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## Towards Integrated Treatments for PTSD and Substance Use Disorders

This edition of the *PTSD Research Quarterly* briefly examines research on psychotherapy for co-occurring posttraumatic stress disorder and substance use disorder (PTSD/SUD). While the literature on associations between PTSD and SUD is well established, very few randomized control trials (RCTs) of treatments targeting PTSD/SUD are available. Controversy regarding best practices for psychotherapy, especially the application of exposure-based techniques, remains a significant barrier to treatment delivery. This review will: 1) summarize the prevalence of PTSD/SUD and recent work on etiological factors, 2) describe limited evidence for behavioral treatments for PTSD/SUD, and 3) examine barriers to use of exposure-based treatment. We conclude with the suggestion that integrative treatment of PTSD/SUD incorporate exposure.

### The Importance of Understanding Co-occurring PTSD/SUD

Various causal pathways for PTSD/SUD have been proposed, including hypotheses focusing on self-medication, common vulnerability/susceptibility, and the notion that the presence of one disorder confers high risk for the other. However, etiological uncertainty has limited the development and utilization of empirically-supported treatments. The importance of developing and disseminating best practices for treatment of PTSD/SUD is underscored by Operation Enduring Freedom/ Operation Iraqi Freedom veterans who are facing an estimated co-occurrence rate of between 25 and 50%. Associations between PTSD/SUD and poorer physical health and chronic physical problems

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(Ouimette, Goodwin, & Brown, 2006) suggest that successful treatment of PTSD/SUD will likely have a substantial public health effect.

### Prevalence of PTSD/SUD

Epidemiological studies have consistently shown that individuals seeking PTSD treatment are more likely to meet criteria for drug abuse or dependence. A similar relationship is replicated in studies of individuals seeking treatment for SUD. Jacobsen, Southwick, & Kosten (2001) found a 36%- 50% prevalence rate of lifetime PTSD and a current PTSD prevalence rate between 25% and 42% for individuals with drug or alcohol use disorder. Although understanding the etiology of PTSD/SUD is important for treatment conceptualization and planning, patients likely focus on whichever symptoms cause the greatest distress, and seek help accordingly. Ouimette's program of research has evolved to explore the interrelated and predictive fluctuations of symptoms in the co-occurring conditions over time; by documenting weekly PTSD and SUD symptom fluctuations and gathering information on daily substance use among 35 SUD patients with PTSD symptoms for 26 weeks, Ouimette et al. (2010) suggest that PTSD and SUD symptoms co-vary concurrently. Change from subclinical (non-caseness) to full-blown PTSD caseness was associated with an 11% relative increase in probability of alcohol dependence symptoms, a 29% relative increase in probability of cocaine dependence symptoms, and a 94% relative increase in the probability of opioid dependence symptoms in the following week. As this was the first study to examine these interrelationships

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using this methodology, replication is needed and might explore moderators and mediators of the PTSD/SUD association.

## Treatments for Co-Occurring PTSD/SUD

Although effective behavioral or cognitive behavioral treatments for both PTSD (prolonged exposure and cognitive processing therapy) and SUD (cognitive behavioral therapy, motivational enhancement technique, twelve-step facilitation) have been well documented, the literature for co-occurring PTSD/SUD is quite limited. Initial debate focused on sequencing treatments: some argued that PTSD treatment should only be initiated after a period of abstinence had been achieved, while others insisted that PTSD patients were too volatile to be treated in substance abuse settings. The divisiveness of this debate in clinical practice hampered efforts to build a knowledge base. More recently, proponents for integrated treatments conceptualize PTSD/SUD as one large issue and plan treatment accordingly.

Even though the zeitgeist regarding treatment of PTSD/SUD is shifting, as evidenced by the VHA's 2008 Uniform Mental Health Service Package policy on combined treatments, our search of the scientific literature yielded only three RCTs of psychosocial treatment for PTSD/SUD, all of which were on *Seeking Safety*. Below, we begin a summary of the feasibility trials that report pre-post changes. We organize this summary according to three definitions of treatment planning: first we discuss "sequential" treatments, which treat one disorder, then the other; next, we discuss "concurrent" treatments which treat each disorder separately but simultaneously; finally, we report on the "integrated" treatments, defined as treating disorders at the same time by the same provider(s). We provide a cursory synthesis of this small treatment outcome literature, focusing especially on the inclusion of exposure techniques in treatment. Although there were concerns that exposure therapy is contraindicated in these complex patients, preliminary investigations demonstrate positive results with exposure therapy among individuals diagnosed with SUD.

## Sequential Treatments

*Transcend* (Donovan, Padin-Rivera, & Kowaliw, 2001) provides a 12-week partial hospitalization which is comprised of 6 weeks of skills development followed by 6 weeks of trauma processing. All clients must complete a primary SA rehabilitation program within 6 months of beginning *Transcend*. In a study of 46 male Vietnam era veterans with PTSD/SUD, comparison of Clinician Administered PTSD Scale (CAPS) scores at pre-treatment, posttreatment, 6-month follow-up, and 12-month follow-up showed a significant decrease in symptoms (Donovan et al., 2001). Patients also reported significant decreases in alcohol consumption, drinking to intoxication, and polysubstance drug abuse. Notably, clients also reported greater hope for the future, higher self-esteem, and improved family relationships. *Transcend* may represent one treatment option which warrants further study among other populations, such as returning OEF/OIF veterans, especially if these pilot data demonstrate meaningful differences when tested against an appropriate comparison group.

*Substance Dependence Posttraumatic Stress Disorder Therapy (SDPT)* involves a 5-month, twice-weekly, two-phase approach

(Triffleman, Carroll, & Kellogg, 1999). In a small open comparison trial ( $n = 19$ ) contrasting SDPT to twelve-step facilitation, Triffleman (2000) failed to show significant differences between treatment outcomes, even after controlling for pretreatment characteristics. Patients in both conditions demonstrated improvement on substance use, PTSD severity, and in psychiatric severity, but the sequential treatment was not superior to an addiction-focused comparison group.

## Concurrent Treatments

*CBT for PTSD adapted for persons with PTSD/SUD* is intended for use in addiction treatment settings. In developing this protocol, McGovern et al. (2009) included core components of state-of-the-art treatment for PTSD. The *CBT for PTSD* manual comprises 8 modules, which are covered in 8 to 12 sessions and through a client workbook which is used in conjunction with the therapist manual. Initial outcome data on 11 patients with co-occurring PTSD/SUD showed a significant decrease in current PTSD diagnosis (assessed through the CAPS), such that the sample went from 100% positive for current PTSD to 27% PTSD positive at posttreatment to 20% PTSD positive at 3-month post-treatment. While significant decreases in the number of drinking days or using drugs over time were not found, significant decreases among several of the ASI alcohol and drug severity composite scores were found. Like *Transcend*, *CBT for PTSD* has not yet been tested against an appropriate comparison condition.

*Concurrent Treatment of PTSD and Cocaine Dependence* (Back et al., 2000; 2001) includes psychoeducation regarding the interrelationship between PTSD and cocaine dependence, as well as *in vivo* and imaginal exposure to address both cocaine use and PTSD symptomatology. Brady et al. (2001) found that exposure therapy can be used as a potentially effective treatment of PTSD in individuals with cocaine dependence. In this study, all treatment completers ( $n = 15$  of the original 39 seeking treatment) experienced clinically-significant reductions in PTSD and SUD symptoms. While attrition in this study was concerning (60% of participants did not complete), 75% of participants who dropped out did so prior to beginning exposure sessions. This study was also limited by the lack of a control group. Findings may not generalize beyond co-occurring PTSD and cocaine dependence to other co-occurring SUDs.

## Integrated Treatments

In contrast to integrated treatments that feature exposure to PTSD triggers, *Seeking Safety* (Najavits et al., 1998) is a manualized cognitive-behavioral group psychotherapy that does not include a trauma-focused component. It has three RCTs to its credit, although the results are equivocal in these three studies. *Seeking Safety* has been shown to successfully decrease substance use and trauma-related symptoms among women with PTSD and SUD (Najavits et al., 1998). Zlotnick, Johnson, and Najavits (2009) compared *Seeking Safety* to treatment-as-usual (TAU) in 49 incarcerated women with SUD and full or sub-threshold PTSD. No significant differences were found between treatment conditions, although improvements on PTSD and SUD were found across assessment time points. Specifically, 53% of the women in both conditions reported remission in PTSD six months after release

from prison. Alcohol use, however, was only decreased significantly among women in the TAU condition. Thus, it seems that as an integrated treatment, *Seeking Safety* holds some promise, but should likely be combined with additional treatment ingredients to ensure that all problematic behaviors decrease.

## Conclusions

As noted above, the psychotherapy treatment outcome literature on co-occurring PTSD and substance use disorder is very limited. Peer-reviewed reports are typically of pilot projects designed to develop initial feasibility and palatability of the treatment. The iterative process of psychotherapy development is often neglected in these reports, so it is difficult to determine if the development of the protocols as initially described continued in a methodologically sound fashion. Add to these problems the equivocal results from the very few randomized controlled trials, and we can conclude that no strong evidence-based treatment of the co-occurring disorder is currently available. In the absence of compelling data to support the training and dissemination of a particular psychotherapy protocol, it seems wise to rethink the ongoing reticence to incorporate exposure-based techniques in care of individuals presenting with co-occurring PTSD and SUD.

There is substantial empirical support for prolonged exposure and other exposure-based treatments for the treatment of PTSD. In addition, exposure with response prevention was widely tested as an individual treatment across multiple substance use disorders including tobacco, alcohol, and cocaine; although this treatment did not necessarily improve treatment outcome above that of the comprehensive treatment programs participants received, retention in the cue exposure paradigms was very high. Thus, clinician concerns about attrition due to avoidance of exposure have not been empirically validated in exposure treatments of either mono-diagnoses or the co-occurring condition (Brady et al., 2001). Nonetheless, exposure-based therapies remain largely underutilized with PTSD/SUD patients (Becker, Zayfert, & Anderson, 2004). We argue that this barrier needs additional exploration and challenge.

## Future Directions: Training Needs and Areas to Address in Research

Despite evidence that successful treatment of PTSD/SUD may depend upon inclusion of exposure-based treatments, clinicians remain hesitant to utilize this approach. Of greatest concern is recent research suggesting that development of empirically supported treatments does not guarantee their delivery. In the first controlled study into the PTSD-specific treatment preferences of trauma professionals, Van Minnen et al (2010) suggested that clinicians need more training not only in evidence-based treatments such as imaginal exposure, but also to address misperceptions regarding treatment. Comparison of sequential vs. concurrent vs. integrative treatment for PTSD/SUD will help address the knowledge gap. Given the large number of patients presenting with co-occurring PTSD/SUD, clinicians and researchers must work quickly to develop and implement best practices on a global level.

Back, S., Dansky, B.S., Coffey, S.F., Saladin, M.E., Sonne, S., & Brady, K.T. (2000). **Cocaine dependence with and without post-traumatic stress disorder: A comparison of substance use, trauma history and psychiatric comorbidity.** *American Journal of Addictions, 9*, 51-62. This study examined the relationship between substance use, trauma history, post-traumatic stress disorder (PTSD), and psychiatric comorbidity in a treatment seeking sample of cocaine dependent individuals ( $N = 91$ ). Structured clinical interviews revealed that 42.9% of the sample met DSM-III-R criteria for lifetime PTSD. Comparisons between individuals with and without lifetime PTSD revealed that individuals with PTSD had significantly higher rates of exposure to traumatic events, earlier age of first assault, more severe symptomatology, and higher rates of Axis I and Axis II diagnoses. The results illustrate a high incidence of PTSD among cocaine dependent individuals. Routine assessment of trauma history and PTSD may assist in the identification of a subgroup of cocaine users in need of special prevention and treatment efforts.

Back, S.E., Dansky, B.S., Carroll, K.M., Foa, E.B., & Brady, K.T. (2001). **Exposure therapy in the treatment of PTSD among cocaine-dependent individuals: Description of procedures.** *Journal of Substance Abuse Treatment, 21*, 35-45. An estimated 30% to 50% of cocaine-dependent individuals meet criteria for lifetime PTSD. This comorbidity has detrimental effects on clinical presentation, and treatment course and outcome. Cocaine dependence is associated with increased rates of exposure to trauma, more severe symptoms, higher rates of treatment attrition and retraumatization, and greater vulnerability to PTSD when compared to other substance use disorders. These associations underscore the need for effective treatments that address issues particular to PTSD in a manner tolerable to cocaine-dependent individuals. This article describes a manualized psychotherapy developed specifically for individuals with PTSD and cocaine dependence. Concurrent Treatment of PTSD and Cocaine Dependence (CTPCD) provides coping skills training, cognitive restructuring techniques, and relapse prevention strategies to reduce cocaine use. *In vivo* and imaginal exposure therapy techniques are incorporated to reduce PTSD symptom severity. Primary treatment goals include psychoeducation specific to the interrelationship between PTSD and cocaine dependence, and clinically meaningful reductions in cocaine use and PTSD symptomatology. Secondary goals include a reduction in HIV high-risk behaviors and improved functioning in associated areas, such as anger and negative affect management.

Becker, C.B., Zayfert, C., & Anderson, E. (2004). **A survey of psychologists' attitudes towards and utilization of exposure therapy for PTSD.** *Behaviour Research and Therapy, 43*, 277-292. Although research supports the efficacy of exposure therapy for PTSD, some evidence suggests that exposure is under-utilized in general clinical practice. The purpose of this study was to assess licensed psychologists' use of imaginal exposure for PTSD and to investigate perceived barriers to its implementation. A total of 852 psychologists from three states were randomly selected and surveyed. An additional 50 members of a trauma special interest

group of a national behavior therapy organization were also surveyed. The main survey results indicate that a large majority of licensed doctoral level psychologists do not report use of exposure therapy to treat patients with PTSD. Although approximately half of the main study sample reported that they were at least somewhat familiar with exposure for PTSD, only a small minority used it to treat PTSD in their clinical practice. Even among psychologists with strong interest and training in behavioral treatment for PTSD, exposure therapy is not completely accepted or widely used. Clinicians also appear to perceive a significant number of barriers to implementing exposure.

Brady, K. T., Dansky, B.S., Back, S.E., Foa, E.B., & Carroll, K.M. (2001). **Exposure therapy in the treatment of PTSD among cocaine-dependent individuals: Preliminary findings.** *Journal of Substance Abuse Treatment, 21*, 47-54. Individuals ( $n = 39$ ) participated in an outpatient, 16-session individual, manual-guided psychotherapy designed to treat concurrent PTSD and cocaine dependence. Therapy consisted of a combination of imaginal and in-vivo exposure therapy techniques to treat PTSD symptoms and cognitive-behavioral techniques to treat cocaine dependence. Although the dropout rate was high, treatment completers (i.e., patients who attended at least 10 sessions;  $n = 15$ ) demonstrated significant reductions in all PTSD symptom clusters and cocaine use from baseline to end of treatment. Significant reductions in depressive symptomatology, as measured by the Beck Depression Inventory, and psychiatric and cocaine use severity, as measured by the Addiction Severity Index, were also observed. These improvements in PTSD symptoms and cocaine use were maintained over a 6-month follow-up period among completers. The average pre- to posttreatment effect size was 1.80 for PTSD symptoms and 1.26 for drug and alcohol use severity. Baseline comparisons between treatment completers and noncompleters revealed significantly higher avoidance symptoms, as measured by the Impact of Events Scale, and fewer years of education among treatment noncompleters as compared to completers. This study provides preliminary evidence to suggest that exposure therapy can be used safely and may be effective in the treatment of PTSD in some individuals with cocaine dependence. However, the study is limited by the uncontrolled nature of the study design, small number of subjects, and high dropout rate.

Donovan, B., Padin-Rivera, E., & Kowaliw, S. (2001). **"Transcend": Initial outcomes from a posttraumatic stress disorder/substance abuse treatment program.** *Journal of Traumatic Stress, 14*, 757-772. This paper describes the development of a comprehensive treatment program for combat veterans diagnosed with posttraumatic stress disorder (PTSD) and substance abuse (SA). Outcome data are presented on 46 male patients who completed treatment between 1996 and 1998. The treatment approach, defined by a detailed manual, integrates elements of cognitive-behavioral skills training, constructivist theory approaches, SA relapse prevention strategies, and peer social support into a group-focused program. The Clinician-Administered PTSD Scale (CAPS) and the Addiction Severity Index (ASI) were used to assess treatment effectiveness at discharge and 6- and 12-month follow-up. Significant symptom changes revealed on CAPS and ASI scores at discharge and

follow-up are analyzed. Discussion focuses on hypotheses regarding treatment effectiveness, study limitations, and suggestions for further research.

Jacobsen, L.K., Southwick, S.M., & Kosten, T.R. (2001). **Substance use disorders in patients with posttraumatic stress disorder: A review of the literature.** *American Journal of Psychiatry, 158*, 1184-1190. **OBJECTIVE:** Alcohol use disorders and other substance use disorders are extremely common among patients with posttraumatic stress disorder (PTSD). This article reviews studies pertaining to the epidemiology, clinical phenomenology, and pathophysiology of comorbid PTSD and substance use disorders. **METHOD:** Studies were identified by means of computerized and manual searches. The review of research on the pathophysiology of PTSD and substance use disorders was focused on studies of the hypothalamic-pituitary-adrenal axis and the noradrenergic system. **RESULTS:** High rates of comorbidity suggest that PTSD and substance use disorders are functionally related to one another. Most published data support a pathway whereby PTSD precedes substance abuse or dependence. Substances are initially used to modify PTSD symptoms. With the development of dependence, physiologic arousal resulting from substance withdrawal may exacerbate PTSD symptoms, thereby contributing to a relapse of substance use. Preclinical work has led to the proposal that in PTSD, corticotropin-releasing hormone and noradrenergic systems may interact such that the stress response is progressively augmented. Patients may use sedatives, hypnotics, or alcohol in an effort to interrupt this progressive augmentation. **CONCLUSIONS:** Vigorous control of withdrawal and PTSD-related arousal symptoms should be sought during detoxification of patients with comorbid PTSD and substance use disorders. Inclusion of patients with comorbid PTSD and substance use disorders in neurobiologic research and in clinical trials will be critical for development of effective treatments for this severely symptomatic patient population.

McGovern, M.P., Lambert-Harris, C., Acquilano, S., Xie, H., Alterman, A.I., & Weiss, R.D. (2009). **A cognitive behavioral therapy for co-occurring substance use and posttraumatic stress disorders.** *Addictive Behaviors, 34*, 892-897. Co-occurring posttraumatic stress disorder (PTSD) is prevalent in addiction treatment programs and a risk factor for negative outcomes. Although interventions have been developed to address substance use and PTSD, treatment options are needed that are effective, well tolerated by patients, and potentially integrated with existing program services. This paper describes a cognitive behavioral therapy (CBT) for PTSD that was adapted from a treatment for persons with severe mental illnesses and PTSD in community mental health settings. The new adaptation is for patients in community addiction treatment with co-occurring PTSD and substance use disorders. In this study, 5 community therapists delivered the CBT for PTSD. Outcome data are available on 11 patients who were assessed at baseline, post-CBT treatment, and at a 3-month follow-up post-treatment. Primary outcomes were substance use, PTSD severity, and retention, of which all were favorable for patients receiving the CBT for PTSD.

Ouimette, P., Goodwin, E., & Brown, P.J. (2006). **Health and well being of substance use disorder patients with and without posttraumatic stress disorder.** *Addictive Behaviors, 31*, 1415-1423. While studies link posttraumatic stress disorder (PTSD) to substance use disorders (SUDs), little is known about the health and functional status of patients with such comorbidity. This study examined the health and well being of SUD patients with and without PTSD. Participants were assessed using structured clinical interviews and self-administered questionnaires assessing chronic physical symptoms, and functional status and well being. PTSD was significantly associated with more cardiovascular, neurological, and total chronic physical symptoms. In addition, PTSD was significantly related to poorer functional status and well being, particularly in the mental health realm of functioning. The association between PTSD and mental health component of functional health and well being remained significant after controlling for chronic physical symptoms and other comorbid psychopathology.

Ouimette, P., Read, J.P., Wade, M., & Tirone, V. (2010). **Modeling associations between posttraumatic stress symptoms and substance use.** *Addictive Behaviors, 35*, 64-67. Comorbid substance use and posttraumatic stress disorders (SUD-PTSD) predict poorer treatment outcomes. Self-medication has been forwarded as a symptom-level explanatory model. However, research has yet to be conducted that can provide detailed examination of SUD and PTSD symptom fluctuations over time as posited by such a process. This pilot study examined associations between PTSD and substance dependence (SD) symptoms/substance use using two established methodologies that assess week-by-week symptom and substance use/dependence status. Outpatients ( $N = 35$ ) in SUD treatment completed the Longitudinal Follow-Up Evaluation and the Time Line Follow-Back Interview, retrospectively reporting weekly PTSD and SD symptoms, and substance use over the previous 6 months. Results indicated that weekly PTSD symptom fluctuations were concurrently associated with the presence of alcohol and cocaine dependence symptoms and were associated with the presence of opiate dependence symptoms in the following week. These findings support a self-medication conceptualization, underscore the utility of using a more detailed process analysis of PTSD and SD symptoms, and suggest that PTSD fluctuations are associated with substance problems, rather than with substance use *per se*.

Triffleman, E. (2000). **Gender differences in a controlled pilot study of psychosocial treatments in substance dependent patients with post-traumatic stress disorder: Design considerations and outcomes.** *Alcoholism Treatment Quarterly, 18* (3), 113-126. Co-existing substance dependence and post-traumatic stress disorder is a common comorbidity, lacking a standard treatment. This paper reports gender-related findings from an  $N = 19$  controlled clinical trial using methadone maintained and primary-cocaine abusing subjects. Treatments contrasted were Substance Dependency-Post-Traumatic Stress Disorder Therapy (SDPT), an integrated, two-phase cognitive-behavioral therapy which uses existing treatment techniques including coping skills treatment for addictions, stress inoculation therapy and *in vivo* exposure; and Twelve-Step Facilitation Therapy. Female subjects at baseline differed from males in having higher

Addiction Severity Index (ASI) psychiatric composite severity scores. No differences were seen between genders at end of treatment or follow-up. Improvement was observed across the sample in current PTSD severity, number of PTSD symptoms, ASI psychiatric, drug composite severity scores and number of days using substances in the past 30 days. The absence of gender-based differences in baseline differences and treatment outcomes suggests that recruitment, assessment and treatment processes were applied equally and were equally effective for both genders.

Triffleman, E., Carroll, K., & Kellogg, S. (1999). **Substance dependence posttraumatic stress disorder therapy: An integrated cognitive-behavioral approach.** *Journal of Substance Abuse Treatment, 17* (1-2), 3-14. While substance abuse and posttraumatic stress disorder (PTSD) are known to frequently co-occur, there have been few published clinical trials evaluating integrated approaches for this form of dual diagnosis. This article describes Substance Dependence PTSD Therapy (SDPT), the first manualized individual treatment to undergo a controlled clinical trial. SDPT is a 5-month, twice-weekly, two-phase individual cognitive-behavioral treatment utilizing (a) relapse prevention and coping skills training for substance abuse; and (b) psychoeducation, stress inoculation training, and *in vivo* exposure for PTSD. SDPT is also unique in having been designed for use in mixed-gendered civilians with varied sources of trauma. Design considerations and the format, structure, and content of therapy sessions are discussed. Open trial pilot data indicates efficacy in reducing PTSD severity.

Van Minnen, A., Hendriks, L., & Olf, M. (2010). **When do trauma experts choose exposure therapy for PTSD patients? A controlled study of therapist and patient factors.** *Behaviour Research and Therapy, 48*, 312-320. To investigate when and why therapists opt for or rule out imaginal exposure (IE) for patients with posttraumatic stress disorder (PTSD), 255 trauma experts were randomized to two conditions in which they were presented with four cases in which the patients' comorbidity and treatment preferences were manipulated. The results confirmed IE to be an underutilized approach, with the majority of professionals being undertrained in the technique. As predicted, the patient factors influenced the expert's choice of therapy: in the case of a comorbid depression, IE was significantly less preferred than medication. Also, IE was significantly more likely to be offered when patients expressed a preference for trauma-focused treatment. The therapist factors were also found to be importantly related to treatment preferences, with high credibility in the technique being positively related to the therapists' preference for IE. Perceived barriers to IE, such as a fear of symptom exacerbation and dropout, were negatively related to the perceived suitability of the treatment when patients had suffered multiple traumas in childhood. The results are discussed in the light of clinical implications and the need of exposure training for trauma professionals.

## ABSTRACTS *continued*

Zlotnick, C., Johnson, J., & Najavits, L.M. (2009). **Randomized controlled pilot study of cognitive-behavioral therapy in a sample of incarcerated women with substance use disorder and PTSD.** *Behavior Therapy, 40*, 325-336. This randomized controlled pilot study compared a cognitive-behavioral therapy (Seeking Safety; SS) plus treatment-as-usual (TAU) to TAU-alone in 49 incarcerated women with substance use disorder (SUD) and posttraumatic stress disorder (PTSD; full or subthreshold). Seeking Safety consisted of a voluntary group treatment during incarceration and individual treatment after prison release. TAU was required in the prison and comprised 180 to 240 hours of individual and group treatment over 6 to 8 weeks. Assessments occurred at intake, 12 weeks after intake, and 3 and 6 months after release from prison. There were no significant differences between conditions on all key domains (PTSD, SUD, psychopathology, and legal problems); but both conditions showed significant improvements from intake to later time points on all of these outcomes across time. Secondary analyses at follow-up found trends for SS participants improving on clinician-rated PTSD symptoms and TAU participants worsening on self-reported PTSD symptoms. Also, SS demonstrated continued improvement on psychopathology at 3 and 6 months, whereas TAU did not. However, alcohol use improved more for TAU during follow-up. Satisfaction with SS was high, and a greater number of SS sessions was associated with greater improvement on PTSD and drug use. Six months after release from prison, 53% of the women in both conditions reported a remission in PTSD. Study limitations include lack of assessment of SS outcomes at end of group treatment; lack of blind assessment; omission of the SS case management component; and possible contamination between the two conditions. The complex needs of this population are discussed.

## CITATIONS

Back, S.E., Brady, K.T., Sonne, S.C., & Verduin, M.L. (2006). **Symptom improvement in co-occurring PTSD and alcohol dependence.** *Journal of Nervous and Mental Disease, 194*, 690-696. This study investigated the temporal course of PTSD and alcohol dependence symptoms among 94 individuals participating in a 12-week outpatient treatment study. Improvements in PTSD had a greater impact on improvement in alcohol dependence symptoms than the reverse. Alcohol symptoms tended to start improving either before or in conjunction with PTSD symptoms.

Burns, M.N., Lehman, K.A., Milby, J.B., Wallace, D., & Schumacher, J.E. (2010). **Do PTSD symptoms and course predict continued substance use for homeless individuals in contingency management for cocaine dependence?** *Behaviour Research and Therapy, 48*, 588-598. A subset of 102 homeless individuals participating in a larger study of contingency management (CM) for cocaine dependence completed periodic self-report measures of PTSD. Patients with PTSD in full remission at 6 months (end of active treatment) and 12 months (end of aftercare) used substances much less frequently during aftercare than those with no PTSD diagnosis. Results suggested that CM is unusually effective for those who respond with substantial, lasting improvements in PTSD.

Chilcoat, H.D., & Breslau, N. (1998). **Investigations of causal pathways between PTSD and drug use disorders.** *Addictive Behaviors, 23*, 827-840. The authors describe data analytic strategies that exploit information about the temporal order of PTSD and drug use disorders to shed light on their causal relationship. They also present findings on the PTSD/drug use disorder association from an epidemiologic study of young adults.

Coffey, S.F., Schumacher, J.A., Brimo, M.L., & Brady, K.T. (2005). **Exposure therapy for substance abusers with PTSD: Translating research to practice.** *Behavior Modification, 29* (1), 10-38. The authors propose that the use of exposure therapy for PTSD together with an empirically supported treatment for SUD holds promise for improving outcome for individuals with PTSD-SUD. This article describes one such treatment and discusses modifications that were incorporated for translating this research-based therapy to practice in an inner-city community mental health center.

Coffey, S.F., Stasiewicz, P.R., Hughes, P.M., & Brimo, M.L. (2006). **Trauma-focused imaginal exposure for individuals with comorbid posttraumatic stress disorder and alcohol dependence: Revealing mechanisms of alcohol craving in a cue reactivity paradigm.** *Psychology of Addictive Behaviors, 20*, 425-435. In this laboratory-based experiment conducted with 43 persons with both PTSD and alcohol dependence, PTSD symptoms, alcohol craving, and distress elicited by trauma images decreased in the exposure condition but did not change in the relaxation condition. Results supported the hypothesis that negative emotion is a mechanism of alcohol craving.

Ford, J.D., Hawke, J., Alessi, S., Ledgerwood, D., & Petry, N. (2007). **Psychological trauma and PTSD symptoms as predictors of substance dependence treatment outcomes.** *Behaviour Research and Therapy, 45*, 2417-2431. In a randomized trial of

contingency management compared to standard treatment with 142 cocaine- or heroin-dependent outpatients, complex PTSD symptoms were inversely associated with short-term treatment outcomes, independent of the effects of demographics, psychological distress, baseline substance use status, and treatment modality. Complex PTSD symptoms warrant further study as a potential negative prognostic factor in SUD interventions.

Henslee, A.M., & Coffey, S.F. (2010). **Exposure therapy for post-traumatic stress disorder in a residential substance use treatment facility.** *Professional Psychology: Research and Practice, 41*(1), 34-40. The authors review literature suggesting that PTSD can be treated concurrently with substance use disorders and discuss the unique challenges of implementing treatment for PTSD with substance-dependent clients. They provide concrete suggestions about how to use prolonged exposure with clients in a residential substance use treatment facility.

Najavits, L.M., Weiss, R.D., Shaw, S.R., & Muenz, L.R. (1998). **“Seeking Safety”:** Outcome of a new cognitive-behavioral psychotherapy for women with posttraumatic stress disorder and substance dependence. *Journal of Traumatic Stress, 11*, 437-456. This paper reports outcome results on 17 women who completed a new manual-based 24-session cognitive behavioral group therapy protocol. Results showed significant improvements in substance use, trauma-related symptoms, suicide risk, suicidal thoughts, social adjustment, family functioning, problem solving, depression, and cognitions about substance use.

Norman, S.B., Tate, S.R., Wilkins, K.C., Cummins, K., & Brown, S.A. (2010). **Posttraumatic stress disorder's role in integrated substance dependence and depression treatment outcomes.** *Journal of Substance Abuse Treatment, 38*, 346-355. This study investigated outcomes of 178 veterans treated with Integrated Cognitive-Behavioral Therapy (ICBT) or 12-Step Facilitation Therapy (TSF). By 18 months, ICBT participants without PTSD had a higher percentage of days abstinent (PDA) than those without PTSD in TSF and those with PTSD in either group. Findings highlight the need to assess for PTSD and to investigate how to treat concomitant SUD, depression, and PTSD.

Quimette, P., Moos, R.H., & Finney, J.W. (2003). **PTSD treatment and 5-year remission among patients with substance use and posttraumatic stress disorders.** *Journal of Consulting and Clinical Psychology, 71*, 410-414. Outpatient treatment information on 100 male SUD-PTSD patients who attended SUD treatment and who completed 1-, 2-, and 5-year follow-ups was gathered from VA databases. PTSD treatment and 12-Step group attendance in the 1st year predicted 5-year SUD remission. Patients who received PTSD treatment in the first 3 months following discharge and those who received treatment for a longer duration in Year 1 were more likely to be remitted in Year 5.

Rotunda, R.J., O'Farrell, T.J., Murphy, M., & Babey, S.H. (2008). **Behavioral couples therapy for comorbid substance use disorders and combat-related posttraumatic stress disorder among male veterans: An initial evaluation.** *Addictive Behaviors, 33*, 180-187. Outcomes after behavioral couples therapy (BCT) were compared for 19 dually-diagnosed veterans with combat-related PTSD and a substance use disorder (SUD, primarily alcohol dependence) and 19 veterans with SUD only. Both PTSD and non-PTSD clients showed good compliance with BCT and improved from before BCT to immediately after and 12 months after BCT. BCT may have promise in treating clients with comorbid SUD and PTSD.

## National Center for PTSD SUD/PTSD Research Summary

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This issue highlights a priority research topic for NCPTSD. Researchers at NCPTSD have been increasingly involved in investigations aimed at improving our understanding of SUD in patients with PTSD and developing effective treatment approaches. As with other research targets of the Center, levels of focus range from genetic and neuromolecular factors to clinical care and epidemiology. Here we present a selection of current studies that provide an overview of research endeavors.

A significant portion of the Center's research projects is focused on the development and evaluation of psychological treatments for patients with comorbid PTSD and SUD. The Executive Division is evaluating a novel manualized CBT treatment that can be implemented in routine addiction settings (Jessica Hamblen). Research on *Seeking Safety* Therapy continues, including a study by staff at the Dissemination and Training Division examining the effects of this therapy on PTSD symptoms and coping strategies (Rachel Kimerling). Developers of *Seeking Safety* are evaluating a new manualized past-focused exposure-based psychotherapy model for integrated treatment of PTSD/SUD, titled *Creating Change* (Karen Krinsley and Lisa Najavits).

Increased use of tobacco is problematic in the newest cohort of Veterans, and for Veterans with PTSD. Staff at the Dissemination and Training Division are addressing tobacco dependence by supplementing CBT for Insomnia with an integrated care intervention, in which smoking cessation treatment is interwoven with PTSD treatment (Steve Woodward). The Women's Health Sciences Division is conducting a pilot study of Contingency Management in the support of acute tobacco abstinence in trauma-exposed Veterans with and without PTSD and in the process attempting to identify modifiable predictors of abstinence lapse specific to veterans with PTSD (Ann Rasmussen and Suzanne Pineles).

In addition to psychosocial treatments, new pharmacological approaches are emerging. The Clinical Neurosciences Division is examining the impact of prazosin versus placebo in reducing alcohol consumption and decreasing symptoms of PTSD in patients with comorbid alcohol dependence and PTSD (Ismene Petrakis). Prazosin is an alpha-1 adrenergic receptor antagonist that has been used successfully in the treatment of trauma nightmares and sleep disturbance in combat Veterans with PTSD and investigators are building upon evidence of common neurobiological mechanisms that underlie both alcohol dependence and PTSD.

The Clinical Neurosciences Division is also home to the Center for the Translational Neuroscience of Alcoholism. Because of this, several genetic projects are underway examining alcohol dependence relapse and the genetics of alcoholism in specific populations, such as African Americans and Chinese (Joel Gelernter). Division investigators are also conducting neurobiological studies on alcohol dependence and comorbidities, such as smoking, that are often related to trauma exposure, using technologies such as PET and SPECT (John Krystal). Similar work is being done on drugs such as opioids and cocaine, as well as research on nicotine receptors.

Because of its high level of comorbidity with PTSD, SUD is often included as a measure in Center investigations. For example, in an investigation of the internalizing and externalizing subtypes of PTSD (Mark Miller), questions are being asked about the applicability of this two-factor model to comorbidities of PTSD with several disorders, including SUD. This same study is attempting to further our understanding of genetic contributions to these subtypes, and the impact of various personality dimensions. Several longitudinal projects being conducted by Center staff are measuring SUD and are examining this comorbidity over time in various populations, including Service Members, Veterans, and firefighters.



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