

- ✓ Simpson et al. conducted a systematic review of the RCTs that evaluated treatments for comorbid PTSD and SUD. They concluded that integrated exposure-based PTSD treatment and behavioral SUD treatment is recommended when available because of its superiority for reducing PTSD symptoms. However, they also highlighted that people with comorbid PTSD and SUD benefit from nearly all treatments tested, including standard SUD care.