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Web-Based Intervention for Returning Veterans with Symptoms of Posttraumatic Stress Disorder and Risky Alcohol Use

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Abstract

A substantial number of military personnel who have served in Iraq (Operation Iraqi Freedom; OIF) and Afghanistan (Operating Enduring Freedom; OEF) develop symptoms of posttraumatic stress disorder (PTSD) in response to their military experiences and many of these same individuals will drink in a risky or problematic manner following deployment. If left untreated, PTSD symptoms and alcohol problems can become chronic and have a significant, negative impact on the lives of veterans, their families and communities. Further, OIF and OEF service members are often reluctant to seek treatment for mental health symptoms or alcohol problems secondary to stigma. In order to reach this population it is essential that new strategies and venues for delivering evidence-based care are explored. Web-based interventions are uniquely suited to this cohort of veterans in that they have the potential to reach a significant number of veterans who commonly use the Web and who might not otherwise receive care. This article will review the prevalence of PTSD and alcohol problems among OIF and OEF veterans, common barriers they experience with accessing care in traditional mental health settings, and what is known about the effectiveness of Web-based approaches for PTSD and alcohol problems. It also describes the components of a new Web-based intervention, developed by the authors, that uses motivational enhancement and cognitive-behavioral strategies to intervene with returning veterans who report

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PTSD symptoms and problem drinking. Recommendations for future directions in working with returning veterans with PTSD and alcohol problems will be offered.

Keywords

Veterans; PTSD; Alcohol; Web intervention

United States (U.S.) military personnel who have served in Operation Iraqi Freedom (OIF) and Operating Enduring Freedom (OEF) are at risk for developing a range of mental health problems following deployment, including posttraumatic stress disorder (PTSD) and alcohol use disorders (Hoge et al. 2004; Jacobson et al. 2008; Milliken et al. 2007; Seal et al. 2007, 2009). The emerging pattern of PTSD and alcohol use disorder co-morbidity among OIF and OEF combat veterans replicates a well documented pattern of co-morbidity observed in combat veterans from previous wars (Keane and Wolfe 1990; Keane and Kaloupek 1997; Kessler et al. 1995).

PTSD symptoms and alcohol misuse in OIF and OEF veterans are associated with impairments in both physical health and psychosocial functioning (McDevitt-Murphy et al. 2010; Pietrzak et al. 2009; Shea et al. 2010). In fact, impairments in psychosocial functioning have been reported within months of war zone exposure for National Guard and Reserve soldiers (Shea et al. 2010). Intervening early with newly returning veterans who report behavioral health concerns may prevent the symptoms from becoming chronic (Litz et al. 2002) and the functional impairments from having a lasting and disabling effect (Magruder et al. 2004; Mansell et al. 2005; Schnurr et al. 2000).

Although many individuals recover from the psychological impact of combat exposure on their own (Litz and Schlenger 2009), there is growing concern that OIF and OEF veterans with more persistent mental health or alcohol problems are reluctant to seek treatment, even when this is necessary to facilitate recovery to a healthy level of functioning (Amstadter et al. 2009; Hoge et al. 2004; Milliken et al. 2007). Numerous barriers to seeking mental health care have been identified in this population with a high level of concern about stigma appearing to be prominent. Further, despite a willingness of some OIF and OEF veterans to report these types of problems, they may not be referred for treatment or offered evidence-based treatment that supports change (Calhoun et al. 2008; Hawkins et al. 2010; Milliken et al. 2007).

Web-based interventions offer an exciting new approach to mental health care in general, but more specifically this approach has advantages for overcoming barriers to care in OIF and OEF veterans (Amstadter et al. 2009; McLean et al. 2009, in press). The field of research on Web-based therapy is relatively new, but evidence suggests it is possible to reach individuals with trauma-related symptoms or alcohol problems and to achieve positive outcomes for both problems through Web interventions (Hester et al. 2009; Litz et al. 2004; Saitz et al. 2004). A significant limitation of current Web-based treatments is that they often have a singular focus and therefore may have limited applicability to traumatic stress populations who are at risk for other comorbidities (Amsterdat et al. 2009). However, integrated treatments for co-occurring disorders such as PTSD and alcohol problems have

gained widespread acceptance in the treatment community and may be necessary to optimize outcomes (Back et al. 2006; Najavits et al. 2009).

This article will review the prevalence of PTSD and alcohol problems in OIF and OEF veterans, barriers to care in this population, and our current knowledge about evidence-based Web treatments for both disorders. It is important to acknowledge that OIF and OEF veterans are also at risk for other mental health problems in addition to PTSD and alcohol problems, including other anxiety disorders, depression and traumatic brain injury (Hoge et al. 2004, 2008; Milliken et al. 2007; Seal et al. 2009). A discussion of these additional co-morbidities is beyond the scope of this article although ultimately treatments designed to address the psychological impact of combat trauma may need to consider the full range of co-morbidities.

The current article will also describe a new Web intervention, developed by these authors, for OIF and OEF veterans who report PTSD symptoms and problem drinking. A unique feature of this intervention, referred to as VetChange, is that it focuses on helping veterans develop coping skills related to both PTSD and problem drinking. The effectiveness of VetChange is undergoing an evaluation in a randomized controlled clinical trial. If VetChange reduces PTSD symptoms and curtails risky drinking, it will provide a viable means to offer evidence-based treatment to a large number of veterans who might otherwise not receive care for these problems.

Prevalence of PTSD in Returning Veterans

Studies examining the prevalence of PTSD in OIF and OEF veterans report consistently high rates of this disorder. In one of the first studies, Hoge et al. (2004) conducted an anonymous survey with 3,671 members of U.S. combat infantry units 1 week prior to and 3–4 months post-deployment. Investigators found that 11.5% of OEF soldiers, 18% of OIF soldiers and 19.9% of OIF Marines screened positive for PTSD. Milliken et al. (2007) were the first to offer longitudinal data on post-deployment mental health symptoms among OIF personnel. Investigators screened 88,235 OIF soldiers immediately upon their return home and at 6 months post-deployment. Rates of PTSD increased between the first and second assessment for both Active Duty (i.e., 11.8–16.7%) and National Guard and Reserve soldiers (i.e., 12.7–24.5%). Although many soldiers experienced a resolution of PTSD symptoms by the second assessment, more than twice as many new cases of PTSD were identified among soldiers who did not initially have a high PTSD score on the screening instrument. This study offered two important observations; first, for many OIF veterans there was a delayed mental health response to combat trauma and second, higher rates of PTSD were observed in National Guard and Reserve soldiers than Active Duty soldiers. The latter finding was significant in that more than 40% of U.S. OIF and OEF troops are Reserve and Guard members.

The prevalence of PTSD has also been described among separated OIF and OEF service members seeking treatment in the Veterans Health Administration (VHA). In a sample of 103,788 OIF and OEF veterans first seen at the VHA between September 30, 2001 and September 30, 2005, 13% were diagnosed with PTSD. PTSD was the most common

diagnosis among all mental health diagnoses given by providers (Seal et al. 2007). Seal et al. (2009) also reviewed data on 289,328 OIF and OEF veterans newly entering the VHA between April 1, 2002 and March 31, 2008 and found that 21.8% were diagnosed with PTSD. Similar to Milliken et al. (2007), the latter study observed an increase in the prevalence of new PTSD diagnoses among OIF veterans over time.

Several factors may contribute to PTSD diagnoses in OIF and OEF veterans. Serving in combat involves exposure to a wide range of potentially traumatic experiences and a high percentage (e.g., approximately 70% in Milliken et al. 2007) of OIF soldiers report exposure to combat. High rates of PTSD may also be related to the severity of combat exposure. Hoge et al. (2004) found that for OIF Active Duty Army and Marine personnel, the prevalence of PTSD increased in a linear manner with the number of firefights experienced during deployment. Repeated and lengthy deployments to combat zones may also play a role in the development of PTSD in these veterans (Friedman 2005).

Prevalence of Alcohol Problems in Returning Veterans

Several studies provide evidence of high rates of alcohol misuse among OIF and OEF military personnel following deployment. Hoge et al. (2004) found that 3–4 months following deployment approximately 24% of OEF soldiers, 25% of OIF soldiers and 35% of OIF Marines were “using alcohol more than they meant to” and 18% of OEF soldiers, 21% of OIF soldiers, and 30% of OIF Marines “felt they wanted or needed to cut down on drinking”. Rates of alcohol misuse were significantly higher following deployment than prior to deployment. Wilk et al. (2010) also conducted a survey of OIF soldiers 3–4 months post-deployment and found evidence for alcohol misuse in 25% of the sample and both alcohol misuse and alcohol-related behavioral problems (e.g., drinking and driving, missing work) in 12% of the sample.

The Millennium Cohort Study was the first to prospectively examine changes in alcohol use in relation to deployment (Jacobson et al. 2008). Over 48,000 service members completed a survey prior to and following deployment to Iraq or Afghanistan. Among those deployed to a combat zone, Active Duty personnel were at increased risk of *new onset binge drinking* post-deployment while Reserve and National Guard personnel were at increased risk for *new onset heavy weekly drinking, binge drinking* and *alcohol-related problems*. Women were more likely to report new onset heavy weekly drinking than binge drinking or alcohol problems, and younger age was associated with an increased risk for new onset binge drinking and alcohol problems. This study was important in demonstrating that OIF and OEF combat deployment was associated with the onset of several types of new drinking problems and specific characteristics of service members (e.g., age, service branch, gender) were associated with the development of different types of problem drinking behaviors.

Alcohol misuse is also observed among veterans seeking services at the VHA. A secondary analysis of survey data from 1,508 OIF and OEF veterans treated in outpatient clinics in 2005 identified problem drinking or alcohol abuse/dependence in 40% of the sample, binge drinking in 23%, and a possible alcohol use disorder in 22% (Calhoun et al. 2008). Hawkins et al. (2010) conducted a chart review of 12,092 VHA outpatients, 55 years old or younger,

seen between 2006 and 2007 and found that approximately 23% of OIF-OEF men and 6% of OIF-OEF women reported alcohol misuse. Rates of alcohol misuse were significantly higher among OIF-OEF male veterans than their non-OIF-OEF counterparts seeking treatment in VHA.

Relationship Between Combat Experiences, PTSD and Alcohol Misuse

Studies document a strong relationship between combat exposure and alcohol misuse in OIF and OEF veterans. Jacobson et al. (2008) found that National Guard and Reserve combat-deployed soldiers were at higher risk for new onset weekly and binge drinking than non-deployed National Guard and Reserve soldiers. Wilk et al. (2010) found that soldiers with higher rates of exposure to “situations with the threat of death or injury to oneself” (suggesting higher combat exposure severity) were more likely to screen positive for post-deployment alcohol misuse. Further, combat experiences were related to alcohol problems independent of post-deployment mental health problems.

PTSD symptoms are also associated with an increased risk for drinking in OIF and OEF veterans. In the Millenium Cohort Study, Jacobson et al. (2008) found that OIF and OEF soldiers with a PTSD diagnosis were more likely to engage in new onset problem drinking behaviors and have alcohol problems compared to soldiers without PTSD. The investigators suggested that increased drinking may represent an attempt to cope with the trauma of war, or alternatively that in the presence of other mental health problems military personnel may have difficulties controlling the use of alcohol and experience more alcohol-related problems. Clearly, both combat exposure and PTSD appear important to contributing to post-deployment alcohol misuse.

Barriers to Care

OIF and OEF service members report a reluctance to seek mental health treatment even in the presence of clinical distress (Hoge et al. 2004; Milliken et al. 2007). There are many reasons that this population is reluctant to seek care. OIF and OEF military personnel report significant concerns about the stigma related to seeking mental health care. For Active Duty personnel, this relates to fears about this having a negative impact on one’s military career, being treated differently by one’s unit leadership, or members of one’s unit losing confidence in them (Hoge et al. 2004). Another barrier to care relates to the inconvenience of treatment (e.g., not being able to get time off from work or finding it difficult to schedule appointments; Hoge et al. 2004). More than 50% of those serving in OEF-OIF come from rural parts of the U.S., which may make it especially difficult for them to access treatment. OIF and OEF veterans are also reluctant to seek care based on negative beliefs about the effectiveness of mental health treatment (Pietrzak et al. 2009).

For OIF and OEF veterans willing to report problems, there may be additional barriers to receiving care. Millken et al. (2007) found that despite the willingness of some soldiers to report alcohol problems at similar rates to other mental health problems, they were referred for alcohol treatment less often than for other types of problems. Calhoun et al. (2008) found that only 31% of OIF and OEF veterans seen at the VHA who met criteria for alcohol misuse had a provider advise them to drink less or stop drinking in the past year. Hawkins et

al. (2010) found that only 32% of OIF and OEF male veterans who screened positive for alcohol misuse during a VHA outpatient visit received a brief intervention known to be effective for problem drinking. Removing the barriers to care is seen as a high priority for clinicians and leaders involved in providing care to those who have served in the military (Jacobson et al. 2008).

Web-Based Approaches for Health Behavior Change

Web-based treatments offer a promising approach to overcoming barriers to care associated with traditional therapies (Amerstadt et al. 2009; Glueckauf et al. 2003) and several benefits of this approach have been identified (Amerstadt et al. 2009; McLean et al. 2009, in press). First, one of the primary barriers to care reported by OIF and OEF veterans is a concern about stigma (Hoge et al. 2004). Web-based therapy can be accessed in the privacy of one's own home and preserve confidentiality. Second, service members often find it inconvenient to attend therapy (Hoge et al. 2004). Web-based sessions can be completed at a time and place of the individual's choosing. They are particularly beneficial for veterans who are geographically isolated, need to travel long distances for therapy or who have injuries or disabilities limiting travel (McLean et al. 2009). Third, Web-based programs can be more cost-effective than traditional therapies, even with therapist-assisted programs, as costs can be reduced by having patients complete portions of treatment online without therapist assistance (e.g., self-monitoring or skills training; McLean et al. in press). Fourth, Web therapy allows for the widespread dissemination of evidence-based care while maintaining standardization and fidelity of the treatment (Hester et al. 2009).

There are also specific advantages of using Web interventions for individuals with PTSD or alcohol problems. Many trauma survivors and problem drinkers do not have access to evidence-based specialty treatments for these problems (McLean et al. in press; Hester et al. 2009). However, both trauma survivors (Nicholls et al. 2006) and problem drinkers (Saitz et al. 2004; Vernon 2010) use the Web to seek information related to their mental health needs. Therefore, Web interventions possess the capacity to offer specialized treatment to a large number of individuals who otherwise might not receive care (Hester et al. 2009; Litz et al. 2004). Both trauma survivors and problem drinkers report a reluctance to disclose information in face-to-face meetings (Kypri et al. 2008; McLean et al. in press). However, individuals with PTSD and alcohol problems report feeling comfortable with self-disclosure over the Web (Kypri et al. 2008; Leibert et al. 2006). Finally, Web-based programs can be self-paced and help individuals to make decisions about their treatment while learning to help themselves; these are features that are likely to increase coping self-efficacy and improve outcomes for both PTSD patients and problem drinkers.

Web-Based PTSD Programs

Several Web-based interventions have been developed for populations with traumatic stress symptoms. For example, Lange and colleagues developed *Interapy*, a 5 week therapist-directed, Web-based treatment for PTSD and traumatic grief that includes education, trauma-focused writing assignments and cognitive restructuring. In two randomized controlled trials participants in *Interapy* demonstrated greater improvement in trauma

symptoms and general psychopathology compared to participants in a wait list (WL) condition (Lange et al. 2001, 2003).

Hirai and Clum (2005) developed a Web-based intervention for PTSD that includes psycho-education, relaxation, cognitive restructuring and written exposure exercises. Eighteen trauma-exposed participants who reported re-experiencing and avoidance symptoms were randomly assigned to an 8 week Web-based treatment or a WL control condition. Participants in the Web intervention showed greater improvements in anxiety, depression, frequency of intrusions and avoidance, self-efficacy and coping compared to participants in the WL condition. Therapist involvement was limited which suggests that self-management Web programs for PTSD may be effective. A larger study with participants with both full and partial PTSD would be necessary to determine who benefits from this approach.

Litz et al. (2004) developed a therapist-assisted cognitive-behavioral Web-based self-management program for PTSD based on Stress Inoculation Training (Meichenbaum 1985). The 8 week daily program (*DE-STRESS*) includes psychoeducation, sleep hygiene, coping skills training, cognitive reframing, self-guided in vivo exposure and trauma writing exercises. The effectiveness of this intervention was evaluated in a randomized controlled clinical trial with Department of Defense service members with PTSD related to the Pentagon attack on 9/11 and military personnel with PTSD related to combat in Iraq or Afghanistan (Litz et al. 2007). Participants were assigned to either the Cognitive-Behavioral Web intervention described above or a Web-based Supportive Counseling intervention. All participants had an initial meeting with a clinician prior to beginning the program and then had access to therapists via e-mail and phone. Both groups showed a decline in PTSD symptoms over the course of treatment although participants in *DE-STRESS* showed a sharper decline in total PTSD symptom severity and global depressive symptoms.

To summarize, there is growing support for the use of Web-based treatments for PTSD. However, little is known about the essential components of treatment or the time necessary to achieve the expected benefits (Amerstadt et al. 2009). It is also unclear what level of therapist contact is necessary to achieve positive outcomes (McLean et al. 2009). For the most part, Web interventions for PTSD have included exposure exercises that might increase emotional intensity among participants, and included therapist contact. Further research will help us determine whether treatment focused on coping skills or symptom management requires the same level of therapist involvement. In traditional therapy, the therapist is also responsible for modifying treatment to fit the individual's needs. With technological improvements, Web-based therapies may be able to assist in this role as they can be tailored to the individual and provide suggestions based on the individual's assessment and self-monitoring data.

A significant limitation of current Web-based treatments for PTSD is that they do not address common co-morbidities such as problem drinking (Amerstadt et al. 2009). The literature suggests that PTSD and alcohol use are often interconnected and that interventions for individuals with this co-morbidity are more effective when integrated (Najavits 2009). An important question is whether individuals with PTSD and problem drinking will also benefit from an integrated approach to treatment on the Web.

Web-Based Programs for Problem Drinking

Many of the earliest Web interventions for problem drinkers were designed for college students (Elliot et al. 2008; Walters et al. 2005). Walters and colleagues developed e-CHUG (www.e-chug.com), an electronic version of "Check-Up to Go", which includes personalized feedback on consumption and risk factors, a comparison with college drinking norms and a list of resources. When e-CHUG was offered either alone or in combination with a workshop and workbook (focused on self-management of drinking), both groups showed a similar reduction in drinking (Lange & Atkinson, cited in Walters et al.). My Student Body (MSB; www.mystudentbody.com) is a Web program that includes assessment, personalized feedback, skills building, and an opportunity to hear from other students, ask questions of an expert, and receive college news related to drinking. When MSB was compared in a clinical trial to a text only informational website focused on high risk drinking, both groups showed a reduction in drinking although those in MSB showed a greater reduction in peak consumption (Chiauzzi, cited in Walters et al.). Kypri et al. (2008) compared the efficacy of e-SBI (a Web-based motivational intervention delivered in a single session or 3 sessions) to an information pamphlet in a controlled trial and found that students in the single dose e-SBI group drank less and had fewer academic problems than the control group. Additional sessions did not improve outcomes.

Several effective Web-based interventions are designed for community samples. The Web-based Drinker's Checkup (DCU; www.drinkerscheckup.com) includes screening, assessment, personalized feedback and motivational enhancement exercises. In a randomized controlled trial, problem drinkers who received the Web-based DCU showed a greater decline in drinking than a Wait List control group and sustained gains over time (Hester et al. 2005). Dutch researchers developed a 6 week Web-based self-help program for problem drinking (Drinking Less or DL; www.minderdrinken.nl) including motivational, cognitive-behavioral and self-control training strategies, and peer support. In a randomized controlled trial, DL was compared to an online educational brochure on alcohol use (PBA) and participants in DL showed a greater reduction in drinking and were more likely to be drinking within normative guidelines compared to PBA (Riper et al. 2008).

Hester et al. (2009) conducted a randomized clinical trial comparing a Web-based Moderate Drinking protocol (MD; www.moderatedrinking.com) plus use of online resources of Moderation Management (MM; www.moderation.org) (MM) to the use of online resources of MM alone. MD offers motivational enhancement exercises, goal setting, self-monitoring, personalized feedback, rate control, identifying and managing triggers, and strategies for monitoring mood. MM offers a behavioral change program and national support network. Both groups reduced drinking and alcohol problems although the MD group had better outcomes on several drinking variables.

In summary, Web-based interventions using motivational and cognitive-behavioral strategies provide evidence of effectiveness for alcohol problems. Notably, Web-based interventions are effective with college students, many of whom are the same age as OIF and OEF veterans at risk for alcohol misuse. Additional studies are needed to determine the essential ingredients and length of Web interventions for problem drinking necessary to

achieve positive outcomes. The study by Riper et al. (2008) was one of the first to recruit online and to have no contact with participants. The results of this trial suggest that self-management Web programs without therapy assistance can be effective in reducing problem drinking.

VetChange

A team of clinicians and researchers at the VA Boston Healthcare System and Boston University School of Medicine created a Web-based, self-management program for OIF and OEF veterans who report evidence of non-dependent problem drinking and symptoms of PTSD related to their military experiences. Overall, the goal of the intervention is to help OIF and OEF veterans reduce their drinking to a safer level (i.e., moderation or abstinence) and to improve the ability of OIF and OEF veterans to cope with high risk situations (including moods and combat-related PTSD symptoms) that might trigger problem drinking. The program is strictly self-management and there is no therapist contact.

VetChange incorporates a combination of treatment strategies with evidence for their effectiveness in treating PTSD or problem drinking. It is based on an integrated model of treatment for co-occuring PTSD and alcohol problems. The decision to address both problems in a single intervention is based on the evidence that integrated treatment for PTSD and alcohol problems is a desirable approach from the patient perspective (Back et al. 2006), leads to desirable outcomes (Najavits 2009), and has demonstrated evidence of applicability to veterans (e.g., Cook et al. 2006; Najavits 2009; Weller 2005).

VetChange uses an approach that is similar to other present-focused therapies with demonstrated efficacy for treatment of PTSD (Najavits 2007), such as Stress Inoculation Training (Meichenbaum 1985) and Anger Management Training (Chemtob et al. 1997). These treatments offer a broad range of cognitive and behavioral coping strategies (e.g., stress management, anger management and cognitive restructuring) to help individuals learn to better manage PTSD symptoms. Unlike many of the previously developed Web-based PTSD programs, VetChange does not ask participants to write or share information about their trauma; the focus for participants is on identifying moods or trauma-related feelings that might trigger drinking and learning new strategies for coping with these triggers. By taking this approach there should be less risk for emotional intensity that would overwhelm a participant, thereby reducing the risk of unsafe drinking. With a Web-based self-management intervention that does not include therapist involvement, this was thought to be the most appropriate first step for OIF and OEF veterans with these dual problems.

VetChange also uses evidence-based motivational enhancement and cognitive-behavioral approaches to help veterans learn to modify drinking behaviors. Motivational enhancement strategies (e.g., assessment, personalized feedback and goal setting) are particularly effective with problem drinkers (Fleming et al. 1997; Miller and Wilbourne 2000). VetChange allows veterans to work toward a goal of either moderation or abstinence; this flexibility should address different levels of problem severity and readiness of OIF and OEF veterans to change. Components of cognitive-behavioral treatments with well documented evidence of effectiveness for problem drinkers (Miller and Wilbourne 2002), such as Behavioral Self-

Control Training (BSCT; Hester and Delaney 1997) and Guided Self-Change (Sobell and Sobell 1996,) are incorporated into the intervention. Some of these strategies include goal setting, self-monitoring, rate control, and relapse prevention. Stress Management training, which is effective with both PTSD (Meichenbaum 1985) and alcohol treatment populations (Finney et al. 2007) is included as an optional module and should be helpful in addressing co-morbid symptoms when they occur.

Overview of the Intervention

VetChange is a multi-component intervention that includes: (1) Assessment and personalized feedback related to drinking and PTSD symptoms, (2) Motivational enhancement exercises focused on solidifying commitment to change, (3) Coping skills training focused on improving skills to manage high risk situations and achieving a goal of moderation drinking or abstinence, (4) Coping skills training focused on improving skills to manage internal triggers and possible trauma-related symptoms (e.g., mood, stress, anger and sleep problems), and (5) Development of a plan for social support to manage drinking and PTSD symptoms.

There are eight modules in VetChange. Participants are asked to log on to the Web site twice in each of the first 2 weeks and thereafter on a weekly basis. They are allowed up to 8 weeks to complete the intervention. Participants may log on as often as they would like during the study period, but starting in week 4, must wait a full week to move on to the next module. This is to encourage veterans to take the time needed to assess their own skills based on self-monitoring and to practice the skills learned in the previous module. Once a module is completed participants can view materials or their completed exercises from a previous module. Certain exercises are considered essential to participate in the intervention (e.g., learning how to complete the Drinking Log) and participants will not be allowed to move on to the next step until these exercises are completed.

Self-monitoring and the completion of homework assignments are essential strategies in the program. Following the first module, each time participants log on to the Web site they will be asked to input information from a Daily Drinking Log, and beginning in week 4 the data will be summarized so that veterans can review progress made toward personal drinking goals. Based on the data provided, the veteran will be asked to consider whether his or her drinking goals should remain the same. At the end of each module the veteran will be asked to restate a personal drinking goal for the following week. Homework is assigned at the completion of most modules and prior to beginning a new module participants will be asked to review the previous assignment. Both the Drinking Log and the homework assignments are designed to provide the veteran with information on potential triggers for drinking as well as the effectiveness of specific coping skills. When skills are not effective, participants are encouraged to consider other options. The program promotes better coping through planning ahead and practicing new skills and self-evaluation of the effectiveness of these skills. Throughout the program, a resource page will be available and veterans will be encouraged to seek additional treatment for alcohol problems, PTSD, or other mental health concerns if their symptoms worsen or they feel the need for face-to-face contact or involvement with a more intensive intervention.

Module Content

The connection between deployment to a combat zone, possible trauma reactions and problem drinking is consistent throughout the intervention, although Modules 1–4 focus primarily on enhancing motivation for change and helping veterans develop skills to control their drinking and Modules 5–7 focus on the development of coping skills for managing internal or emotional triggers for drinking and PTSD symptoms.

Module 1

The participant is offered personalized feedback based on their responses to the online assessment. Feedback focuses on the level of alcohol problem severity, problems related to drinking, comparative information on population-based norms for drinking, and a comparison of their level of drinking to guidelines developed by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) for safer drinking. The veteran is also provided with information about the nature of PTSD symptoms and the connection between PTSD and drinking problems, and feedback related to his or her self-report of possible PTSD symptoms. Recommendations are made to the veteran to consider completing specific optional modules that address these concerns. At the end of the module the veteran is asked to consider the meaning of all of the information presented and how it affects his or her desire to change drinking. The veteran is then introduced to the Daily Drinking Log and asked to begin to use this tool to collect information on drinking behaviors.

Module 2

The veteran continues to focus on motivation to change and engage in exercises designed to reduce ambivalence and solidify commitment to change. Participants are asked to evaluate the importance of changing drinking behaviors and to examine both the benefits of changing drinking and the benefits of continuing to drink the same. At the completion of the module the veteran is asked to evaluate readiness to change.

Module 3

The veteran begins to learn how to change drinking. To facilitate the process the veteran is asked to review the Daily Drinking Log and to make an informed decision about whether a moderation or abstinence goal is appropriate. The veteran completes a plan outlining a drinking goal and reviews strategies for how to achieve this goal. For veterans who elect to moderate drinking, a goal for drinks and days of drinking per week is set. Veterans are taught how to compute their blood alcohol concentration and are offered additional tips to achieve moderation. Tips for reaching abstinence are also provided for those who choose this goal.

Module 4

Veterans learn how to identify high risk situations for drinking (i.e., situations in which they are likely to exceed moderation goals or drink when they plan to abstain). The emphasis is on learning to identify and cope with external situations (e.g., social situations in which others are drinking). The veteran is asked to identify personal high risk situations and consider a number of cognitive and behavioral coping strategies to manage these situations.

To practice the coping skills, the veteran is asked to choose potential high risk situations in the upcoming week and select coping strategies that will be used to reach drinking goals.

Module 5

Participants learn to identify and cope with a specific type of internal high risk situation for drinking (i.e., feelings or moods). For OIF and OEF veterans, internal high risk situations may involve thoughts or feelings related to their recent combat experiences, or other emotional reactions involved in readjustment. Veterans are provided with education about the connection between thoughts, feelings, moods and drinking, skills for identifying moods, and general cognitive and behavioral strategies for coping with uncomfortable moods. The homework assignment requests that the veteran identify a mood that might affect drinking in the upcoming week and select coping strategies to manage this mood and achieve drinking goals.

Modules 6–7

In each of these modules, veterans are offered the choice of covering one of three topics related to their personal situation (i.e., stress management, anger management or sleep hygiene). Results of the initial PTSD assessment are provided to guide the veteran in making this choice (e.g., a veteran who reports anger outbursts is directed toward the anger management module). Within the stress management module, the veteran will learn about causes and signs of stress and strategies for reducing and managing stress. Within the anger management module, the veteran learns how to identify and rate his or her level of anger and utilize coping strategies to manage anger. In the sleep hygiene module, the veteran learns how to recognize sleep problems and receives information about strategies for improving sleep. In each problem area the veteran is asked to consider how the problem area affects drinking and develop a plan for implementing the skills in order to better manage the symptoms and reach drinking goals in the upcoming week.

Module 8

Veterans are provided with education about the importance of social support in managing drinking and PTSD symptoms and review the types of support that are available for both problems. The veteran is guided through the development of a support plan and asked to consider common road blocks to seeking support. Finally, veterans are asked to consider their progress during the intervention, determine whether their goals were met, and consider what the next step might be for them in improving mental health.

About the Research

A randomized clinical trial, sponsored by NIAAA is being conducted to evaluate whether VetChange will be effective in reducing problem drinking, alcohol-related problems and PTSD symptoms in OIF and OEF combat veterans. Although other Web programs are available for OIF and OEF veterans, this is the first integrated program to undergo rigorous evaluation in a randomized controlled clinical trial. All research activities in this trial take place on the website. Eligibility requirements include: (1) OIF or OEF combat veteran, (2) 18–65 years old, (3) moderate levels of nondependent problem drinking, and (4) recent

drinking above NIAAA guidelines for safer drinking. Veterans who are ineligible due to a high alcohol problem severity or find their symptoms worsening during the course of treatment will be referred to professional treatment. Once randomized, participants will be assigned to either VetChange or a Wait List Control group; the latter group will have access to the intervention after 8 weeks. This design was chosen to allow all participants to eventually receive the intervention while allowing for a period of time where participants can be compared.

Looking Toward the Future

It is essential that mental health providers find new ways to reach military personnel who served in OIF and OEF in order to prevent another generation of veterans from experiencing the potentially devastating consequences of untreated PTSD and alcohol problems. The use of Web-based approaches to intervene with psychological problems is gaining increasing support and this approach may hold tremendous promise for combat veterans with dual disorders. Conducting controlled clinical trials to determine the most effective ingredients of Web treatments and the specific populations for which these interventions are safe and effective is a priority. The intervention described here is unique in its focus on the treatment of a common co-morbidity found in the veteran population. It is also unique in that it is the first time this type of integrated intervention will be administered completely via the Web without therapist contact. Although the intervention is specialized in its focus on veterans, if found to be effective, this approach should have general applicability to a wide range of traumatized populations who present with problem drinking behaviors and symptoms of PTSD or other mental health problems. Future studies will also need to focus upon the development of Web interventions for trauma-exposed populations with PTSD as well as other anxiety and addictive disorders, depression, and traumatic brain injury.

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