

*II. Posttraumatic Stress Disorder and Comorbidity: Paige Crosby Ouimette, Chair***COURSE AND TREATMENT OF PATIENTS WITH BOTH
SUBSTANCE USE AND POSTTRAUMATIC
STRESS DISORDERS**PAIGE CROSBY OUIMETTE,*† PAMELA J. BROWN,‡ and
LISA M. NAJAVITTS§*VA Palo Alto Health Care System; †Stanford University Medical Center; ‡Brown University;
§Harvard Medical School & McLean Hospital

Abstract — Posttraumatic stress disorder (PTSD) is a common co-occurring diagnosis in patients with substance use disorders (SUDs). Despite the documented prevalence of this particular “dual diagnosis,” relatively little is known about effective treatment for SUD-PTSD patients. This article reviews empirical research on the course and treatment of SUD-PTSD comorbidity and highlights clinically relevant findings. Based on this review, the following is noted: PTSD is highly prevalent in SUD patients, consistently associated with poorer SUD treatment outcomes, and related to distinct barriers to treatment. Specific treatment practices are recommended for substance abuse treatment providers: (a) All patients should be carefully screened and evaluated for trauma and PTSD; (b) referrals should be provided for concurrent treatment of SUD-PTSD, if available, or for psychological counseling with the recommendation that trauma/PTSD be addressed; and (c) increased intensity of SUD treatment should be offered in conjunction with referrals for family treatment and self-help group participation. © 1998 Elsevier Science Ltd

Patients with comorbid substance use disorders (SUDs) and posttraumatic stress disorder (PTSD) present a challenge to substance treatment providers. Despite the documented prevalence of this particular “dual diagnosis” and consistent associations between comorbid PTSD and poorer substance abuse treatment outcomes (e.g., Brown, Stout, & Mueller, 1996; Brown & Wolfe, 1994; Najavits, Weiss, & Shaw, 1997; Ouimette, Ahrens, Moos, & Finney, 1997; Ouimette, Finney, & Moos, 1998), relatively little is known about effective treatment. There are only a few completed treatment studies of SUD-PTSD comorbidity and many of the findings are still preliminary. In the interim, treatment providers have little direction as to how to best treat patients suffering from both PTSD and addiction problems.

The purpose of this article is to critically review empirical research on the course and outcome of SUD-PTSD comorbidity. Throughout this review, we will highlight treatment implications in an attempt to profile the state-of-the-art in treating this particular comorbidity. It is hoped that this profile may serve to encourage the development of a set of evidence-based practice guidelines for the treatment of SUD-PTSD comorbidity.

The first author is supported by the Department of Veterans Affairs Mental Health Strategic Health Group and the Health Services Research and Development Service.

John W. Finney, Rachel Kimerling, Franz Moggi, and Rudolph H. Moos provided comments on this article.

Requests for reprints should be sent to Paige Crosby Ouimette, VA Palo Alto Health Care System, Menlo Park Division (152), 795 Willow Road, Menlo Park, CA 94025; E-mail: Ouimette@boris.icon.palo-alto.med.va.gov

This review primarily focuses on SUD-PTSD comorbidity in the context of substance abuse treatment. Other authors have focused more on substance abuse in the context of traumatic experiences/PTSD and PTSD treatment (e.g., Bremner, Southwick, Darnell, & Charney, 1996; Kulka et al., 1990; Ouimette, Wolfe, & Chrestman, 1996). In addition, this article concentrates specifically on empirical research relevant to the psychological treatment of SUD-PTSD comorbidity as opposed to theoretically based treatment guidelines/recommendations. As this latter topic is not the aim of the present article, interested readers are referred to overviews of trauma/PTSD treatment and possible applications within the context of substance abuse treatment (e.g., Evans & Sullivan, 1995; Zweben, Clark, & Smith, 1994).

POSTTRAUMATIC STRESS DISORDER IN SUBSTANCE ABUSE PATIENTS

PTSD is characterized by the development of a specific set of symptoms following exposure to a traumatic stressor (*Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. [DSM-IV]; American Psychiatric Association, 1994). As defined by DSM-IV, traumatic stressors involve the direct experience, witnessing, or confronting of an event that includes actual or threatened death or serious injury, or other threat to the self/other's physical integrity to which the person responds with intense fear, helplessness, or horror. Typical examples of traumatic events that may be associated with PTSD include military combat, sexual assault, natural and human-generated disasters, and serious accidents. The characteristic PTSD syndrome is encompassed by persistent reexperiencing of the traumatic event, avoidance of reminders of the trauma, emotional numbing, and increased physiological arousal. To meet criteria for a PTSD diagnosis, these symptoms must be present for 1 month or longer and cause clinically significant distress or functional impairment. Among treatment-seeking samples of substance abuse patients, lifetime prevalence rates of PTSD have been estimated at about 50%, whereas approximately one quarter to one third meet criteria for current PTSD (Brown, Recupero, & Stout, 1995; Najavits et al., 1998; Triffleman, Marmar, Delucchi, & Ronfeldt, 1995).

LONGITUDINAL STUDIES OF THE COURSE OF PATIENTS WITH SUD-PTSD COMORBIDITY

Only three studies have used prospective designs and repeated assessments to examine substance abuse treatment outcomes in SUD-PTSD patients. Brown et al. (1996) compared substance-dependent women with and without a comorbid diagnosis of PTSD on their alcohol and drug use 3 months after inpatient substance abuse treatment. Strengths of this study include the use of structured clinical interviews to diagnose PTSD and SUDs, and the assessment of daily substance use with the Time-Line Follow-Back method (Sobell, Maisto, Sobell, & Cooper, 1979). Although rates of relapse (defined as any alcohol or drug use) at 3 months did not significantly differ by PTSD status, SUD-PTSD women were found to relapse more quickly (mean number of days = 26) than SUD-only women (mean number of days = 54). A proportional hazards regression showed that PTSD was a significant predictor of relapse, even after controlling for general psychiatric distress. Although this study was the first to prospectively document the association between PTSD and poorer substance use outcomes, the use of only one substance use outcome (relapse vs. abstinence) and the restriction of participants to women tempers broader conclusions.

In a second study that included both female and male participants, and more extensive assessments of substance use, Brown and Stout (1997) also examined the remission of PTSD in SUD-PTSD patients and its relation to substance use outcomes. One quarter of SUD-PTSD patients who no longer met *DSM-IV* PTSD criteria at the 6-month follow-up (“remitted PTSD group”) were compared to remaining SUD-PTSD patients who did meet PTSD criteria (“unremitted PTSD group”) on substance use outcomes. Compared to the unremitted PTSD group, the remitted PTSD group had significantly fewer drinks per drinking day (2.6 vs. 12.1 drinks) and lower percent days heavy drinking (4.7% vs. 67.9%). SUD-PTSD patients who had suffered a drinking relapse and those who had remained abstinent were also compared on their PTSD symptoms at follow-up. There were no significant between-group differences on PTSD symptoms. Taken together, these findings suggest that remission from PTSD is associated with better SUD outcomes, but that remission from SUD is not associated with improved PTSD.

As part of a multisite evaluation of substance abuse treatment (Ouimette, Finney, & Moos, 1997), Ouimette and colleagues have followed the posttreatment course of SUD-PTSD patients relative to patients with substance abuse and another non-PTSD Axis I psychiatric diagnosis (SUD-PSY) and SUD-only patients (Ouimette, Ahrens, Moos, & Finney, in press, 1997; Ouimette et al., 1998). In a report of patients’ during treatment changes (Ouimette et al., in press), it was found that SUD-PTSD patients improved less than SUD-only patients in the development of more effective coping skills and more adaptive cognitions, and on psychological distress. SUD-PTSD patients’ level of improvement on coping and cognitions was similar to SUD-PSY patients, except on psychological distress where they showed less improvement than SUD-PSY patients. Taken together, SUD-PTSD patients benefited less from substance abuse treatment than SUD-only patients. However, poorer treatment response did not appear to be specific to PTSD; having any comorbid psychiatric disorder was associated with poorer functioning immediately after treatment.

Patients in this sample then were assessed 1 and 2 years posttreatment on substance use, psychological, and psychosocial functioning outcomes. Although at the 1-year follow-up the three groups did not differ on symptoms of alcohol dependence or average daily alcohol consumption, SUD-PTSD patients reported more substance-related problems as well as greater psychological distress and less support from friends than both SUD-PSY and SUD-only patients. Compared to SUD-only patients, SUD-PTSD patients were more likely to be readmitted for inpatient/residential treatment and less likely to be employed during the follow-up period (Ouimette, Ahrens, et al., 1997).

By the 2-year follow-up, the differences among these same three groups of patients (SUD-PTSD, SUD-PSY, and SUD-only) on substance use, psychological, and psychosocial functioning sharply increased (Ouimette et al., 1998). SUD-PTSD patients reported more average daily alcohol consumption, more problems from substance use, and less “remission” (i.e., no drinking, or nonproblematic drinking with no illicit drug use). Moreover, in comparing the 1- to the 2-year follow-up, SUD-PTSD patients deteriorated at a greater rate on average daily alcohol consumption and remission status than both SUD-only and SUD-PSY patients. Lastly, compared to SUD-only and SUD-PSY patients, SUD-PTSD patients reported more psychological distress, less support from friends, and less employment. Collectively, the findings from the 1- and 2-year follow-ups suggest that poorer outcomes are largely specific to PTSD per se, rather than to psychiatric comorbidity in general. The generalizability of these findings is limited, however, to male substance abuse patients in VA treatment centers.

Another major limitation is that PTSD status was determined by chart diagnoses and not by structured clinical interview.

Despite different methodologies and different sampling procedures, these research findings consistently indicate that PTSD renders substance abuse patients more vulnerable to poor outcomes. In addition, findings suggest that the negative consequences of a comorbid PTSD diagnosis are greater than the effects of other comorbid psychiatric diagnoses, and that these deleterious effects intensify over time and encompass substance use, psychological, and psychosocial realms of functioning. Lastly, in SUD-PTSD patients, remission from PTSD is associated with better substance use outcomes, but remission from substance use is not associated with remission from PTSD. These findings show that a comprehensive SUD-PTSD treatment program will need to address not only substance use, but also directly intervene with PTSD symptoms and quality of life issues such as vocational concerns and social support.

T R E A T M E N T O F C O M O R B I D S U D - P T S D

Most clinical researchers now emphasize the need for concurrent treatment of both substance use problems and PTSD symptoms (e.g., Abueg & Fairbank, 1992; Najavits, Weiss, & Liese, 1996; Stine & Kosten, 1995).¹ In support of this idea, SUD-PTSD patients perceive their SUD and PTSD to be functionally related and report preferring concurrent treatment to sequential treatment of their comorbidities (Brown, Stout, & Gannon-Rowley, 1998). However, there are no published controlled trials of concurrent SUD-PTSD treatment; research protocols are currently in the development and initial evaluation stage (e.g., Najavits, Weiss, Shaw, & Muenz, in press). Hence, due to the small amount of research in this area, we not only review several preliminary studies of concurrent SUD-PTSD/trauma treatment protocols, but also studies of SUD-PTSD patients and substance abuse treatment practices that improve their outcomes. Moreover, practitioners need to recognize the implications of several factors that predict the treatment course of SUD-PTSD patients and to monitor both provider- and patient-driven treatment barriers when treating individuals with SUD-PTSD. Hence, we summarize empirical findings on the prognostic implications of the specific manifestation of PTSD symptoms and coping skills, and review recent work on access barriers to trauma/PTSD treatment for SUD-PTSD patients.

Substance abuse treatment and SUD-PTSD patients' outcomes

In their evaluation of male veterans in substance abuse treatment (these programs did not offer PTSD and/or trauma-related treatment), Ouimette and colleagues found that, compared to intake, SUD-PTSD patients improved at discharge and a 1-year follow-up (Ouimette et al., in press; Ouimette, Ahrens, et al., 1997). Compared to intake functioning, SUD-PTSD patients' coping skills and confidence in maintaining abstinence were enhanced at discharge. The patients did not change on expectancies regarding substance use. At the 1-year follow-up, compared to intake, these same patients showed significant improvements on alcohol consumption, alcohol dependence symptoms, and problems from substance use. However, they did not improve on psychological symptoms, spouse/partner and friend support, and employment and legal

¹This review focuses on research; for more conceptually focused reviews on SUD-PTSD treatment, including discussion of the primacy of substance use disorders versus PTSD and its implications for treatment, see Kofoed, Friedman, and Peck (1993); Najavits, Weiss, and Shaw (1997); and Stine and Kosten (1995).

status. Although these studies suggest that substance abuse treatment may be associated with improvements in SUD-PTSD patients' substance use outcomes, a noted limitation is the lack of a nontreated SUD-PTSD comparison group.

Specific substance abuse program practices were associated with better discharge functioning (Ouimette et al., in press). For SUD-PTSD patients, more substance abuse and family counseling, as well as greater use of self-help groups during treatment, predicted better psychological functioning immediately postdischarge. Twelve-step involvement was associated with increased use of approach coping styles (i.e., problem-solving and positive reappraisal) at discharge. These associations were weaker in the SUD-only patients suggesting that these interventions have a greater effect in SUD-PTSD patients. When examining change on psychological symptoms, SUD-PTSD patients appeared to gain more from programs that emphasized supportive and organized care than SUD-only patients.

In summary, these findings suggest that, although SUD-PTSD patients benefit from substance abuse treatment in several short- and long-term outcome domains, more emphasis needs to be placed on interventions that improve longer-term psychological and psychosocial functioning outcomes. Also, the data suggest that substance abuse treatment may help SUD-PTSD patients improve coping skills and decrease psychological distress at discharge, but that treatment may not decrease adherence to substance use-encouraging cognitions. Hence, SUD-PTSD patients' expectancies, attitudes, and beliefs about substance use must be carefully monitored. Increasing the intensity of substance abuse treatment and encouraging family treatment and participation in 12-step groups were associated with better short-term outcomes. Lastly, the need for a strong support system and structure during treatment of SUD-PTSD patients is noted. The possibility exists that these treatment factors provide a sense of safety that is important for PTSD sufferers.

Studies of concurrent/integrated treatment

In an early study of concurrent treatment, Kuhne, Nohner, and Baraga (1986) examined 1-year abstinence rates for 38 combat veterans in substance abuse treatment who also received concurrent trauma-focused therapy. No difference in abstinence rates was noted for veterans with high and low combat experiences suggesting that the trauma-focused group helped ameliorate some of the negative effects of high combat exposure. However, this study did not assess PTSD, lacked a control group, and had somewhat low statistical power to detect differences.

The effectiveness of a nine-session cognitive-behavioral treatment, including stress inoculation training and cue exposure, conducted during the course of substance abuse treatment was evaluated in five women with SUD-PTSD (Dansky et al., 1994). Participants showed significant reductions in fear symptoms, PTSD symptoms, and general distress at a 3-week follow-up, and fewer alcohol/drug-related problems immediately posttreatment, suggesting that exposure-based treatment may have promise in this population.

In a pilot study of a 12-session PTSD-adapted relapse prevention program, Abueg and Fairbank (1992) found that 42 SUD-PTSD patients who received PTSD-relapse prevention treatment were more likely to be abstinent at a 6-month follow-up and drink less on a daily basis at a 9-month follow-up, relative to 42 SUD-patients who received treatment as usual (PTSD treatment only). However, groups did not differ on abstinence rates at the 9-month follow-up. This study points to the probable need for continuing care for SUD-PTSD patients to maintain treatment gains.

Harvey, Rawson, and Obert (1994) reported on a sample of 66 patients in a substance abuse program that offered groups directly addressing sexual assault, trauma, and family relationships. Patients were divided into those with and without a history of sexual assault. At a 6-month follow-up, all patients reported significant reductions in substance use and psychological symptoms, but no between-group differences emerged. Although the results suggest that concurrent treatment may improve the outcomes of SUD patients with trauma histories, the failure to assess PTSD, the small sample size, and the determination of sexual assault through medical records limited this study.

Pharmacotherapy may be an effective option and/or adjunct to psychological treatment for these patients. In a preliminary study of nine SUD-PTSD patients treated with open-label sertraline, Brady, Sonne, and Roberts (1995) found significant decreases in PTSD, depression, and substance use during a 12-week period. Although the results are promising and may lead to a treatment alternative for SUD-PTSD patients, these findings are very preliminary given the small sample and open-label status of the medication.

In a study of a new 24-session cognitive-behavioral psychotherapy for women with SUD-PTSD, Najavits et al. (in press) found significant reductions in substance use and trauma-related symptoms from intake to a 3-month follow-up, but no improvement was found on PTSD symptoms. Other significant improvements that occurred pre- to posttreatment were noted on substance use, depression, suicide risk and thoughts, dysfunctional attitudes about substance use, problem-solving, social adjustment, and didactic knowledge related to the treatment. Patients increased in somatic symptoms from intake to follow-up. Patients in the program rated the following treatment aspects as relatively more helpful: the focus on abstinence, the therapist and treatment overall, and the focus on coping skills. They gave relatively lower "helpfulness" ratings to aspects of the group membership (i.e., options to call other group members outside of sessions, the assignment of a "group" partner, and the support of other group members) and the short length of the program. Although these findings suggest that integrated treatment may be quite effective for SUD-PTSD patients, the study was limited by a lack of a control group, multiple comparisons, and the small sample size ($N = 17$).

All treatment studies reviewed suggest that concurrent treatment is effective for PTSD-SUD patients, although larger controlled trials are needed. Cognitive-behavioral interventions appear promising, although research is needed to determine the best method (e.g., relapse prevention with or without cue exposure; individual vs. group; length of treatment). The fact that two studies showed a slight deterioration after initial improvements highlights the need for both clinical and research attention to continuing care for SUD-PTSD patients. Focusing on abstinence goals and coping skills appears to be best practice for these patients. Future work should also examine the role of psychotropic medications in treating SUD-PTSD.

Prognostic variables

Little is known about what variables predict SUD-PTSD patients' outcomes and possibly explain the relationship between PTSD and poorer substance abuse treatment outcomes. The few empirical studies on prognostic or explanatory variables that exist have focused on specific PTSD symptoms and coping skills deficits.

PTSD symptom clusters. Three major symptom clusters comprise the PTSD syndrome: reexperiencing (e.g., flashbacks, nightmares), avoidance/numbing (e.g., avoid-

ing reminders of the trauma, emotional numbing), and hyperarousal (e.g., hypervigilance, startle responses). Anecdotal reports have linked these symptom clusters to different substance abuse patterns and relapse (e.g., Schnitt & Nocks, 1984). One early study provides empirical support for such clinical lore. McFall, Mackay, and Donovan (1992) compared scores of combat veterans with and without PTSD (as assessed by a self-report instrument) on the Michigan Alcoholism Screening Test (MAST; Selzer, 1971) and the Drug Abuse Screening Test (DAST; Skinner, 1982). PTSD was associated with higher MAST and DAST scores; in addition, two of the three symptom clusters were differentially related to MAST and DAST scores. Physiological arousal was uniquely associated with MAST scores, whereas avoidance/numbing was uniquely associated with DAST scores, suggesting that there may be specific links between PTSD symptom clusters and type of substance abused. Similarly, in a sample of substance abusing community women, Stewart (1997) found that PTSD hyperarousal symptoms were associated with severity of both alcohol and drug dependence (based on MAST scores and an interview assessing *DSM-IV* symptoms of drug-dependence). However, both of these studies are limited by their cross-sectional design and single-gender samples.

One study prospectively examined the relationship between PTSD symptom clusters and substance abuse treatment outcome. Gil-Rivas, Fiorentine, and Anglin (1996) examined PTSD symptoms in a multisite evaluation of the effectiveness of drug abuse treatment. Patients completed baseline and 6-month follow-up interviews, which included a widely used self-report measure of PTSD intrusive and avoidance symptoms (Impact of Events Scale; Horowitz, Wilner, & Alvarez, 1976). Intrusive and avoidance symptoms did not predict relapse to drug use during the 6-month follow-up period. This study was limited, however, by its use of a non-*DSM-IV* PTSD measure (which does not assess hyperarousal symptoms) and a single substance use outcome.

Coping skills. Research has suggested that coping style differences may account for PTSD patients' poorer substance use outcomes. PTSD is related to the use of more emotion-focused and fewer problem-focused coping strategies among trauma-exposed individuals (Fairbank, Hansen, & Fitterling, 1991; Nezu & Carnevale, 1987) and among substance abuse patients (Brown, Stout, & Gannon-Rowley, 1998; Ouimette, Ahrens, et al., 1997; Ouimette et al., in press, 1998; Penk, Peck, Robinowitz, Bell, & Little, 1988). PTSD patients with a long history of trauma symptomatology may have developed a preferred or characteristic coping response to stressors. A coping style that includes ineffective strategies, such as avoidance coping, may maintain ongoing trauma-related symptoms and precipitate substance abuse. Thus, PTSD may differentially influence relapse in SUD patients through increased deficits in coping skills.

In their longitudinal evaluation of SUD-PTSD veterans, Ouimette, Ahrens, et al. (1997) examined coping and cognitive styles as possible mediators of the relationship between PTSD comorbidity and poorer outcomes. The association between PTSD and problems from substance use at 1-year follow-up was partially explained by SUD-PTSD patients' greater use of emotional discharge coping (e.g., risk taking, yelling), decreased expectations of benefits from quitting drinking/drugging, and greater positive expectancies about the effects of substance use. In a second paper, SUD-PTSD veterans' coping during the 1-year follow-up was examined as an explanatory variable of the relationship found between PTSD and poorer 2-year substance use outcomes (Ouimette et al., 1998). As expected, emotional discharge and cognitive avoidance

coping both partially explained the influence of PTSD on greater alcohol consumption, more problems from substance use, and a lower probability of remission.

These studies suggest several factors that are important to be aware of and address in SUD treatment. First, the association between PTSD and substance use may be driven by avoidance/numbing and hyperarousal symptoms. These empirical findings invoke consideration that SUD-PTSD patients use substances to attenuate their avoidance and numbing symptoms and dampen hyperarousal. However, it is also important to note that substance use may exacerbate PTSD symptoms (Stine & Kosten, 1995) and a careful treatment plan will consider both aspects of SUD-PTSD symptom interplay. These studies also suggest that avoidance coping may partially explain the relationship between PTSD and poorer posttreatment substance use outcomes. Accordingly, SUD-PTSD patients' treatment plans should address this relationship and work to facilitate patients' use of alternative coping strategies.

Barriers to PTSD treatment for SUD-PTSD patients

Provider-driven barriers. Substance abuse clinicians may not regularly screen for PTSD or refer patients for psychological or PTSD treatment, even when PTSD is identified. Danský, Roitzsch, Brady, and Saladin (1997) examined the effect of a research-based trauma/PTSD diagnostic interview on clinical practices in a substance abuse treatment unit (study protocol and PTSD diagnostic results were communicated to staff via chart notes or case conference presentations). In the first sample of 95 patients, when research interview diagnoses were compared to patients' discharge diagnoses, the research interview identified many more PTSD cases (40%) than did chart diagnoses (15%), suggesting that clinicians were not identifying PTSD as a problem. Clinical staff rarely documented PTSD despite the research interview notes, except under very specific circumstances (female patients who were victims of rape).

In a second sample of 59 patients assessed after the completion of the research protocol to evaluate if the protocol had any effect on subsequent clinical practices, it was found that only half of the patients were questioned regarding victimization history. Moreover, PTSD was noted in only five patients at intake to treatment (all PTSD diagnoses were given by a mental health provider prior to the current hospitalization). When discharge diagnoses/plans of the 32 patients with a victimization history were examined, no new cases of PTSD were documented, and in only three of the five PTSD cases was victimization listed as an issue in their treatment plan. In addition, although 21 patients reported a victimization history at intake, staff did not appear to screen for PTSD or list victimization as an issue in the treatment plan. These data raise major questions about why clinicians do not screen for PTSD and why do they not refer patients for PTSD treatment, even when PTSD is identified. Possible reasons for such behavior include lack of awareness, downplaying the potential effects of trauma and PTSD, discomfort in asking about trauma/PTSD, a lack of available PTSD or psychological counseling, and belief in the primacy of substance use problems relative to other psychiatric problems.

Patient-driven barriers. Patients' specific beliefs about PTSD and trauma may affect their treatment course. Brown, Stout, and Gannon-Rowley (1998) asked SUD-PTSD patients about seven possible deterrents as actual barriers to treatment. Specifically, patients were asked about seven sources of difficulty in talking about their traumatic experiences with a treatment provider. The three most endorsed deterrents to PTSD

treatment included emotional pain (76%), shame (60%), and self-blame (67%). Approximately 40% of the patients reported believing that talking about their trauma would make them worse, not trusting treatment providers, and fearing that others would find out about their trauma history. Only 21% endorsed the belief that treatment providers would not have the ability to deal with trauma issues. Among patients who were referred to PTSD treatment, almost 75% complied with the referral, suggesting that patients' fears and concerns can be overridden by therapists' recommendations to seek PTSD treatment. When compliant and noncompliant patients were compared on treatment deterrents, noncompliant patients were more likely to indicate a lack of trust in treatment providers.

In summary, SUD-PTSD patients are not regularly screened for trauma and PTSD, and they are not regularly referred for PTSD treatment. Even when these issues are identified, they are not always addressed in SUD-PTSD patients' treatment plans. Also, patients' specific beliefs about talking about trauma and PTSD may impede their seeking appropriate treatment. Treatment clinicians need to be aware of these provider and patient-driven tendencies, and mandate staff training in PTSD and trauma issues.

Recommendations for empirically based SUD-PTSD practice

Currently, there are no practice guidelines for treating PTSD in the context of substance abuse treatment. The documentation of poorer posttreatment outcomes and increased use of more costly treatment services by SUD-PTSD patients underscores the importance of developing more effective treatments and ensuring that SUD-PTSD patients have access to them. A recent study estimated that SUD-PTSD patients incur approximately \$6,000 more per year in addiction-related treatment costs than patients with only substance use disorders (Brown, Stout, & Mueller, 1998). Thus, changes in current substance abuse program practices to directly address PTSD could result in more effective and cost-effective treatments. The following empirically based recommendations are proposed for substance abuse treatment programs:

- SUD patients should be screened for traumatic stress experiences and PTSD.
- SUD-PTSD patients should be provided with direct referrals for concurrent trauma/PTSD treatment, if available, or psychological treatment with the recommendation that trauma/PTSD issues be addressed.
- SUD-PTSD patients should be offered more intensive substance abuse counseling (e.g., more sessions).
- SUD-PTSD should be referred for concurrent participation in self-help groups and for family treatment, when indicated or feasible.

Future directions

These recommendations await evaluation for their effectiveness and cost-effectiveness in the treatment of SUD-PTSD patients. Specific questions that they raise are (a) Are trauma/PTSD screening and appropriate intervention linked to improved patient outcomes? (b) What are substance abuse clinicians' current attitudes and practices regarding trauma/PTSD? and (c) What are clinicians' reasons for evaluating or not evaluating trauma/PTSD? Given the assumption that screening and treatment will better address patients' needs and may improve patients' outcomes, interventions will be needed to change clinicians' screening practices.

Other important areas of future research include the course of SUD-PTSD comorbidity in terms of specific PTSD symptoms, their fluctuations and changes, and their

dialectical interplay with SUDs. In addition, several controlled trials of integrated and concurrent treatments are underway (e.g., L. M. Najavits, personal communication, 1998; E. Triffleman, personal communication, 1998). The findings hopefully will provide more specific data on how best to treat these patients. As a result, work will be needed on the dissemination and implementation of these treatments so that more programs and providers offer evidence-based interventions for this particular comorbidity. Until that time, however, we strongly encourage programs/providers to evaluate their current practices vis-à-vis these recommended treatment guidelines.

REFERENCES

- Abueg, F. R., & Fairbank, J. A. (1992). Behavioral treatment of posttraumatic stress disorder and co-occurring substance abuse. In P. A. Saigh (Ed.), *Posttraumatic stress disorder: A behavioral approach to assessment and treatment* (pp. 111–146). New York: Macmillan.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Brady, K. T., Sonne, S. C., & Roberts, J. M. (1995). Sertraline treatment of comorbid posttraumatic stress disorder and alcohol dependence. *Journal of Clinical Psychiatry*, **56**, 502–505.
- Bremner, J. D., Southwick, S. M., Darnell, A., & Charney, D. S. (1996). Chronic PTSD in Vietnam combat veterans: Course of illness and substance abuse. *American Journal of Psychiatry*, **153**, 369–375.
- Brown, P. J., Recupero, P. R., & Stout, R. (1995). PTSD-substance abuse comorbidity and treatment utilization. *Addictive Behaviors*, **20**, 251–254.
- Brown, P. J., & Stout, R. L. (1997, November). Six-month posttreatment outcomes of substance use disordered patients with and without comorbid PTSD. In P. C. Ouimette & P. J. Brown (Co-Chairs), *Post-traumatic stress disorder and substance abuse: New findings*. Symposium conducted at the 13th annual meeting of the International Society for Traumatic Stress Studies, Montreal.
- Brown, P. J., Stout, R. L., & Gannon-Rowley, J. (1998). Substance use disorder-PTSD comorbidity: Patient's perceptions of symptom interplay and treatment issues. *Journal of Substance Abuse Treatment*, **14**, 1–4.
- Brown, P. J., Stout, R. L., & Mueller, T. (1996). Post-traumatic stress disorder and substance abuse relapse among women: A pilot study. *Psychology of Addictive Behaviors*, **10**, 124–128.
- Brown, P. J., Stout, R. L., & Mueller, T. (1998). *Substance use disorders and PTSD comorbidity: Addiction and psychiatric treatment rates*. Manuscript submitted for publication.
- Brown, P. J., & Wolfe, J. (1994). Substance abuse and post-traumatic stress disorder comorbidity. *Drug and Alcohol Dependence*, **35**, 51–59.
- Dansky, B. S., Roitzsch J. C., Brady, K. T., & Saladin, M. E. (1997). Posttraumatic stress disorder and substance abuse: Use of research in a clinical setting. *Journal of Traumatic Stress*, **10**, 141–148.
- Dansky, B. S., Saladin, M., Brady, K. T., Killeen, T., Becker, S., & Roitzsch, J. C. (1994, November). *Concurrent treatment of PTSD and substance abuse in women*. Presented at the annual meeting of the International Society of Traumatic Stress Studies, Chicago.
- Evans, K., & Sullivan, J. M. (1995). *Treating addicted survivors of trauma*. New York: Guilford.
- Fairbank, J. A., Hansen, D. J., & Fitterling, J. M. (1991). Patterns of appraisal and coping across different stressor conditions among former prisoners of war with and without posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, **59**, 274–281.
- Gil-Rivas, V., Fiorentine, R., & Anglin, M. D. (1996). Sexual abuse, physical abuse, and posttraumatic stress disorder among women participating in outpatient drug abuse treatment. *Journal of Psychoactive Drugs*, **28**, 94–102.
- Harvey, E. M., Rawson, R. A., & Obert, J. L. (1994). History of sexual assault and the treatment of substance abuse disorders. *Journal of Psychoactive Drugs*, **26**, 361–367.
- Horowitz, M. J., Wilner, N., & Alvarez, W. (1976). The Impact of Events Scale: A measure of subjective stress. *Psychosomatic Medicine*, **41**, 209–218.
- Kofoed, L., Friedman, M. J., & Peck, R. (1993). Alcoholism and drug abuse in patients with PTSD. *Psychiatric Quarterly*, **64**, 151–171.
- Kuhne, A., Nohner, W., & Baraga, E. (1986). Efficacy of chemical dependency treatment as a function of combat in Vietnam. *Journal of Substance Abuse Treatment*, **3**, 191–194.
- Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the Vietnam war generation: Report of findings from the National Vietnam Veterans Readjustment Study*. New York: Brunner/Mazel.
- McFall, M. E., Mackay, P. W., & Donovan, D. M. (1992). Combat-related posttraumatic stress disorder and severity of substance abuse in Vietnam veterans. *Journal of Studies on Alcohol*, **53**, 357–363.
- Najavits, L. M., Gastfiend, D. R., Barber, J. P., Reif, S., Muenz, L. R., Blaine, J., Frank, A., Crits-Christoph,

- P., Thase, M., & Weiss, R. D. (1998). Cocaine dependence with and without PTSD among subjects in the National Institute on Drug Abuse Collaborative Cocaine Treatment Study. *American Journal of Psychiatry*, **155**, 214–219.
- Najavits, L. M., Weiss, R. D., & Liese, B. S. (1996). Group cognitive-behavioral therapy for women with PTSD and substance use disorders. *Journal of Substance Abuse Treatment*, **13**, 13–22.
- Najavits, L. M., Weiss, R. D., & Shaw, S. R. (1997). The link between substance abuse and posttraumatic stress disorder in women: A research review. *American Journal on the Addictions*, **6**, 273–283.
- Najavits, L. M., Weiss, R. D., Shaw, S. R., & Muenz, L. (in press). "Seeking safety": Outcome of a new cognitive-behavioral psychotherapy for women with posttraumatic stress disorder and substance dependence. *Journal of Traumatic Stress*.
- Nezu, A. M., & Carnevale, G. J. (1987). Interpersonal problem solving and coping reactions of Vietnam veterans with posttraumatic stress disorder. *Journal of Abnormal Psychology*, **96**, 155–157.
- Ouimette, P. C., Ahrens, C., Moos, R. H., & Finney, J. W. (1997). Posttraumatic stress disorder in substance abuse patients: Relationships to 1-year posttreatment outcomes. *Psychology of Addictive Behaviors*, **11**, 34–47.
- Ouimette, P. C., Ahrens, C., Moos, R. H., & Finney, J. W. (in press). During treatment changes in substance abuse patients with posttraumatic stress disorder: The influence of specific interventions and program environments. *Journal of Substance Abuse Treatment*.
- Ouimette, P. C., Finney, J. W., & Moos, R. H. (1997). Twelve step and cognitive-behavioral treatment for substance abuse: A comparison of treatment effectiveness. *Journal of Consulting and Clinical Psychology*, **65**, 230–240.
- Ouimette, P. C., Finney, J. W., & Moos, R. H. (1998). *Two year posttreatment functioning and coping of patients with substance abuse and posttraumatic stress disorders*. Manuscript submitted for publication.
- Ouimette, P. C., Wolfe, J., & Chrestman, K. R. (1996). Characteristics of PTSD-alcohol abuse comorbidity in women. *Journal of Substance Abuse*, **8**, 335–346.
- Penk, W. E., Peck, R. F., Robinowitz, R., Bell, W., & Little, D. (1988). Coping and defending styles among Vietnam combat veterans seeking treatment for post-traumatic stress disorder and substance use disorder. In M. Galanter (Ed.), *Recent developments in alcoholism* (pp. 69–88). New York: Plenum.
- Schnitt, J. M., & Nocks, J. J. (1984). Alcoholism treatment of Vietnam veterans with post-traumatic stress disorder. *Journal of Substance Abuse Treatment*, **1**, 179–189.
- Selzer, M. L. (1971). The Michigan alcoholism screening test: The quest for a new diagnostic instrument. *American Journal of Psychiatry*, **127**, 1653–1658.
- Skinner H. A. (1982). The drug abuse screening test. *Addictive Behaviors* **7**, 363–371.
- Sobell, L. C., Maisto, S. A., Sobell, M. B., & Cooper, A. M. (1979). Reliability of alcohol abuser's self-reports of drinking behavior. *Behaviour Research and Therapy*, **17**, 157–160.
- Stewart, S. H. (1997, November). PTSD symptoms, anxiety sensitivity, and alcohol problems in female substance abusers. In P. C. Ouimette & P. J. Brown (Co-Chairs), *Posttraumatic stress disorder and substance abuse: New findings*. Symposium conducted at the 13th annual meeting of the International Society for Traumatic Stress Studies, Montreal.
- Stine, S. M., & Kosten, T. R. (1995). Complications of chemical abuse and dependency. In M. J. Friedman, D. S. Charney, & A. Y. Deutch (Eds.), *Neurobiological and clinical consequences of stress: From normal adaptation to PTSD* (pp. 447–464). Philadelphia: Lippincott-Raven.
- Triffleman, E. G., Marmar, C. R., Delucchi, K. L., & Ronfeldt, J. (1995). Childhood trauma and posttraumatic stress disorder in substance abuse inpatients. *Journal of Nervous and Mental Disease*, **183**, 172–176.
- Zweben, J. E., Clark, H. W., & Smith, D. E. (1994). Traumatic experiences and substance abuse: Mapping the territory. *Journal of Psychoactive Drugs*, **26**, 327–344.