Outdoor Programs as Treatment for Posttraumatic Stress Disorder in Veterans: Issues and Evidence

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Increased attention to the needs of veterans with posttraumatic stress disorder (PTSD) has resulted in literature describing both first-line and adjunctive treatments. Complementary and alternative medicine approaches have gained popularity and may include the use of outdoor treatment modalities. This article will examine the evidence to support the use of outdoor approaches in treating PTSD in veterans. Although anecdotally these programs are often associated with positive and healing experiences, their use as a first-line treatment for PTSD should be questioned. A review of the literature and recommendations regarding outdoor programs in the treatment of PTSD in veterans will be presented.

Key words: *outdoor treatment, posttraumatic stress disorder*

Over the past twenty-five years, there has been a resurgence of interest and concern about the impact of trauma on military personnel and their families by government agencies, the public, and the mental health community in the United States (Hamblen et al., 2014; Hobfoll et al., 1991) and around the world (Bird, 2014; Boulos & Zamorski, 2013; Gelkopf, Hasson-Ohayon, Bikman, & Kravetz, 2013). This concern began as a result of looking at war stress as the consequence of two factors: the amount of loss experienced and the extent of a person's resiliency (Hobfoll et al., 1991). Although Hobfoll and colleagues acknowledged that war stress can result in posttraumatic stress disorder (PTSD), they concluded that "the best treatment for PTSD has not been established" and that nontraditional treatments such as returning soldiers to combat should be explored (p. 850).

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Recently, the focus has been on a more holistic model of PTSD rather than the global war stress paradigm (Vergun, 2012). According to the most recent version of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2013), PTSD is characterized by exposure to trauma and symptoms from the following categories: intrusion, avoidance, negative changes in thoughts and mood, and changes in arousal and reaction. To qualify for a diagnosis of PTSD, an individual must have experienced symptoms for at least one month. Additionally, there must be significant impairment in daily functioning. Finally, symptoms cannot be primarily due to medications, substance use, or physical illness.

In the United States, the Veterans Administration (VA) identifies PTSD as a significant problem. Estimates suggest that between 11 and 20 percent of active duty personnel from Operations Iraqi Freedom and Enduring Freedom will be diagnosed each year with PTSD. Approximately 12 percent of those from Operation Desert Storm meet the criteria for a PTSD diagnosis. Further, about 30 percent of veterans from the Vietnam War have been diagnosed with PTSD (Gradus, n.d.). With more than twenty-one million veterans in the United States (U.S. Census Bureau, 2012) and conservative estimates of PTSD prevalence rates at 3 to 10 percent for veterans with no combat deployment history and 5 to 25 percent for veterans with combat deployment (Psychological Health Center of Excellence, 2014), it is estimated that there are at least two million veterans with PTSD.

The military has issued practice guidelines for the assessment and treatment of PTSD (Psychological Health Center of Excellence, 2014). These guidelines call for treatment using evidence-based psychotherapy or specific psychotropic medications. However, half of those veterans with PTSD who are in need of service do not seek mental health treatment or drop out of treatment (Hoge, 2011).

Treatment for PTSD has been expensive, controversial, and political. A 2012 report revealed that the VA spent more than $3 billion on treating PTSD, with the Pentagon spending another $294 million (Phillips & Wang, 2014). Another report released by the Institute of Medicine (2014) critiqued the current state of PTSD treatment, advocating for increased standards for effectiveness, reporting, and evaluation. A number of issues complicate the treatment of PTSD for veterans. For example, there are often more serious and immediate physical and environmental problems or issues that must be addressed. Often, there are mental health problems, including substance use and housing instability, both of which are associated with trauma exposure. Traditional crisis approaches and debriefing are generally not effective, and there is stigma attached to seeking traditional mental health treatment (Dustin, Bricker, Arave, Wall, & Wendt, 2011).

Access to treatment for PTSD is also an issue. Although services were expanded to more than seven million veteran visits in the past year, the waiting list for services has increased by 50 percent (Associated Press, 2015). A recent report revealed that 28 percent (238,000) of 847,000 veterans who applied for health care services died before receiving care (Veterans Health Administration, 2015).

Aside from mortality, lack of access to services has serious consequences; inadequate or ineffective treatment has been associated with a threefold increase in the risk of suicidal ideation (Jakupcak et al., 2011).

There are many reasons why these first-line treatment approaches used in VA facilities are not sufficient and why more holistic treatment would benefit veterans with PTSD, particularly those who have physical, environmental, and psychological treatment needs (Detwiler et al., 2010).

This article will explore the use of more holistic approaches in the treatment of PTSD in veterans. First, we will introduce the idea of alternative therapies and then we will explore outdoor programs. A critique of the literature will be provided, followed by recommendations for change.

The VA has been receptive to the use of alternative types of treatment. For example, recognizing the healing properties of the outdoor environment, the VA has used horticultural therapy as an adjunct treatment for veterans (Detwiler et al., 2010). Complementary and alternative medicine (CAM), which can include yoga, meditation, acupuncture, and massage, has also been used to treat individuals with PTSD. However, most of those using CAM approaches have done so without a trained CAM professional. In addition, CAM approaches have significant variation within each modality so that measuring skill levels of CAM professionals poses a unique challenge (Libby, Pilver, & Desai, 2013). These more holistic programs are often based in some way in the outdoors. Historically there has been support for the outdoor environment having a positive impact on veterans' PTSD, as well as other conditions such as pain (Walch et al., 2005), mood (Irvine & Warber, 2002), and recovery from surgery (Ulrich, 1984).

Quantitative Studies

The use of the outdoor environment as a therapeutic place for veterans can be traced to the work of Robert Rheault. After retiring from the military in 1969, he worked at and later led the Hurricane Island Outward Bound School, eventually developing the Outward Bound Program for veterans with PTSD (Hoey, 2013). Rheault (1987) published one of the first journal articles on the impact of Outward Bound courses on veterans. Although not directly related to PTSD, this program was one of the foundations for the use of the outdoor environment in therapy with veterans. Assessment of the program suggested that Outward Bound courses facilitated an increase in strength, positive self-image, and general openness to therapy in veterans. This research led to the recommendation that Outward Bound approaches be used as adjuncts to traditional treatment rather than primary treatment.

In the 1990s, the first research studies on the impact of Outward Bound on PTSD were conducted and reported (Hyer, Boyd, Scurfield, Smith, & Burke, 1996). Over two years, small groups of Vietnam veterans participated in five-day Outward Bound experiences as an adjunct to their PTSD treatment as inpatients at VA hospitals. Outdoor activities included climbing, camping, and rafting. These

activities stood on their own as there was no formal group therapy. This study used a randomized comparison group design in which participants experienced treatment as usual, with measures at baseline, posttest, and exit from treatment. Measures included a PTSD scale and a depression scale. The results of this study suggested that, although there were many anecdotal reports of change, the Outward Bound course produced "no distinct, discernable effect on general or PTSD-specific symptoms" (Hyer et al., 1996, p. 272).

Within the same time frame, another study (Ragsdale, Cox, Finn, & Eisler, 1996) examined the impact of an intensive inpatient adventure-based counseling program as treatment for Vietnam veterans in a twenty-bed twenty-six-day inpatient unit in Virginia. All participants had been diagnosed with PTSD. Treatment consisted of adventure activities and psychodrama. The adventure-based counseling included low ropes and team building exercises; psychodrama involved daily role play and reenactment of traumatic events. A randomized comparison group design was used with a comparison wait list group who were not inpatients. All had weekly group therapy for PTSD over the twenty-six-day period, with the experimental group being exposed to adventure-based counseling and psychodrama. At posttest, the experimental group had significantly lower levels of hopelessness, guilt, shame, and loneliness and higher levels of expressiveness than the comparison group. However, in the experimental group, there were no significant changes in trait anxiety, subjective distress, or symptomatology diagnostic of PTSD (Ragsdale et al., p. 278).

It is important to note that adventure-based counseling is not a true wilderness experience like Outward Bound. Rather, it may involve ropes courses or time-limited activities outdoors. Furthermore, the experimental group had both adventure activities and psychodrama, making it impossible to determine the extent to which each of these modalities contributed to the treatment effects. Lastly, both experiments deployed rigorous research models; however, the short duration of the interventions makes large effect sizes unlikely and generalizability impossible.

Perhaps inspired by the resurgence in interest in the treatment of veterans, there has been an increase in the literature evaluating treatment approaches. Recent years have seen the publication of studies and review articles examining the impact of wilderness programs like Outward Bound on military veterans (Harper, Norris, & D'astous, 2014). Often, these studies do not directly examine PTSD. For example, Ewert, Frankel, Van Puymbroeck, and Luo (2010) reported on a study of veterans who had completed an Outward Bound veterans' course, comparing them with a group of adults completing an Outward Bound course at the same time. During phase 1 of the study, participants and comparison group members responded to nine questions that looked at confidence, safety (physical and emotional), feelings of success, compassion and respect for others, knowledge about life, leadership and teamwork, and accepting responsibility. Results indicated that, compared to nonveterans, the veterans in the Outward Bound program were more confident and felt physically and emotionally safer, more successful, and more knowledgeable than the comparison group.

In phase 2 of this study, the Outward Bound Outcomes Instrument (OBOI; Frankel & Ewert, 2009), which consists of eleven personal constructs including self-confidence, self-actualization, compassion, healthy and balanced lifestyle, goal setting, group collaboration, communication, conflict resolution, problem solving, and social and environmental responsibility, was administered to 266 veterans from thirty-two different Outward Bound courses. At posttest, there were significant positive changes in all of these personal constructs (Ewert et al., 2010). A baseline post-test design of this nature does not allow one to conclude that the treatment (in this case Outward Bound) caused the effect. Another limitation is the failure to use measures that have been shown to be valid and reliable.

Ewert, Van Puymbroeck, Frankel, and Overholt (2011) examined phase 2 of the 2010 study by Ewert and colleagues in greater depth by focusing on three variables: personal constructs, sense of coherence, and personal health. They also included measurement of the eleven personal constructs from the previous study. As stated above, at posttest, all of the personal construct measures changed significantly. Sense of coherence was also shown to increase at posttest (Van Puymbroeck, Ewert, Luo, & Frankel, 2012). The physical data suggested that participants felt tired and that some felt depressed or anxious. About 8 to 10 percent reported that their physical and emotional health was worse than before they deployed (Ewert et al., 2011). Although the results of studies 1 and 2 suggest that participation in Outward Bound courses for veterans may have positive impacts, it is difficult to draw causal relationships due to the lack of a randomized control or comparison group. Also, the use of non-standardized instruments and measures that were not well validated remained a central issue. Additionally, PTSD as a disorder was not directly assessed in these studies.

In a later article, Ewert (2014) extended this analysis and talked not only about the impact of Outward Bound on the eleven personal construct items, but also about resilience. Similar to the personal construct results, resilience scores significantly increased at posttest. Although interesting, the convenience sampling of participants, lack of specificity about the elements of each trip, and lack of a control or comparison group make generalizations from this research impossible.

Noting some of the drawbacks of exposure therapy and cognitive behavior therapy, Israeli researchers designed an alternative second-line treatment for PTSD for Israeli Defense Force veterans. For twelve-month periods, twenty-eight participants were involved in weekly three-hour sessions in sailboats; six participants dropped out of the program. This was a randomized comparison group design study with twenty wait-list controls. None of the staff had health- or social-service-related credentials, but there was monthly supervision by a psychologist. Midway through the intervention there was a focus on rescue drills and processing of anxiety. At the end, participants sailed the boats on their own, focusing on leadership. At baseline and twelve months posttest, PTSD inventories and depression and quality of life scales were administered. At posttest, the experimental group showed a decrease in PTSD symptoms and depression. They also reported better functioning, greater sense of control, and improved social and emotional

quality of life. Although there is much to be said for this program in terms of having a comparison group, using standardized measures, and conducting thorough statistical analyses, there were some limitations. First, the experimental group sample size was only twenty participants, making it difficult to generalize the results. The design of this study, with a complex treatment group versus a no-treatment comparison group, makes it impossible to determine the effective components of the program. Perhaps it was the experience of being part of a small and intense group experience rather than the sailing program itself that created the changes seen (Gelkopf et al., 2013).

A large-scale study was conducted in partnership with the Sierra Club and four organizations that sponsored outdoor treks and were supported by the Sierra Club's Military Families and Veterans Initiative (Duvall & Kaplan, 2013). Twelve trips were examined, with five to ten veterans on each trip. Excursions ranged from four to seven days and included outdoor activities like canoeing, rafting, backpacking, and fishing, with each organization offering its own specific outdoor activities. Each of these organizations recruited veterans for the program. Participants were assessed on measures of psychological well-being and social functioning at baseline, posttest, and at a three- to four-week follow-up. This study did not measure or specifically examine PTSD. Most of the programs did not include any formal or structured individual or group therapy; however, a few had voluntary group sessions and team building exercises. At posttest, the results suggested that participants had greater attention, improved affect, and increased tranquility. They also reported greater connectedness and less loneliness and isolation. Stress levels did not change.

Difficulties in generalizing from the results of this study include issues with sampling design, validity of measures, research design, and participant attrition. Participants were a mixed group of veterans whose individual characteristics varied in terms of physical disability, mental health issues, and substance abuse. Additionally, authors Duvall and Kaplan reported using measures based on published inventories but not validated in their changed form. Without randomly assigned comparison groups, it was impossible to know if baseline to post-test changes were due to the wilderness experience or other factors. Finally, the attrition level in the study was high. Ninety-eight participants were assessed at baseline, fifty-four at posttest, and thirty-one at follow-up (Duvall & Kaplan, 2013).

Qualitative Studies

Mowatt and Bennett (2011) analyzed the letters of sixty-seven veterans with confirmed diagnoses of PTSD who participated in the Rivers of Recovery fly fishing camp. The authors' analysis revealed four themes: the importance of camaraderie, a sense of regret and failure, an opportunity for veterans to process their wartime memories, and the value of outdoor activity as the most therapeutic component of the fly fishing experience. Although this approach provides insight into

the experiences of the participants of the program, no conclusions can be drawn about the effects of the program or its transferability to other veterans.

Another study used outdoor activities on a four-day river trip sponsored by the Utah Department of Parks, Recreation, and Tourism. Thirteen veterans previously diagnosed with PTSD went on the river trip. There was no formal therapy or discussion of PTSD. Participants were asked to keep extensive journals. The authors examined journal responses related to four main PTSD symptom categories: reexperiencing, avoidance and numbing, cognition and/or mood alterations, and hyperarousal. They found that the outdoor environment caused many of the veterans to reexperience some trauma; however, most acclimated and were able to relax. They also found that participants tended to be engaged rather than numb during the trip. Finally, they noted that hyperarousal seemed to be reduced (Dustin et al., 2011). As with the article by Mowatt and Bennett (2011), this article is unique for its narrative approach, yet it has the same weakness in terms of causal statements and transferability to other veterans.

Anecdotal Reports

Innovative programs to address the treatment needs of veterans experiencing PTSD continue to exist. A recent article in the *Wall Street Journal* discussed some of those programs, including hiking, yoga, horseback riding, and scuba diving as adjunctive therapies. The authors noted the rapid increase in the development of these types of programs, but point to the lack of research data supporting their effectiveness (Phillips & Wang, 2014).

The Warrior Hike organization has recently partnered with researchers from the Georgia Southern University to look at the impact of through-hiking on PTSD. In 1948, Earl Shaffer wanted to "walk off the war" after World War II. He became the first person to walk the Appalachian Trail from Georgia to Maine. Much later, in 2012, Sean Gobin walked the entire trail after returning from three deployments. Following this experience, he founded Walk Off the War. Data are being collected to examine the long-term impact of this program ("Georgia Southern University researchers," 2014).

The Wounded Warrior Project is also offering outdoor experience programs as treatment for veterans with PTSD. Project Odyssey involves a five-day outdoor experience (Wounded Warrior Project, n.d.-b). Project Cohort, which has emerged from the Project Rebirth program, includes education and team building through a six-day outdoor experience. Twelve months of follow-up services are provided through the VA, including wilderness trips. There is also a maintenance program that includes monthly group meetings (Project Rebirth, n.d.).

There are at least two dimensions of the Wounded Warrior approach that make it different from purely recreational programs. First are the elements of adventure and perceived risk. Multiday trips with activities take participants away from community supports and increase the sense of perceived risk, even if the actual risk is

low. The second dimension is emotional, through its two combat stress recovery programs that are presented as mental health services, Project Odyssey and Restored Warriors. The former consists of challenging outdoor experiences with other veterans (Wounded Warrior Project, n.d.-b). The latter is an online site that offers an assessment of symptoms of depression and PTSD, as well as advice on stress, relationships, loss, and other issues (Wounded Warrior Project, n.d.-a). Regardless of whether it is formal therapy, the Wounded Warrior Project is intended to help alleviate the effects of war. Therefore, it is deserving of the same level of scrutiny as more traditional programs.

Hope for the Warriors is another program that provides outdoor sporting activities for veterans such as hunting, fishing, sailing, and skiing in conjunction with other outdoor recreation groups. As a component of its services, this program provides counseling services by licensed professionals (http://www.hopeforthewarriors.org/story/18727106/outdoor-adventures). Although Hope for the Warriors refers to itself as a mental health charity, there are no indications of any empirical evidence of its effectiveness as a treatment modality.

An interesting element of most programs is the focus on the group and relationships with peers as an impetus for change. In reviewing the literature on the use of peer support in outdoor programs for the treatment of PTSD, Bird (2014) concluded that there is empirical support for the use of peer support in treatment programs, but there is much less support for the use of peer support in the outdoor environment. Without a well-designed study, it is difficult to account for the effects of the small group experience itself when evaluating the impact of group-oriented outdoor programs. Bird (2014) highlighted some promising programs that lack published data, but concluded that support for outdoor programs with peer support for PTSD is limited.

Best Practice for Veterans with PTSD

Some studies have suggested that wilderness programs in general and specific programs such as Outward Bound may be beneficial for veterans by helping to promote self-esteem, conflict resolution, and physical and social quality of life (e.g. Ewert, 2014; Ewert et al., 2010). These programs may also promote a sense of belonging and offer an opportunity for fun. These conclusions, however, relate to programs that are not specifically geared toward treating PTSD in veterans. Little is known about the long-term effects of these interventions; it is likely that any significant results at posttest diminish at follow-up.

As the review of the literature in this article has shown, little evidence exists to support the efficacy of outdoor and/or wilderness programs for the treatment of PTSD in veterans. Studies have been plagued with design limitations such as problematic sampling procedures including small sample sizes and attrition. Non-standardized measures are often utilized and are not well validated. Rigorous research designs such as randomized comparison group designs are not generally used, which makes generalizability impossible. Thus, claims that outdoor programs are

an effective treatment approach for veterans with PTSD should be interpreted with caution.

In order to continue to build a database on the effectiveness of outdoor and wilderness programs as treatment for PTSD in veterans, the following suggestions can be made:

1. Long-term regional studies are needed to amass a critical number of participants.
2. Rigorous randomized comparison group methods should be used. These comparison groups could serve as wait list comparisons so that all have access to treatment.
3. Standardization of wilderness experiences or explicit description of the methodologies and procedures used for treatment represents a critical aspect of study replication necessary to determine what aspects of the wilderness programs, if any, are effective.
4. Given the severity of PTSD and the potential consequences of inadequate or unavailable treatment, wilderness programs should employ licensed mental health professionals who are trained in treating PTSD.
5. Until the data demonstrate that wilderness programs represent a safe and effective treatment for veterans with PTSD, they should not be offered as treatment. Rather, these programs could and should be seen as enjoyable and growth-enhancing adjunctive therapy rather than as first- or even second-line treatment.

Final considerations for the use of outdoor programs as treatment for veterans include the coordination of care and accessibility of these programs for marginalized populations. If these outdoor adventure programs are demonstrated to be effective treatments for PTSD, there are still issues of referral and accessibility to the programs. Ideally, the VA and other providers for veterans should have a role in the diagnosis and referral of veterans to outdoor programs; however, environmental factors like poverty and housing instability pose barriers to access. Given the high risk of suicide, depression, and substance abuse (Institute of Medicine, 2010), there needs to be a source of additional support and care for participants before, during, and after these programs. If these programs are shown to be effective, local continuum of care groups could incorporate outdoor programs into their existing wraparound services model (U.S. Department of Veterans Affairs, n.d.).

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