

# Clinical Case Discussion: Combat PTSD and Substance Use Disorders

Peter Tuerk, PhD, Kathleen T. Brady, MD, PhD, and Anouk L. Grubaugh, PhD

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This clinical case discussion focuses on a veteran of the Iraq war with alcohol dependence, comorbid post-traumatic stress disorder (PTSD) and some depressive symptoms, and traumatic brain injury (TBI). The case illustrates the use of exposure therapy for PTSD via telehealth technology. After the case presentation, experts in the fields of PTSD and addiction provide discussion.

## PATIENT

A 22-year-old single, white man, who served 2 tours of duty in Iraq, presented to a Veteran's Administration Medical Center in the southeastern United States. While serving in Iraq, the patient experienced multiple (>30) combat fire-fights, witnessed many dead and mutilated bodies, and was seriously wounded twice.

## PSYCHOSOCIAL, MEDICAL, AND FAMILY HISTORY

At the time of intake, the patient was living with his mother, planning to enroll in college, and had a robust social support network. He reported no significant psychologic difficulties or medical problems before military service. He reported a family history positive for alcohol use disorders and depression.

While serving in Iraq, the patient experienced an injury from an improvised explosive device (IED), which led to loss of consciousness, shrapnel impact to his face and neck, a perforated left eardrum, and short-term memory loss. Two months subsequent to this injury, the patient experienced another blast, which led to vertigo, confusion, severe headaches, and tinnitus or loss of hearing for several days. The

patient was diagnosed with TBI on both occasions and received medical attention while deployed. The majority of the patient's TBI symptoms dissipated in the weeks following his injuries. Ten mental status exams over the course of treatment evidenced no indication of long-term, gross cognitive impairment or perceptual deficits, with the exception of partial loss of hearing and chronic tinnitus.

## BASELINE PSYCHOLOGIC FUNCTIONING AND ASSESSMENTS

The patient was referred to the PTSD Clinical Team for specialty services. Assessments incorporated modules from the structured clinical interview for *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition<sup>1</sup> to evaluate the PTSD and depression, the PTSD Checklist (PCL)-Military Version,<sup>2</sup> the Beck Depression Inventory (BDI)<sup>3</sup>, and the weekly semistructured clinical interviews. Alcohol use severity was periodically assessed using versions of the alcohol use disorders identification test (AUDIT).<sup>4,5</sup> These measures provided multimodal, multipoint assessment that was used to inform treatment planning, goal setting, and quality of care.

Baseline assessment revealed that the patient screened positive for alcohol dependence, reportedly consuming alcohol up to 7 times a week with 10 or more drinks per setting (AUDIT = 11). Immediately before the treatment, the patient's self-reported substance use was described as "getting drunk everyday and blacking out twice" per week. In addition, he met criteria for current PTSD and scored a 59 on the PCL (clinical range). The patient endorsed a number of PTSD symptoms (eg, daily recurrent nightmares from which he awoke in distress, avoidance of thoughts and activities associated with trauma cues, angry outbursts, daily dissociative re-experiencing of traumatic events [flashbacks], and emotional numbness). The patient also scored a 14 on the BDI, indicating mild depression, although a diagnosis of major depressive disorder was deferred to his PTSD status. He reported no prior history of trauma outside of his military service and reported having supportive family and peer relationships.

## TREATMENT

### Telehealth

The patient lived in a rural area over 100 miles from the nearest Veteran's Administration Medical Center; accordingly, telehealth technology (ie, videoconferencing) was used. The patient presented to his local Veterans affairs

From the Department of Psychiatry, Medical University of South Carolina, Charleston, SC; Mental Health Service, Ralph H. Johnson VA Medical Center, Charleston, SC.

Send correspondence and reprint requests to Kathleen T. Brady, MD, PhD, Department of Psychiatry, Clinical Neuroscience Division, Medical University of South Carolina, 67 President Street, Charleston, SC 29425. E-mail: bradyk@musc.edu

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community-based outpatient clinic for 11 weekly, 90-minute sessions conducted over videoconferencing, with a clinical psychologist specialized in treating PTSD. The treatment regimen consisted of rapport building, psychoeducation, goal setting, interoceptive-, imaginal-, and in vivo-exposure to trauma cues, cognitive restructuring, and behavioral homework.

### Rapport Building and Psychoeducation

Exposure-oriented treatment requires the patient to face situations and memories that elicit intense emotional responses. Thus, the formation of trust in the therapeutic relationship is critical. Psychoeducation is also critical, so that the patient understands why exposure to such situations and memories is necessary, how it will lead to benefits, and how avoidance is ultimately harmful. Psychoeducation also serves to instill hope early in the therapeutic process, providing encouragement and positive reinforcement for engaging in treatment.

The added element of telehealth in the current case further necessitated developing strong patient-provider rapport. Rather than approach the telehealth equipment as a barrier to the therapeutic relationship or as a second-rate approach, its positive characteristics (eg, ease of use, connection speed, and convenience for the patient) were highlighted.

### Exposure Therapy

Avoidance of situations or thoughts that remind patients of the trauma is a necessary symptom cluster for the diagnosis of PTSD. Avoidance behaviors are extremely resistant to change because successful avoidance reduces the patient's experience of negative emotion, thereby reinforcing the avoidance behaviors and increasing the likelihood that they will occur in the future (under similar stimulus conditions). Such behaviors often lead to increased physical and social isolation.

Exposure therapy is an effective treatment to help patients overcome avoidance and PTSD-related symptoms.<sup>6</sup> Exposure therapy involves helping patients learn to tolerate their arousal long enough to extinguish the emotional trauma-related stimuli.<sup>7</sup> When extinction to trauma-related stimuli is achieved, patients will evidence little or no anxiety in response to traumatic memories or objectively safe trauma cues. Thus, by addressing and eliminating the patient's avoidance strategies, the normal process of healing is fostered.

The clinical procedures for exposure therapy used in the current case were similar to the evidence-based prolonged exposure protocol for PTSD.<sup>8</sup> After rapport building and psychoeducation (first 2 sessions), sessions 3 to 10 focused on imaginal and in vivo exposure to trauma cues. Imaginal exposure involved guided, vivid recollections of the patient's traumatic events within a safe and supportive context, whereas in vivo exposure involved the patient engaging in activities that were avoided previously. The patient and therapist collaboratively composed 2 hierarchical lists as follows: (1) a list of intrusive memories, thoughts, and nightmares that distressed the patient (eg, memories of being blown up by the IED, a sustained firefight) and (2) a list of everyday-life situations that the patient avoided (eg, being in

crowds, driving over potholes or bumps that look like buried IEDs). The list of intrusive memories and nightmares was used to generate targets for imaginal exposure, and the list of specific situations was used to generate targets for in vivo exposure. During initial imaginal exposure exercises, the patient evidenced low tolerance to his PTSD-related physiological arousal (eg, racing pulse, shortness of breath, and dizziness). Accordingly, treatment incorporated interoceptive exposure<sup>9</sup> exercises to help desensitize him to these specific symptoms and help him refrain from overinterpreting their significance as somehow dangerous or "out of control." Interoceptive exposure was conducted by inducing target physiological symptoms (racing heart, shortness of breath, and dizziness) through doing jumping jacks, breathing through coffee straws, and spinning in the office chair. The exercises provided the patient an opportunity to habituate to his physiological sensations so as to decrease the likelihood of him "catastrophizing" similar sensations when they occur during imaginal and in vivo exposure to his trauma cues. The interoceptive exercises were completed by both the patient and the clinician at opposite ends of the telehealth equipment, encouraging levity in the treatment process, teamwork, and rapport. After the patient experienced success at anxiety reduction through the interoceptive exposures, he more eagerly approached the imaginal and in vivo exercises.

### Course of Treatment Outcome

After the patient's second week of imaginal and in vivo exposure work (session 4), he reported a dramatic drop in intrusive memories and a lessening of the intensity of distress when awoken by nightmares. After the third week of imaginal and in vivo exposure work (session 5), he reported an absence of intrusive thoughts, nightmares, avoidance behaviors, and physiological distress, commenting, "It was amazing, it's like I'm better." During this time, however, the patient was still experiencing flashbacks, but he reported that the flashbacks were becoming easier to "break out of." The patient also reported continued sleep difficulties. Ancillary psychoeducation concerning sleep hygiene was used to help the patient regain normal sleep patterns. At session 7, the patient scored a 19 on the PCL and 5 on the BDI, both in the nonclinical range. At session 11, the patient continued to demonstrate significant improvement in all 3 PTSD symptom clusters. Despite the fact that no interventions targeted alcohol dependence or depression, the patient also evidenced significant improvement in those areas at session 11. For example, he did not have the urge to drink alcohol to avoid traumatic memories or to sleep, reported drinking only at parties, less than once a week, and could not remember the last time he had more than 6 drinks at one setting. The formal AUDIT and AUDIT-C were not conducted during exposure treatment because of the increased monitoring that is part of weekly clinical contact. However, a review of the clinical notes indicates that the patient's decrease in substance use coincided to his decrease in distress from intrusions. By session 11, the patient was also enjoying meaningful relationships, earning As and Bs in college, and making plans to apply for medical school.

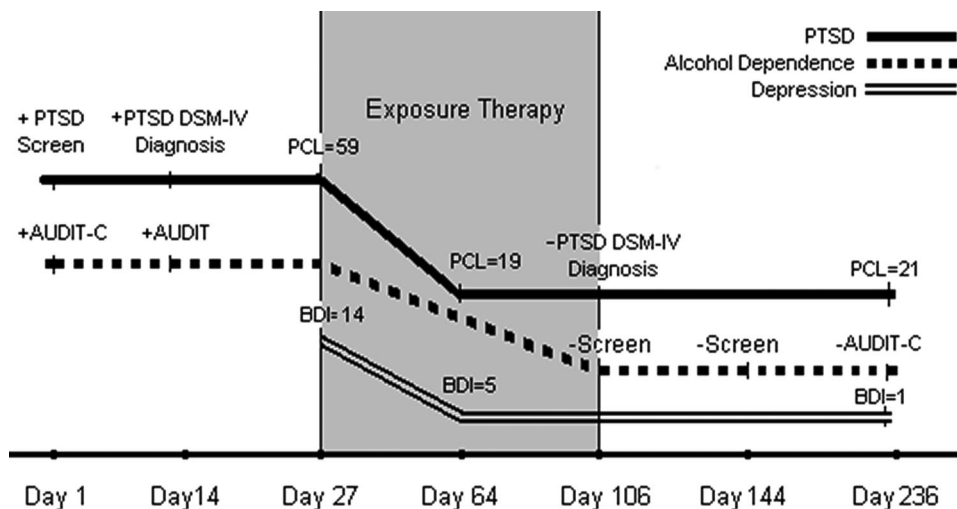


FIGURE 1. Clinical course.

### Follow-Up Outcomes

Two months after treatment termination, the patient’s alcohol use severity was informally assessed by a psychiatrist, who reported that his alcohol use was “social” in frequency and amount and not problematic. Six months after treatment, the patient screened negative for alcohol dependence (AUDIT-C = 2) and PTSD (PCL = 21). Figure 1 displays the time line of clinical and assessment outcomes beginning from patient intake at primary care through a 6-month treatment follow-up period.

### COMMENTARY BY KATHLEEN T. BRADY, MD, PHD

This case exemplifies a number of important issues at the interface of PTSD and substance use disorders (SUDs). At the time of presentation, the patient had significant symptoms of PTSD and seemed to be using alcohol to try to cope with these symptoms. The fact that he had a family history of alcohol dependence is important. Twin studies have revealed substantial genetic influence on the liability to develop alcohol dependence.<sup>10</sup> When individuals with genetic vulnerability to the development of SUDs experience severe trauma, the clinician must have a high index of suspicion for the misuse of alcohol to “cope” and must query about this in detail.

The use of exposure therapy in this case study is of interest. Although the efficacy of exposure-based therapies in the treatment of PTSD is well established, there has been some reluctance to use these therapies in individuals with co-occurring SUDs because of fear that evoking vivid memories of trauma exposure would worsen substance use or lead to relapse or both. However, there is little empirical evidence to support this belief or to guide the treatment of PTSD in individuals with co-occurring SUDs. Several preliminary studies conducted in the past several years suggest that exposure-based therapy can be used in individuals with co-occurring SUDs and PTSD as long as careful attention is paid to substance use.<sup>11</sup> Although there have been no large, controlled studies exploring this question to date, a randomized

controlled trial of exposure therapy in SUD patients is currently ongoing.<sup>12</sup> Similar to previous, uncontrolled studies, the preliminary data on the first 30 patients demonstrate significant improvement in PTSD symptoms (time × group interaction,  $P = 0.01$ ), depression (not statistically significant but concurrent treatment with prolonged exposure group lower by 7 points), percentage continuing to meet *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition criteria for drug dependence ( $P = 0.003$ ), global mental health (as measured by the Short Form Health Survey [SF];  $P = 0.02$ ), and physical health (as assessed by the SF-12;  $P = 0.06$ ) with exposure therapy as compared with treatment as usual. The drop out rate in this study is 34% at 9 months. The case described here provides further support for the idea that exposure therapy conducted by well-trained, experienced clinicians can be safely and effectively used in individuals with co-occurring PTSD and SUDs.

The individual described in this case experienced a decrease in urges to drink and resumed normal social drinking during the course of treatment even though he did not receive treatment specifically targeting his alcohol use. In general, once both PTSD and substance dependence are established, treatment addressing both disorders simultaneously is recommended. Before beginning exposure therapy, training patients in basic relapse prevention skills and coping strategies to deal with urges to use can be important. Monitoring substance use in an on-going manner using objective measures (urine drug screens, breathalyzer, liver enzymes, and carbohydrate-deficient transferin) is a critical part of the management of any individual with an SUD as denial is a key feature of the illness. In the case presented, the clinicians monitored alcohol consumption in an on-going manner. This monitoring and concern of the treating clinician likely contributed to the patient’s recognition of the dangers of using alcohol to cope with PTSD symptoms.

The issue of whether an individual who has been alcohol-dependent can return to social drinking is a controversial one. Proponents of the 12-Step Model of recovery



generally believe that this is not possible. However, longitudinal studies indicate that a number of individuals who met criteria for alcohol dependence at some point in their lives can return to social, nonproblematic drinking.<sup>13,14</sup> In any case, an individual with a family history of SUD coupled with a psychiatric disorder, which commonly co-occurs with SUDs, is at high risk for slipping back to abusive patterns of use and the development of substance dependence. In the case presented, education about risks (vulnerability and ongoing) and objective monitoring of alcohol and other drug use is essential.

### COMMENTARY BY ANOUK L. GRUBAUGH, PHD

There is a substantial amount of research documenting high rates of SUD and PTSD comorbidity.<sup>11,15,16</sup> The veteran described in this case summary is a representative example of a large subset of patients with comorbid SUD and PTSD. That is, the patient's substance-related difficulties are linked to his traumatic event exposure and development of PTSD. Consistent with the diathesis stress models of pathology, the patient's positive family history for substance-related disorders likely placed him at risk for substance abuse or dependence in response to a significant environmental stressor.

The use of exposure therapy to treat the PTSD in this case is supported by a large body of research attesting to the efficacy of exposure-based interventions for the disorder.<sup>17,18</sup> The treating clinician was clearly experienced in the use of exposure techniques and implemented the treatment according to the recommended guidelines. The fidelity of treatment delivery is further supported by the patient's relatively quick treatment response (ie, patient no longer demonstrated clinically significant PTSD symptoms by session 7). In addition, however, the treating clinician noted the potential benefit of using interoceptive exposure exercises to optimize patient outcomes. The need to very closely monitor and address the unique symptom presentation of each patient with PTSD cannot be overstated. Desensitizing the patient to his physiologic symptoms and helping him re-evaluate the meaning of these symptoms via interoceptive exercises seems to have affected the success of both in-session and out-of-session exposure exercises. It is possible that the treatment would have ultimately been successful without interoceptive exercises. However, the goal with any treatment is to incorporate strategies that will maximize patient's gains in the most efficient manner, as this will logically influence a patient's sense of efficacy and his or her motivation for adhering to treatment.

What is particularly interesting about this case is the use of exposure therapy in isolation rather than the use of a treatment targeting both PTSD and SUDs.<sup>19</sup> Had the patient's SUD symptoms not improved during treatment (perhaps because of the use of alcohol as an avoidance strategy), directly addressing the SUD would have been an important target of continued treatment. The veteran described here, however, clearly benefited from an exposure therapy protocol with regard to both his PTSD and SUD. However, there is very little empirical study on this issue. Studies suggest that

change in PTSD status at follow-up is predictive of substance use difficulties.<sup>20</sup> However, no studies to date have used a PTSD only treatment comparison group to assess the incremental value of adding a targeted substance dependence component. Thus, there is still a great deal we can learn regarding the benefit of combined SUD and PTSD interventions, as well as the optimal timing of administering these treatment components.

Finally, it is worth noting that this case study also represents an example of a unique mode of service delivery (ie, telehealth). Telehealth represents a strategy for potentially addressing access to care problems, such as the case presented here. To date, there is a growing body of literature documenting the effectiveness of telehealth for a number of medical and mental health difficulties.<sup>21</sup> There is also preliminary evidence to support the use of telehealth for PTSD among combat veterans, including high patient satisfaction and comparable clinical outcomes with traditional face-to-face care.<sup>22</sup> The current case summary lends further support for the use of telehealth as a means of delivering specialized PTSD services without significant compromise to the therapeutic alliance or outcomes. The successful use of telehealth is reassuring as this mode of service delivery will likely be critical for meeting the psychiatric needs of a growing number of veterans from Operation Iraqi Freedom and Operation Enduring Freedom. Indeed, even using the most conservative criteria, it is estimated that the number of Operation Iraqi Freedom/Operation Enduring Freedom veterans returning with PTSD will be in the tens of thousands.<sup>23–25</sup> This influx will represent a significant challenge to Veterans Affairs Medical Centers and the Department of Defense, and this will clearly necessitate the need for novel strategies of care.

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