Psychosocial Interventions for Co-occurring PTSD/SUD

Jill Gardner

University of Maine

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Jennie Goldenberg, Ph.D., LCSW

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Introduction

Individuals who experience substance use disorders often also experience posttraumatic stress disorder (Pietrzak et al., 2011 as cited in United States Department of Veteran Affairs, 2017). One national epidemiologic study showed that 46.4% of individuals with ongoing posttraumatic stress disorder also displayed symptoms and met criteria for substance use disorder (Kessler et al., 1995 as cited in United States Department of Veteran Affairs, 2017). In a second national epidemiologic study, 27.9% of women and 51.9% of men with ongoing PTSD also were eligible for a substance use disorder (Kessler et al., 1995 as cited in United States Department of Veteran Affairs, 2017). People with co-occurring diagnoses of substance use disorder and posttraumatic stress disorder have greater risk for other mental health issues such as depression and anxiety. They are also at a higher risk of experiencing "…suicidality, neuropsychological impairment, increased morbidity, and mortality, unemployment and social impairment" (Flanagan et al., 2016, p. 1).

Research shows that SUD and PTSD exist concurrently and the rates are high in that existence. Individuals who experience SUD, in comparison to those who do not meet criteria, are "6.5 times more likely to have comorbid PTSD" (Mills, Teeson, Ross, & Peters 2006 as cited in United States Veteran Affairs, 2021). Co-Occurring SUD and PTSD is related with considerable psychiatric co-occurring disorders, medical issues, work limitations, higher violence rates, and sub par treatment outcomes (Mills, Teeson & Back, 2014: Simpson, Lehavot, & Petrakis, 2017: Stein et al., 2017 as cited in United States Veteran Affairs, 2021). The complications of co-occurring disorders put a large financial burden on the healthcare system. Unfortunately, in part, this results in treatment outcomes that are less than successful, a need for longer treatment and greater

treatment encounters (Flanagan et al., 2016). The intricate complexities of treating co-occurring disorders have proved to be a very specialized area of expertise among clinicians, researchers, psychologists and medical healthcare professionals. This review serves to clear up any misconceptions about what the research states are effective approaches for treatment of this comorbidity.

The efficacy of treatment models and interventions for treating individuals who are experiencing posttraumatic stress disorder and substance use disorder has undergone an evolution through the past several years in the United States. The goal of this review is to summarize the most current research findings on psychosocial interventions for comorbid PTSD and SUD. This review will outline the etiological theories, the evolution of models of treatment and the prevalence of co-occurring PTSD/SUD. It will summarize the most current psychosocial interventions to address this comorbidity using articles identified through November 28, 2021 in databases of PubMed, PsychINFO, and PTSDpubs. Included peer-reviewed articles within the last ten years will assess individuals with SUD and a PTSD diagnosis, and reported outcomes of diverse psychosocial treatment interventions. Search terms used included a combination of: co-occurring, concurrent, comorbid, PTSD, SUD, treatment, interventions, psychosocial, exposure therapy, and EMDR. The key terms which will be explored in this review include variations on recurring themes of: PTSD/SUD diagnosis, symptoms and severities, etiological theories, the evolution of models of treatment, psychosocial interventions, exposure based therapy, non exposure based therapy, and Eye Movement Desensitization Reprocessing (EMDR). In Appendix A, see the Flow Chart which illustrates the path through these topics. Finally, this summary may deliver insight for future studies aimed at improving psychosocial models and creating more effective treatment for comorbid PTSD and SUD.

Prevalence & Risk Factors

Other risk factors related to co-occurring disorders which have been shown in recent studies, include being exposed to a multiple scope of early life stressors which increases the risk for the development of PTSD. Having a series of adverse childhood experiences is another risk factor for the development of comorbid PTSD and alcohol use disorder, AUD. Lower socioeconomic status and traumatic life events may also place adult individuals at a greater risk of developing comorbid PTSD and AUD (Riggs et al., 2003, Ullman et al. 2006 as cited by Gilpin & Weiner, 2017).

Sex and gender also play a role in risk factors. The data on whether men or women are at more of a risk for the development of PTSD and AUD is mixed. Some studies report more commonality of PTSD and AUD in men, while others cite equally or higher rates of risk and development in women. A factor that may complicate this measurement may be in the type of exposure to events or trauma that an individual experiences. Witnessing a traumatic event, a series of life-threatening events in the context of an accident, war or domestic violence all can play a role in the development of PTSD (Gilpin & Weiner, 2017).

The intersectionality of cultural, historical and growing developments in the medical, mental health and substance use fields further complicates the treatment of co-occurring disorders of SUD and PTSD. When an individual presents to any or all of these specialties, they can be assessed with an emphasis on SUD, an emphasis on PTSD or hopefully a comprehensive assessment of both and how both these disorders impact one another. Unfortunately, training in all three areas of expertise can fall short on the comprehensive side of things. It can also fall short depending on the provider and their experiences with mental health, substance use and or the lack

of understanding of co-occurring and in some cases, the lack of training also in regards to trauma (Simpson et al., 2020).

Etiological Theories

Over the years various explanatory models have developed about how to treat the two disorders, and where and how they were likely to originate. They include the common factor model, self-medication model, secondary psychiatric model and the bidirectional model. (Back et al., 2010). With all these developing theories and frameworks, it is no surprise to find that the assessment and treatment for co-occurring disorders can be as varied and wide as the complexities of the field's developing history.

Order and Models of Treatment

The growing development of how to treat co-occurring disorders had grown and changed immensely in the last twenty years (Back et al., 2010). This is just one of the complexities in treating co-occurring disorders. Depending on the treatment facilities' foundational models, a client who is experiencing both disorders may only be assessed for one, or they may be more heavily assessed for mental health, but not thoroughly explored in their history or substance use. In some cases, there are still providers and agencies using the sequential model, which according to the research, is outdated. (Flanagan et al., 2016). This model noted that the more severe of the disorders should be treated first. It also, in some cases, assumed that it was important for someone with SUD to establish abstinence before tackling symptoms of PTSD or trauma.

In recent years, a more appropriate model for treating co-occurring has emerged as the integrative model (Flanagan et al., 2016). In this case, both disorders are assessed and treated concurrently. With the previous sequential model, it was often believed that a person must first attain some level of abstinence before attempting treatment for PTSD. Current trends show that

there is little empirical evidence to prove that waiting to treat PTSD is the better choice. In fact, treating both the symptoms of SUD and PTSD seems to theoretically be the preferred model of treatment. No research finds that treating the PTSD will lead to greater relapse with substance use when exposed to PTSD triggers although the two disorders are intertwined and affect one another (Meshberg-Cohen et al., 2021).

Psychosocial Interventions

There are several promising evidenced-based models and interventions for co-occurring disorders of SUD and PTSD. Studies regularly differentiate between two large categories which include exposure based therapy and non-exposure based therapy. Studies further discuss different types of each kind of therapy under those headings. More recently, EMDR has also been explored in studies (Schafer et al., 2019; Tapia et a.l, 2017).

Exposure-based therapy

Prolonged Exposure therapy has been combined as an integrated treatment with relapse prevention in a program called COPE. This stands for Co-Occurring Prolonged Exposure Therapy. As recent as 2019, a study has been done with veterans in the VA setting. COPE utilizes imaginal and real-life exposures to help clients "reduce trauma symptoms through confrontation of trauma related thoughts, situations, and activities" in which clients avoided previously and were not harmful (Back et al., 2019). The beginning sessions start with psychoeducation about the relationship between SUD and PTSD, cravings, substance and triggers related to trauma and the rationale for PE. Major ingredients are in vivo exposure (session 3-12) and imaginal exposures (sessions 4-11). Although abstinence is strongly recommended, it is not required to participate in COPE (Back et al., 2019). Relapse Prevention skills teach identification of cravings and high risk situations that typically happen with substance use. In this study, RP is the control condition

because it is an evidenced based treatment within the VA setting. The study evaluated the efficacy of COPE among military veterans. (Back et al., 2019).

Prolonged Exposure has been considered the "gold standard" by the VA for PTSD and is an effective, evidence based treatment for PTSD, but there is limited data on its use among individuals with current alcohol and drug disorders. The study found that substance use decreased drastically in both groups control (RP) and those receiving integrated treatment (COPE) with improvement happening more quickly early in treatment. The study showed that the program was associated with larger reduction in PTSD severity and higher rates of PTSD diagnostic remission than Relapse Prevention alone. Participants who finished COPE, 83% no longer met criteria for PTSD. This outcome is better than the diagnostic remission rates observed in PTSD-only patients without comorbid SUD treated with cognitive behavioral therapies (Hoffman et al., 2018 as cited in Back et al., 2019). One important finding noted that based on this study and others for exposure-based therapy, that treatment for PTSD, the presence of a co-occurring SUD diagnosis should not confine or limit treatment for concurrent PTSD treatment (Brady et al., 2001; Foa et al., 2013; Foa et al., 2017; Mills et al., 2012; Najavits, Krinsley, Waring, Gallagher, & Skidmore, 2018; Norman & Hamblen, 2017; Persson et al., 2017; Ruglass et al., 2017; Simpson et al., 2017 as cited by Back et al., 2019).

In summary, actions steps that could be taken further in policy/field include: assessing all individuals for trauma exposure and PTSD, offering integrated, exposure based treatment concurrently, not delaying treatment for PTSD until after abstinence is achieved, that abstinence not be required to treat PTSD, and that treatment should be enacted as soon as possible (Back et al., 2019). Although psychosocial interventions like PE and cognitive processing theory have been

shown to be effective, finding clinicians and treatment facilities that are trained in these interventions proves to be another challenge (Berenz & Coffey, 2012).

An earlier integrated treatment model incorporated exposure based approaches have been explored with the co-occurring population. Triffleman and colleagues created an integrated treatment called Substance Dependence Posttraumatic Stress Disorder Therapy (SDPT) facilitated over the course of five months in twice weekly sessions. SDPT utilizes a two-phase approach of integration of cognitive behavioral treatment for SUD with real life exposure for PTSD. When it was compared to a 12 Step Facilitation Therapy which didn't address trauma, from a sample of 19 individuals (using methadone treatment) improvements in SUD/PTSD symptoms were identified. Curiously, no between group differences were found. This could be on account of the small sample size, the short follow-up period, and the fact that SDPT didn't incorporate imaginal exposure (i.e, exposure to the memories of past trauma) and only integrated in vivo exposure (McCauley et al., 2021). Brady and colleagues later developed the concurrent treatment for PTSD and co-occurring cocaine dependence now referred to as COPE (McCauley et al., 2021).

Another study using COPE for women with alcohol use disorder and PTSD in Sweden (Persson et al, 2017 as cited by Back et al., 2019) revealed that COPE led to drastic reductions in SUD and PTSD severity, even though a majority of women reported childhood trauma and exposure on average to 7 different trauma types. Taken together, the findings show that integrated, exposure-based treatment is effective in reducing SUD and PTSD severity across multiple types of trauma (Back et al., 2019). When PE is facilitated in an integrated or comprehensive SUD treatment it is beneficial. The results indicate there is still room for further research especially regarding SUD outcomes. The limitations of this study included a small sample size, it represented women and would not be generalizable necessarily to men, and future research is needed to

identify ways to increase retention and decrease substance use which would be beneficial for long term outcomes (Back et al., 2019). It would also be important to determine if the qualities of this particular treatment (PE) yielded a reduction in symptoms for PTSD/SUD or if any treatment addressing the symptoms may yield the same results.

Non-Exposure Based Therapy

Most of the studies to date have explored non-exposure based psychosocial interventions for PTSD/SUD co-occuring treatment. Non exposure based therapy has often been used by clinicians and researchers who are hesitant to use exposure based methods with individuals who have co-occurring disorders. The hesitation is mainly due to previous models of treatment, such as the sequential model theory, which requires a person to become abstinent from substances before treating PTSD symptoms. This model fails to take into account the facts that not all individuals have abstinence as their goal. It also fails to recognize the research that shows that exposure based trauma work would not necessarily result in increased substance use or relapse (Flanagan et al., 2016).

Non-exposure based interventions exclude exposure to the trauma memory (no imaginal exposure) or exposure to stimuli that are safe, but these are avoided because they are reminders of the trauma (no real life exposure). Instead, non-exposure based treatments focus on themes of psychoeducation, the interrelatedness of SUD and PTSD symptoms, building coping skills, regulating negative emotions and looking at the impact of trauma symptoms (Flanagan et al., 2016).

Seeking Safety is a commonly used and evaluated non-exposure based treatment. It comprises 24 sessions through the use of a manual which focuses on establishing and maintaining safety. Different themes include detaching from emotional pain, asking for help, compassion, honesty, integrating the split self, community resources, setting boundaries, coping with triggers,

self-nurturing and recovery thinking. The outcomes of a study completed by Hien and colleagues using this treatment yielded mixed results. In this study, Hien and colleagues compared the SS program to a relapse prevention program in a sample of women with co-occurring disorders. No significant differences in SUD or PTSD were observed between the two groups. PTSD symptoms did not shift in severities. Hien and colleagues also compared SS to another health education group called WHE. Outcomes showed that PTSD symptoms were significantly reduced in both groups, with again, no between group differences. It also showed that neither group had a significant impact on abstinence (Hien et al., 2015 as cited by Flanagan et al., 2016).

Another type of non exposure based intervention is cognitive reprocessing therapy. It has It has been used with veterans in a PTSD outpatient clinic at a VA medical center. In this study, veterans with co-occurring alcohol use disorder showed severe symptoms of PTSD. The outcomes showed that there was no difference in the number of sessions completed or reductions in PTSD for depressive symptoms between those with PTSD alone and those with co-occurring PTSD and alcohol use disorder (Flanagan et al., 2016).

Five other non-exposure-based interventions that have been explored include Trauma Exposure and Empowerment Model (TREM), Transcend, Addictions and Trauma Recovery Integrated Model (ATRIUM), CBT for PTSD, and Trauma Affect Regulation: Guidelines for Education and Therapy (TARGET). Although uncontrolled trials of these interventions initially showed promising outcomes, there has been limited empirical evidence thus far (Flanagan et al., 2016).

Thus far, studies have looked at exposure therapy and non-exposure based therapies to treat co-occurring PTSD/SUD. A more recent growing body of knowledge and research has proposed the use of EMDR to treat both PTSD and SUD. EMDR has several studies indicating its

effectiveness for trauma survivors and those experiencing PTSD. Fewer studies have been done in exploring how this intervention may work with those who are diagnosed with both disorders. An interesting theme that emerged from the research in exposure based and non exposure based interventions is the differentiation of interventions either addressing traumatic memory through exposure therapy or avoiding addressing traumatic memory.

One of the major breakthroughs with EMDR is that it is considered an integrative intervention, (Van der Kolk, 2014) in that it does not seek to expose the individual to past trauma in order to allow the individual to become used to the reactions per se. Instead, it seeks to integrate the traumatic memory that has been separated from autobiographical memory. In this way, the individual integrates the memory, instead of conditioning oneself to be less afraid of it. This may prove to be one of the major components in addressing co-occurring disorders, reducing the re-living symptoms of PTSD which could also help to reduce the use of substances to relieve individuals from these symptoms (Van der Kolk, 2015).

Eye Movement Desensitization and Reprocessing (EMDR)

EMDR is an evidenced based treatment for PTSD. Few studies have been done on the effectiveness of EMDR on those who experience both SUD and PTSD. A trial being run by Schafer in 2017, explored whether EMDR could be used for PTSD while individuals also experienced SUDs. The trial found that trauma-focused interventions for individuals with PTSD and comorbid SUD could be used without impacting the outcomes of substance use symptoms. This is an important finding, as noted previously, many clinicians and researchers are reluctant to use trauma-focused therapy for clients with SUD/PTSD because they could believe “eliciting intense emotions” from a traumatic event during treatment may exacerbate symptoms of substance use or increase the risk of relapse (Schafer et al., 2017, p. 1). Trauma-focused PTSD treatment for

individuals with SUD may also effectively reduce SUD symptoms (Schafer et al., 2019). Individuals with PTSD and SUD note higher levels of cravings in their responses to trauma-related cues (Schafer et al., 2019) than patients with PTSD. These clients may be more likely to use substances to manage negative affective states related to PTSD symptoms (Schafer et al., 2019). If negative affective states related to PTSD could be safely reduced by trauma-focused treatment, SUD may also be reduced (Schafer et al., 2019). The results of this trial could encourage more widespread use of evidence based trauma focused approaches in regular treatment of patients with co-occurring SUD/PTSD (Schafer et al., 2019).

Another study investigated whether treating early maladaptive schemas (EMS) along with traumatic memory would significantly reduce substance use and PTSD symptoms using EMDR and Schema Therapy. The study used a two-phase approach. It included eight sessions of schema therapy related with EMDR focused on reprocessing traumatic memory (phase A) and eight Schema Therapy sessions related with EMDR focused on reprocessing addictive memory (phase B). The study evaluated addiction severity, alcohol craving, cannabis craving, PTSD symptoms, early maladaptive schemas (EMS) intensity and depressive symptoms prior to and after treatment. Results showed that eight sessions of ST combined with EMDR focused on traumatic memories reduced PTSD symptoms and the number of EMS (Tapia et al., 2018).

Results indicated on phase B showed a statistically significant decrease for severity of addiction and symptoms of depression. The study illustrates how important it is to provide integrative therapies which improve SUD and that Schema Therapy used with EMDR is an efficacious and ongoing treatment for women with SUD/PTSD (Tapia et al., 2018).

Conclusion

There are several limitations related to the study of psychosocial treatment of co-occurring PTSD/SUD. Before evaluating any studies on co-occurring disorders and their specific limitations, it is important to note that the complexities and nuances of treating two disorders that are closely intertwined prove to be a complicated matter. In addition, etiological theories, treatment models, and severities of each type of diagnosis further complicate matters. Onset and age of trauma can also complicate and should be considered when determining a course of treatment (McCauley et al., 2021).

In choosing a method of treatment, there are several variables which could impact a more favorable response to integrated treatment. These include patient preference, history of treatment and treatment response, severity of SUD, withdrawal symptom severity and need for medically supervised detox, and ability of the patient to recall the trauma memory (McCauley et al., 2021).

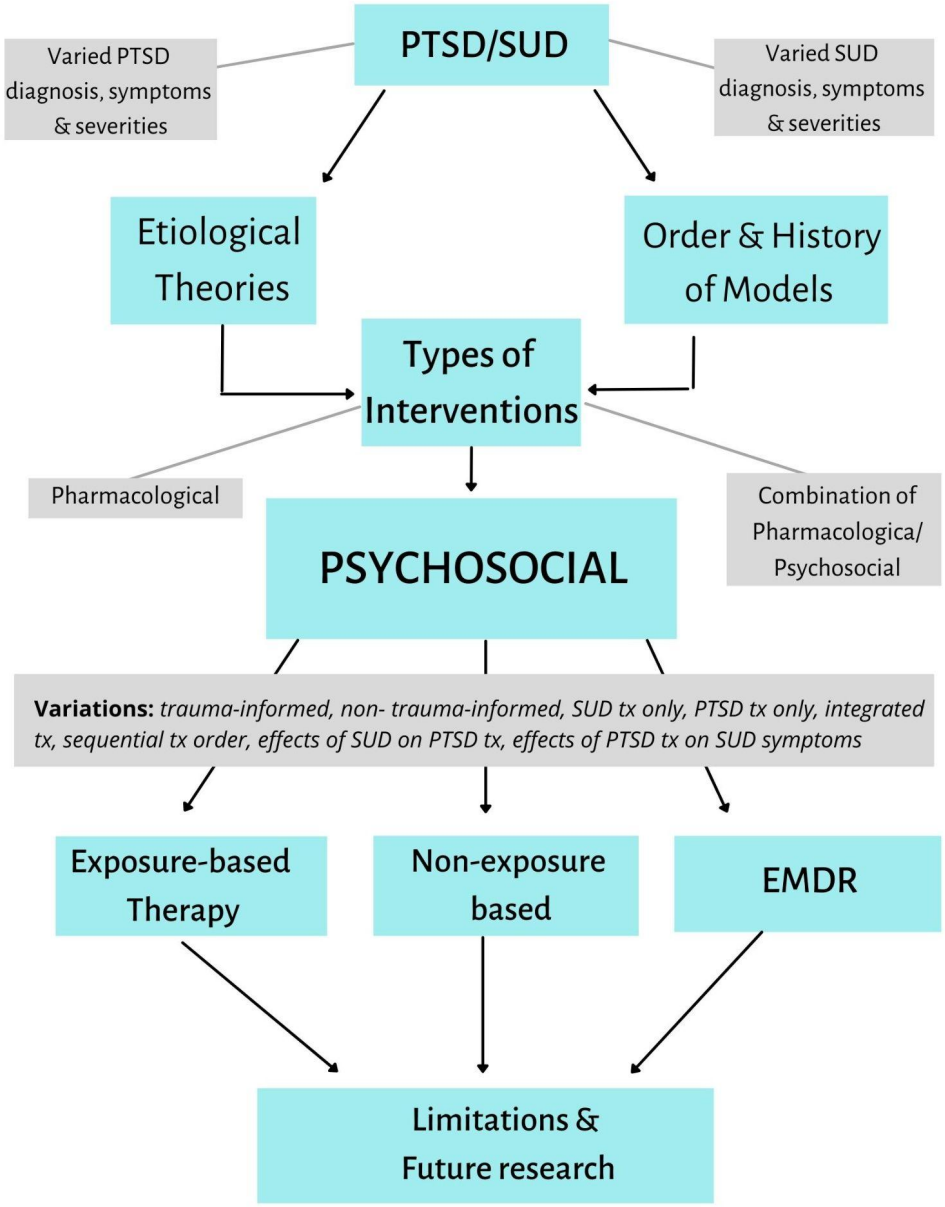
Professionals will also need to consider the relationship between PTSD and SUD symptoms for each client. They will need to gather information on the specific reasons why each client reports using substances (for example, to sleep better, to not recall trauma-related memories, to block out flashbacks or to engage in social situations). This information could be used skillfully to inform the kind of intervention and implementation for each client (McCauley et al., 2021).

Another limitation in implementing concurrent trauma-informed treatment reported by clinicians is their difficulty in implementing simultaneous treatment because of a limited amount of inpatient facilities and a lack of expertise (Flanagan et al., 2016). Further research is needed to create short, integrative, and realistic PTSD interventions with SUD (Meschberg-Cohen et al., 2021). To improve clinical treatment another step that could be taken would be to provide appropriate PTSD assessments for all individuals seeking SUD (Meschberg-Cohen et al., 2021).

As noted by McCauley and colleagues, “making both the regular integration of trauma screening into traditional SUD treatment settings, as well as the integration of SUD screening into the traditional trauma-focused treatment settings…” would be “...a viable and worthwhile standard operating procedure among practitioners” (McCauley et al, 2021).

In summary, several exposure based treatments, non exposure based treatments and recent studies on EMDR have proved to have promising results for those experiencing PTSD/SUD. The research on this topic is still in its early stages. Key findings included using an integrated treatment model which addresses both symptoms of SUD and PTSD, the importance of addressing PTSD symptoms regardless of abstinence or not, and the ongoing theme of traumatic memory and addictive memory requiring different treatment than a basic cognitive behavioral therapy. Perhaps the most significant findings include the promising possibilities of EMDR being able to access and address traumatic memory and addictive memory in a way that re-integrates experiences and improves outcomes for those clients with PTSD/SUD (Tapia et al., 2018). Integrated treatment approaches for these conditions concurrently show promising results in reducing the symptoms of both SUD and PTSD. This body of knowledge continues to grow and expand as more research develops in treating comorbidities.

Appendix A. Flow Chart



References

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Association.

Back, S. E. (2010). Toward an improved model of treating co-occurring PTSD and substance use disorders. The American Journal of Psychiatry, 167(1), 11-13. https://doi.org/10.1176/appi.ajp.2009.09111602

Back, S. E., Killeen, T., Badour, C. L., Flanagan, J. C., Allan, N. P., Ana, E. S., Lozano, B., Korte, K. J., Foa, E. B., & Brady, K. T. (2019;2018;). Concurrent treatment of substance use disorders and PTSD using prolonged exposure: A randomized clinical trial in military veterans. Addictive Behaviors, 90, 369-377. https://doi.org/10.1016/j.addbeh.2018.11.032

Courtois, C.A. and Ford, J.D. (2016). *Treatment of complex trauma: A sequenced, relationship-based approach.* Guildford Press.

Berenz, E. C., & Coffey, S. F. (2012). Treatment of co-occurring posttraumatic stress disorder and substance use disorders. Current psychiatry reports, 14(5), 469–477. https://doi-org.wv-o-ursus-proxy02.ursus.maine.edu/10.1007/s11920-012-0300-0

Flanagan, J. C., Korte, K. J., Killeen, T. K., & Back, S. E. (2016). Concurrent Treatment of Substance Use and PTSD. Current psychiatry reports, 18(8), 70. https://doi-org.wv-o-ursus-proxy02.ursus.maine.edu/10.1007/s11920-016-0709-y

Gilpin, N. W., & Weiner, J. L. (2017). Neurobiology of comorbid post-traumatic stress disorder and alcohol-use disorder: Neurobiology of comorbid PTSD and AUD. Genes, Brain and Behavior, 16(1), 15-43. https://doi.org/10.1111/gbb.12349

Hien, D. A., Campbell, A. N. C., Ruglass, L. M., Saavedra, L., Mathews, A. G., Kiriakos, G., & Morgan-Lopez, A. (2015). Maximizing effectiveness trials in PTSD and SUD through secondary analysis: Benefits and limitations using the National Institute on Drug Abuse Clinical Trials Network "Women and Trauma" Study as a case example. Journal of Substance Abuse Treatment, 56, 23–33. https://doi-org.wv-o-ursus-proxy02.ursus.maine.edu/10.1016/j.jsat.2015.04.001

Kessler, R. C. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, *52*(12), 1048. https://doi.org/10.1001/archpsyc.1995.03950240066012

Lortye, S.A., Will, J.P., Marquenie, L.A. et al. Treating posttraumatic stress disorder in substance use disorder patients with co-occurring posttraumatic stress disorder: study protocol for a randomized controlled trial to compare the effectiveness of different types and timings of treatment. BMC Psychiatry 21, 442 (2021). https://doi.org/10.1186/s12888-021-03366-0

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 (New York, N.Y.), 19(3), 283-304. https://doi.org/10.1111/cpsp.12006 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3811127/

Meshberg-Cohen, S., Ross MacLean, R., Schnakenberg Martin, A. M., Sofuoglu, M., & Petrakis, I. L. (2021). Treatment outcomes in individuals diagnosed with comorbid opioid use disorder

and Posttraumatic stress disorder: A review. Addictive behaviors, 122, 107026. https://doi-org.wv-o-ursus-proxy02.ursus.maine.edu/10.1016/j.addbeh.2021.107026

Mills, K. L., Teesson, M., Back, S. E., Brady, K. T., Baker, A. L., Hopwood, S., Sannibale, C., Barrett, E. L., Merz, S., Rosenfeld, J., & Ewer, P. L. (2012). Integrated exposure-based therapy for co-occurring posttraumatic stress disorder and substance dependence: A randomized controlled trial. JAMA: Journal of the American Medical Association, 308(7), 690–699. https://doi-org.wv-o-ursus-proxy02.ursus.maine.edu/10.1001/jama.2012.9071

Peck, K. R., Coffey, S. F., McGuire, A. P., Voluse, A. C., & Connolly, K. M. (2018). A cognitive processing therapy-based treatment program for veterans diagnosed with co-occurring posttraumatic stress disorder and substance use disorder: The relationship between trauma-related cognitions and outcomes of a 6-week treatment program. Journal of Anxiety Disorders, 59, 34-41. https://doi.org/10.1016/j.janxdis.2018.09.001

Pietrzak, R. H., Goldstein, R. B., Southwick, S. M., & Grant, B. F. (2011). Prevalence and Axis I comorbidity of full and partial posttraumatic stress disorder in the United States: Results from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Condition. Journal of Anxiety Disorders, 25, 456-465. doi:10.1016/j.janxdis.2010.11.010

Schäfer, I., Chuey-Ferrer, L., Hofmann, A. et al. Effectiveness of EMDR in patients with substance use disorder and comorbid PTSD: study protocol for a randomized controlled trial. BMC Psychiatry 17, 95 (2017). https://doi.org/10.1186/s12888-017-1255-9

Simpson, T. L., Goldberg, S. B., Louden, D., Blakey, S. M., Hawn, S. E., Lott, A., Browne, K. C., Lehavot, K., & Kaysen, D. (2021). Efficacy and acceptability of interventions for co-occurring PTSD and SUD: A meta-analysis. Journal of anxiety disorders, 84, 102490.

Advance online publication. https://doi-org.wv-o-ursus-proxy02.ursus.maine.edu/10.1016/j.janxdis.2021.102490

Tapia, G., Perez-Dandieu, B., Lenoir, H., Othily, E., Gray, M., & Delile, J. (2018). Treating addiction with schema therapy and EMDR in women with co-occurring SUD and PTSD: A pilot study. Journal of Substance use, 23(2), 199-205. https://doi.org/10.1080/14659891.2017.1378743

United States Department of Veterans Affairs. *Treatment of Co-Occurring PTSD and Substance Use Disorder in VA*. (2017, May 15). Retrieved September 29, 2021, from https://www.ptsd.va.gov/professional/treat/cooccurring/tx_sud_va.asp.

Van der Kolk, B. A. (2015). *The body keeps the score: Brain, mind and body in the healing of trauma*. Penguin Books.