



Safety and psychological impact of sailing adventure therapy among Veterans with substance use disorders



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ABSTRACT

Objectives: Many Veterans suffer from substance use disorders (SUDs). Treatment challenges include poor treatment engagement and high relapse rates. Complementary interventions have the potential to enhance both. This study was a preliminary evaluation of sailing adventure therapy (SAT) for this population.

Design: Retrospective chart review. Participants in the intervention were 22 Veterans (20 male, 2 female) aged 22–65 who entered a Veterans Administration residential SUD treatment program. All subjects had two or more SUDs, and many had psychiatric (95%) and/or medical (77%) comorbidities. The age, gender and diagnosis-matched control group (n = 22) received residential SUD treatment as usual (TAU) in the same program but without SAT.

Setting: Residential SUD treatment program at a Veterans Administration Medical Center.

Intervention: Sailing adventure therapy.

Main Outcome Measures: Positive and Negative Affect Schedule (PANAS), State Trait Anxiety Inventory six-item short form (STAI: Y-6 item), Acceptance and Action Questionnaire II (AAQ II), Five Facet Mindfulness Questionnaire (FFMQ) and a locally developed patient survey. Outcome comparison among SAT plus TAU group versus TAU – only group included measures of successful completion of residential SUD treatment program as well as psychiatric hospitalizations and/or residential SUD treatment program readmissions within 12 months.

Results: Neither physical injuries nor increases in anxiety or negative affect occurred, as measured by the PANAS (positive change, $p = 0.351$; negative change, $p = 0.605$) and the STAI: Y-6 item ($p = 0.144$) respectively. There was no significant change in FFMQ ($p = 0.580$) but a significant increase occurred in AAQ II scores ($p = 0.036$) indicating an increase in psychological flexibility. Survey responses indicated the participants perceived the experience to be both pleasurable and calming. The preliminary outcome evaluation revealed a significant between-group difference ($X^2 = 5.34$, $DF = 1$, $p = 0.02$, $r = 0.35$) indicating participating in SAT was associated with a greater likelihood of successfully completing residential SUD treatment. However, there were no significant between-group differences in number of psychiatric hospitalizations ($X^2 = 1.09$, $DF = 1$, $p = 0.29$, $r = 0.16$) or residential substance abuse treatment program readmissions ($X^2 = 0.23$, $DF = 1$, $p = 0.64$, $r = 0.07$) in the 12 months after discharge from the program.

Conclusions: Preliminary evidence suggests that SAT is physically safe and not associated with increased anxiety or negative affect. Participant's perceptions of the experience were positive. Preliminary outcome measures suggest associations between participation in SAT and increased psychological flexibility as well as successful completion of a residential SUD treatment program. Further research is indicated to determine whether SAT may be developed as an effective complementary intervention for Veterans with SUDs.

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1. Introduction

Studies^{1–5} indicate high rates of substance use disorders (SUDs) among active duty military and Veterans. Given a prevalence of approximately 11%, the treatment of SUDs is an important mission of the Veterans Administration Healthcare System. Barriers include failures to enter and/or engage in treatment in both general^{6–8} and Veteran populations.^{9,10} Further, current treatments are often only partially effective¹¹ and relapse rates are high.¹² Thus, there is a need to develop novel adjunctive complementary interventions for SUDs aimed at enhancing treatment engagement and/or response. The aim of this study was to conduct a proof of concept evaluation of sailing adventure therapy (SAT) as a potential adjunctive intervention for Veterans with SUDs and to conduct a preliminary outcomes assessment.

Adventure Therapies (ATs) in general, according to Gass et al.¹³ are “...the prescriptive use of adventure experiences provided by mental health professionals, often conducted in natural settings that kinesthetically engage clients on cognitive, affective, and behavioral levels.” Bowen and Neill¹⁴ state that, “...adventure therapy is closely related to, or synonymous, with a variety of other terms, including wilderness therapy, wilderness adventure therapy, wilderness experience programs, bush adventure therapy, adventure-based counselling, outdoor adventure intervention, therapeutic camping, and outdoor behavioral healthcare.”

There is evidence of positive outcomes from ATs in the general population. For example, a meta-analysis of 197 studies¹⁴ reported that the short-term effect size for adventure therapy was moderate ($g = 0.47$) but larger than for no treatment (0.08). The authors concluded that adventure therapy programs are moderately effective in facilitating positive short-term change in psychological, behavioral, emotional, and interpersonal domains and that these changes appear to be maintained in the longer-term. Regarding ATs used specifically for SUDs, the authors are aware of only one study of non-Veterans.¹⁵ This investigation reported on a mixed-gender cohort of 13 individuals in SUD treatment who participated in a 3-day residential program experience based on AT, therapeutic camping, and relapse prevention. The control group consisted of 18 individuals who received relapse prevention treatment as usual. The authors reported significant improvements in autonomic arousal, frequency of negative thoughts, and alcohol craving among the treatment group.

There has been increasing interest in the use of complementary interventions,¹⁶ including recreation therapy^{17,18} and adventure therapy^{19–21} for Veterans in recent years. However, despite evidence indicating benefits from ATs in the general population, there are few studies of ATs for Veterans. Qualitative reports of horseback riding,²² river running,¹⁹ fly-fishing²⁰ and an adaptive sports program²¹ have been published. The first²² is an editorial discussing an exploratory study of 13 combat veterans participating in horsemanship activities. The participants in this study endorsed improved quality of life and decreased depressive symptoms. The second study¹⁹ reported a four-day river trip for 13 veterans with PTSD. The fly-fishing paper²⁰ reported a narratological study of experiences of 67 Veterans who engaged in fly-fishing for two days with a professional guide. The final study²¹ used a qualitative design consisting of in-depth interviews of 10 injured service members who had participated in recreation, sport and physical activity. Though all of these reports provide qualitative suggestion of benefit, none provided rigorous outcome or safety data.

One small study²³ that did provide quantitative outcome data utilized a pretest-posttest investigation of an intervention using surfing in a five session, experiential, skills-based program to support veterans with symptoms of posttraumatic stress disorder (PTSD). Fourteen veterans were enrolled and 11 completed the study. Clinically meaningful improvement in PTSD symptom severity (PTSD Checklist-Military Version, Wilcoxon signed rank $Z = 2.5$, $p = 0.01$) and in depressive symptoms (Major Depression Inventory, Wilcoxon signed rank $Z = 2.05$, $p = 0.04$) was reported.

One particular type of AT is sailing adventure therapy. There are few reports in the scientific literature regarding sailing in general or what might be considered SAT. According to Carta et al.,²⁴ sailing has been used by some Public Mental Health Centers in Italy for individuals with psychiatric illness but no studies have been published. Of the limited scientific literature that addresses sailing in at all, one²⁵ discusses the adaptation of a sailing schooner so that youth with physical disabilities can participate in sailing excursions. Another,²⁶ describes a German social and educational intervention provided while sailing for 114 adolescents aged fourteen to eighteen with behavioral disorders. The authors report that more than half of the subjects showed an improvement in at least one of four domains; learning, social adaptation, decreased delinquency or decreased psychiatric care. Finally, a study²⁷ reported a 12-wk pilot therapeutic sailing program using a sailing simulation system to help disabled individuals learn to sail. The authors report that after completion of the training, all subjects sailing skills increased.

The most relevant literature consists of two reports by Carta and co-workers.^{24, 28} These describe different aspects of one study conducted by the same investigators with the same subjects. The first paper²⁴ described the study and outcomes. The investigation was a randomized, controlled, crossover trial with each subject being randomized to a sequence of treatments which included either adjunctive therapy plus rehabilitation with sailing or adjunctive therapy with a traditional rehabilitation program. The sample consisted of 40 individuals with psychiatric illness as follows: 57.5% had a schizophrenia spectrum disorder; 27.5% had an affective psychosis, 15% had a personality disorder. There were 38 males and 2 females, mean age = 38. The clinical status of the patients was measured at monthly intervals with the Health of the Nation Outcome Scale (HoNOS) and the Brief Psychiatric Rating Scale (BPRS). Results indicated that those who received rehabilitation with sailing as an adjunctive treatment showed a statistically significant improvement on both the BPRS and the HoNOS. Functional status as measured by the Global Assessment of Functioning (GAF) also improved significantly. The second paper,^{24,28} reports quality of life assessments conducted during the same study with the same participants using the World Health Organization BREF quality of life assessment (WHOQOL-BREF). The authors found a statistically significant effect of time by group (treated cases versus controls) on the physical health, psychological health and environment subscales. None of the improvements were maintained after 12 months post-intervention.^{24,28} To our knowledge, there have been no studies of SAT interventions specifically for Veterans in general nor for Veterans or non-Veterans with SUDs.

The theoretical underpinnings of ATs are that these interventions may lead to symptom reduction and/or positive behavior change mediated by psychological mechanisms including: 1) learning through experience; 2) presence of, and interaction with nature; 3) use of perceived risk to heighten arousal and to create a positive response to stress; 4) solution-based focus on positive change and 5) psychosocial and group processes.¹⁴ In addition to the above, ATs in general and SAT specifically might be beneficial for Veterans with SUDs for several reasons. First, it has been suggested that in order to improve treatment engagement, SUD treatments should go beyond a focus on eliminating substance and expand to include experiences that will be enjoyable to clients.²⁹ Also, there is evidence that stronger therapeutic relationships between counselor and patient contribute to better outcomes³⁰ and the authors hypothesized that having therapists and Veteran patients sail together might result in enhanced relationships. It has been reported that many Veterans who are transitioning from the military to civilian life experience a sense of disconnection from their community and Veterans frequently express a desire for connection with other Veterans.³¹ SAT might provide a mechanism to enhance connectivity with both other Veterans and the community. Veterans working together in close proximity on a small boat might rapidly develop bonds of friendship. Also, Veterans who choose to continue to sail might develop

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