



OUTWARD BOUND

VETERANS

The Therapeutic Impact of Outward Bound for Veterans

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INTRODUCTION

Mental health issues and suicide completions among U.S. military Veterans and soldiers are rising, yet the rate of those seeking help remains low. Not including those that go unreported, it is estimated that 51 percent of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) Veterans have received mental health diagnoses. From 2002-2008, post-traumatic stress disorder (PTSD) diagnoses have increased from 2 percent to 22 percent. Seventy percent of those cases are comorbid diagnoses of depression and post-traumatic stress disorder, which puts a Veteran at even greater risk. Of note, young Veterans (≤ 25 years of age), compared to older counterparts (≥ 40 years of age), were found to have 2 to 5 times higher rates of PTSD, alcohol, and drug use disorder diagnoses (Seal, 2011).

Despite these high rates of mental health issues, it is estimated that only one third of Veterans diagnosed with mental health problems seek help (Hoge, Auchterlonie, & Milliken, 2006). Of those Veterans diagnosed with post-traumatic stress disorder, it is estimated that less than 10 percent attended the minimum number of mental health sessions required for adequate treatment of PTSD (Seal et al., 2010). Age (under 25) and gender (being male) appear to further decrease Veterans likelihood of seeking out mental health services (Seal, 2011). Within the military culture, a stigma associated with utilizing mental health services appears to be a primary contributor to Veterans' resistance to seeking help; i.e., fear that getting help is a sign of weakness or will negatively impact one's professional or social life (Burnam, Meredith, Tanielian, & Jaycox, 2009; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009; Seal et al., 2008).

The prevalence of mental health disorders combined with a lack of help-seeking among Veterans, often leads to a stressful reintegration process. The Department of Veterans Affairs (2010) attributes a staggering suicide rate, roughly 6,000 Veterans a year (20 percent of U.S. suicides), primarily to reduced help-seeking, unaddressed mental health issues, and the often confusing and overwhelming transition from military to civilian life.

Moreover, The Department of Defense recently released a report providing the shocking statistic that the Nation has lost more soldiers to suicide than to soldier casualties since 2002 (DoD Suicide Events Report, 2013).

Considering the above-mentioned rates of diagnosable mental health issues and suicides, many argue the nation is currently facing a public health crisis that needs to be addressed immediately. In an effort to provide services that transcend the stigma-related barriers to care, it is critical to explore alternative avenues for Veterans to receive mental health assistance. To this end, the Department of Defense and The Department of Veterans Affairs (VA) are calling for innovative methods to provide outreach and mental health support to returning soldiers and Veterans (Tanielian & Jaycox, 2008).

A complementary and alternative approach that shows much potential, but has received limited scholarly attention is the Outward Bound Veterans Program. This national program (<http://www.outwardbound.org/veteran-adventures/outward-bound-for-veterans/>) provides fully funded therapeutic initiatives that combine outdoor group adventure activities (e.g., hiking, canoeing, etc.) with facilitated therapeutic group process sessions that engage participants cognitively, affectively, and behaviorally. The primary goal of the Outward Bound Veterans is to provide an experience where Veterans build camaraderie, outdoors skills, and personal growth in a team-based, therapeutic adventure model.

Scheinfeld and Rochlen's (In Press), exploratory qualitative study found that an Outward Bound Veterans course provided the following psychosocial benefits for Veterans: increased closeness with others/intimacy, patience and less reactivity, ability to relate to and express emotions, self-confidence, confidence to cope, physical health, and decreased isolation. Other research shows that Outward Bound Veterans also helped Vietnam Veterans address post-traumatic stress disorder symptoms (Hyer, Boyd, Scurfield, Smith, & Burke, 1996; Rheault, 1980), and increased OEF/OIF Veterans' sense of coherence and resilience (Ewert, Van Puymbroeck, Frankel, & Overholt, 2011).

Scheinfeld and Rochlen (In Press) conducted a qualitative study examining the impact of an Outward Bound Veterans course as an adjunct to PTSD group therapy on Veterans' psychosocial function. They found that Veterans identified three underlying aspects of the Outward Bound experience that promoted cognitive, emotional, and behavioral development. First, Veterans reported the Outward Bound Veterans course provided them a strong sense of camaraderie and trust. The teamwork and physical reliance on one another fostered a rapid development of trust among one another. This led to greater comfort sharing more about themselves and their mental health issues. Second, Veterans commented on the length of the retreat combined with hearing other Veterans talk about shared experiences led to a greater comfort level to share and process issues related to their military experience. This phenomenon relates to the concept of Universality where people find comfort in sharing personal information when they hear others have similar issues or experiences. Finally, Veterans stated that the Outward Bound experience reminded them of their military experiences. For example, they experienced team-based physical tasks, campfire chats, and physical and emotional challenges similar to the military. Veterans reported that their recalling of these experiences intermixed with an emotionally-supportive group culture, helped them begin to address feelings and memories that had been repressed.

A review of the literature within military psychology suggests multiple reasons why Outward Bound Veterans may align well with Veterans' interests and needs. Outward Bound Veterans use of high adventure activities seems well suited to meet Veterans' need for adrenaline-inducing activities as a physical and psychological outlet (Hoge, 2010). Furthermore, Veterans' desire to stay physically fit and be physically challenged (Buis et al., 2011) is supported by Outward Bound Veterans. Finally, Veterans tend to enjoy engaging in shared goal-directed activities to accomplish tasks and develop a sense of camaraderie (Brooks 2005; Hoge, 2010), which is a central goal of the mission of the Veteran program.

In sum, Outward Bound Veterans is poised to provide a therapeutic adventure alternative to those Veterans that are in need of help, but may not seek out traditional mental health

support systems. Moreover, based on several findings, Veterans seek help less often, and are at higher risk of committing suicide or letting debilitating mental health diagnoses go untreated leading to increased severity of symptoms. With this in mind, it is critical to examine alternative and complementary therapeutic approaches, such as Outward Bound Veterans, that provide Veteran-centered, psychosocial support assistance to meet their unique needs.

ABSTRACT

This study investigates the psychosocial impact of Outward Bound Veterans. A quasi-experimental, longitudinal design was implemented on 199 Veterans who attended an Outward Bound course and 20 Veterans comprised the waitlist control group. The primary goal of the study was to determine whether change in psychosocial outcome variables for the treatment group significantly differed from the waitlist control group and whether that change was sustained up to one-month after the course end. Psychosocial outcome variables were split into three domains: 1) Mental Health Status, 2) Therapeutic Outcome Variables, and 3) Interpersonal Variables. Results showed that there was a significant effect of treatment across all of the domains, indicating that the Outward Bound Veterans model helps to improve Veterans' psychosocial outcomes. The significant effect of treatment was associated with improved overall mental health, interpersonal relations, resilience, sense of purpose, and greater interest in personal growth, relating to emotions, and seeking help. Findings showed these improvements occurred from Time 1 through Time 3 with evidence of a tapering effect from Time 2 to Time 3 for some variables.

METHODS

THERAPEUTIC OUTCOME VARIABLES

Three psychosocial domains, each including several psychosocial outcome variables are addressed in this study (see Table 1). Descriptions of the instruments used to measure these outcome variables can be found in Appendix A. All outcome variables are measured over time: pre-intervention (Time 1), post-intervention (Time 2), and one-month follow-up (Time 3).

Table 1

Psychosocial outcome variables delineated by domain, type of measure, and purpose

Mental Health Outcome Variables	Measure	Subscales	Purpose
Overall Mental Health Status	Outcomes Questionnaire-45 (OQ-45)	Symptom Distress, Interpersonal Relations, Social Relations, & Suicide	Measure change in subjective symptom distress, interpersonal relations, social role performance, and suicidal ideation.
Depression, Anxiety, & Stress	Depression, Anxiety, and Stress Scale (DASS)	Depression Scale, Anxiety Scale, and Stress Scale	Measure change in subjective level of depression, anxiety, and stress.
Interpersonal Outcome Variables	Measure	Subscales	Purpose
Sense of Social Connection	Social Connection Scale (SCS)	None	Measures one's perception of their social connection within their day-to-day life.
Loneliness	UCLA Loneliness Scale	None	Measures one's sense of how lonely they feel in their day-to-day life.
Sense of Thwarted Belongingness	Interpersonal Needs Questionnaire	None	Measures degree to which a person perceives a lack of sense of belonging in their day-to-day life.
Therapeutic Outcome Variables	Measure	Subscales	Purpose
Personal Growth Initiative	Personal Growth Initiative Scale-II (PGIS-II)	Readiness for change, Using resources for change, Planfulness for change, and Intentional behavior for change.	Measure change in one's initiative and readiness to plan for and use resources to promote personal growth (i.e. inclination to intentionally improve one's self).
Attitude Towards Seeking Psychological Help	Attitudes Towards Seeking Professional Psychological Help Scale (ATSPPHS)	None	Measure the change in openness to seek out and engage in psychological supportive services.
Psychological Mindedness	Balanced Index of Psychological Mindedness (BIPM)	Interest to gain insight, & Degree to which insight is gained.	Measure the change in interest and ability to relate to one's inner thoughts and feelings.
Emotional Suppression	Emotion Regulation Questionnaire-Suppression Subscale (ERQ)	None	Measures one's perceived level of emotional suppression.
Positive Psychological Attitude	Inventory of Positive Psychological Attitudes	Life Purpose and Satisfaction, & Self-Confidence During Stressful Situations	Measures perceived sense of purpose in one's life and confidence to work through stressful situations (resilience).
Subjective Wellbeing	Satisfaction with Life Scale (LSQ)	None	Measures subjective wellbeing.

RESEARCH QUESTIONS

Research Question 1 (RQ 1): Does the change in psychosocial outcome variables from Time 1 to Time 2 significantly differ in the treatment group compared to the waitlist control group?

Research Question 2 (RQ 2): Does the change in psychosocial outcome variables indicate improvement or worsening of psychosocial outcome variables from Time 1 to Time 2, Time 2 to Time 3, and Time 1 to Time 3?

PARTICIPANTS

This study sampled 219 U.S. military Veterans who enrolled in an Outward Bound Veterans course between spring 2012 and spring 2013. Treatment group participants (N = 199, see Appendix B) and waitlist-control participants (N = 20, see Appendix C) were primarily Caucasian and employed. Age of participants ranged from 22 to 66 with a mean age of 34 (SD = 9.70). The majority of the sample was deployed and experienced combat overseas (engaged with the enemy or received enemy fire). Just under half of the sample reported having a mental health diagnosis, with the majority of diagnoses being Post-Traumatic Stress Disorder and Depression. Group demographics were similar between the treatment and waitlist control groups. Further, this sample of Veterans represents a demographic cross-section similar to the national average of returning Veterans (see Seal, 2011). Veterans with severe mental illness (i.e. psychotic symptoms or actively suicidal) or health issues are referred to programs other than Outward Bound Veterans.

Overall, the sample size was sufficient for the proposed statistical analyses and participants were recruited from a range of geographic locations. A power analysis indicated that this sample size was sufficient to establish a medium effect size of .15, and a power level of .80 ($p > .05$) to employ multilevel and multiple regression analyses (Hox, 2002). Furthermore, participants were recruited from thirty-one different Outward Bound Veterans groups ranging in location throughout the U.S. and type of outdoor activity (see outwardboundforveterans.com). To reduce selection bias, participants were not recruited for the study if they had previously attended an Outward Bound course of any kind.

RESULTS

PRIMARY QUANTITATIVE DATA ANALYSIS

Analyses were conducted to ensure that all assumptions were met to conduct multiple regression and multilevel analyses. The independence of observations assumption was unable to be met due to the nesting effect. As shown below, specific analyses were employed to effectively manage this issue.

Furthermore, ANOVA analyses were used to determine which demographic variables should be included as covariates to control for their potential confounding influence on the dependent variables being examined. Demographic variables with significant mean differences ($p < .25$) were added into the multilevel and multiple regression analyses as subject-level covariates to control for their potential influence within the overall model (Hosmer, Lemeshow, and Sturdivant, 2013). Those demographic variables included: Marital Status (married or not married), Employment (full-time employed or not full-time employed), Psychological Symptoms (number of reported psychological symptoms), Psychological Diagnoses (number of reported diagnoses), Health Symptoms (number of reported health symptoms), Combat Experience (received or engaged with enemy fighting), and Tours Served (number of tours served). The following variables were included in all analyses: age, gender, and race (white or not white).

To address RQ 1, multiple regressions were employed. Change scores were used for RQ 1 to determine the degree of change. They were calculated by subtracting each dependent variable's Time 1 score from its Time 2 score. Regression analyses were then used to determine whether change scores differed significantly between treatment and control groups. This coefficient (noted as β) represents the effect of treatment (i.e. participation in Outward Bound Veterans vs. no participation in Outward Bound Veterans) on psychosocial outcome variables. Multilevel analyses were used for RQ 2 to determine change in psychosocial outcomes within the treatment group across all three time points.

During analysis it is important to address the nesting effect. The independence of observations assumption is not met, because members of the same group may influence one another's outcomes (e.g. group culture may impact how individuals' outcomes change). This is referred to as a nesting effect. Multiple regression analyses for RQ 1 address this through employing the "Cluster" function in the STATA program. Multilevel analyses were used to address the nesting effect for RQ 2.

DESCRIPTIVE STATISTICS

The following tables provide information about participants' demographic backgrounds (Tables 1, 2, & 3) and the change in mean values of each psychosocial domain over time: 1) Mental health outcome variables (Table 4), 2) Interpersonal outcome variables over time (Table 5), 3) Therapeutic factor outcome variables (Table 6).

Table 1

Participants from the treatment group have a mean age of 36, a median age of 34, and the age ranges from 22-66 years of age.

Demographic Variables as a Percentage for Treatment Group

Characteristic	Veteran Participants (n=199)
Gender	
Male	82
Female	18
Race	
White	82
Non-White	18
Marital	
Married	47
Not-Married	53
Employment/Student	
Full employment	56
No full employment	21
Student	23

Table 2

Military History as a Percentage for Treatment Group

Characteristic	Veteran Participants (n=199)
Combat	
Experienced Combat	69
No Combat	31
Tours	
Not deployed	9
One tour	33
Two tours	32
Three or more tours	26
Military Rank	
E-3 through E-9	79
O-1 through O-6	21
Military branch	
Army	42
Marine Corps	18
Navy	15
Air Force	8
U.S. Coast Guard	1
National Guard	16
Military Status	
Active Duty	25
Veteran	75
Active duty post 9/11/01	
Active duty since 9/11/01	92
Left military before 9/11/01	8

Table 3

Psychological and Health History as a Percentage for Treatment Group

Characteristic	Veteran Participants (n=199)
Number of health symptoms from TBI, combat Stress, deployment injury	
No health symptoms	57
One health symptom	29
Two health symptoms	9
Three or more health symptoms	5
Health symptom from TBI	
Reported symptom	11
No symptom	89

Health symptom from combat stress	
Reported symptom	20
No symptom	80
Health symptom from combat or deployment injury	
Reported symptom	33
No symptom	67
Number of psychological symptoms	
No psychological symptoms	57
One symptom	24
Two symptoms	12
Three or more symptoms	7
Psychological symptom from TBI	
Reported symptom	14
No symptom	86
Psychological symptom from combat stress	
Reported symptom	35
No symptom	65
Psychological symptom from physical issue	
Reported symptom	14
No symptom	86
Psychological symptoms from family/reintegration stress	
Reported symptom	3
No symptom	97
Psychological symptoms from emotional grief	
Reported symptom	3
No symptom	97
Total psychological diagnoses	
No diagnoses	53
One diagnosis	27
Two diagnoses	7
Three or more diagnoses	13
PTSD diagnosis	
Reported diagnosis	35
No diagnosis	65
Depression diagnosis	

Reported diagnosis	30
No diagnosis	70
Substance abuse disorder	
Reported diagnosis	11
No diagnosis	89
Narcotic abuse disorder	
Reported diagnosis	6
No diagnosis	94
Generalized anxiety	
Reported diagnosis	25
No diagnosis	75
Adjustment disorder	
Reported diagnosis	2
No diagnosis	98
Visits to counselors	
Reported visiting counselor	40
No visit to counselor	60

Table 4

Change in mental health outcome variables over time presented as mean values and possible score range.

Variable	Time 1 Mean Value (n = 199)	Time 2 Mean Value (n = 199)	Time 3 Mean Value (n = 199)	Possible Score Range
OQ_45_Total	60	47.55	42.50	0 - 180
OQ-45-Symptom Distress	32.80	25.35	22.75	0 - 100
OQ-45-Interpersonal Relations	14.87	12.04	10.77	0 - 44
OQ-45-Social Relations	12	10.16	9.00	0 - 36
OQ-45-Suicide	.76	.25	.19	0 - 4
DASS-Anxiety	8.31	3.8	3.28	0 - 42
DASS-Depression	10.40	4.71	4.52	0 - 42
DASS-Stress	12.26	6.25	7.83	0 - 42

Table 5

Change in interpersonal outcome variables over time presented as mean values

Variable	Time 1 Mean Value (n = 199)	Time 2 Mean Value (n = 199)	Time 3 Mean Value (n = 199)	Possible Score Range
SCS	75.10	84.08	87.42	20 - 120
UCLA Loneliness	48.47	41.16	41.46	20 - 80
Thwarted Belongingness	3.42	2.5	2.60	1 - 7

Table 6

Change in therapeutic factor outcome variables over time presented as mean values

Variable	Time 1 Mean Value (n = 199)	Time 2 Mean Value (n = 199)	Time 3 Mean Value (n = 199)	Possible Score Range
PGIS_Total	3.47	3.81	3.88	0 - 5
PGIS-Readiness for Change	3.52	3.85	3.92	0 - 5
PGIS-Planfulness	3.57	3.83	3.95	0 - 5
PGIS-Using Resources	2.91	3.5	3.48	0 - 5
PGIS-Intentional behavior	3.87	4.08	4.17	0 - 5
ATSPPHS	1.65	1.84	1.96	0 - 3
BIPM_Total	33.53	37.5	38.70	0 - 56
BIPM-Interest	13.73	16.28	17.07	0 - 28
BIPM-Insight	19.79	21.22	21.62	0 - 28
ERQ	17.61	15.43	14	4 - 28
LSQ	23.43	25.58	26	5 - 35
IPPA_Total	4.5	5.22	5.15	1 - 7
IPPA-Confidence During Stressful Situations	4.5	5.17	5.12	1 - 7
IPPA-Life Purpose	4.5	5.26	5.17	1 - 7

RQ 1 RESULTS

Research Question 1 (RQ 1): Does the change in psychosocial outcome variables from Time 1 to Time 2 significantly differ in the treatment group compared to the waitlist control group?

Overview of Results, RQ 1. Results from multiple regression analyses indicated that the majority of the treatment group change scores (Time 1 to Time 2) within the three psychosocial domains significantly differed from the waitlist control group. See the following table of results for each domain area: 1) Mental health outcome variables (Table 7), 2) Interpersonal outcome variables (Table 8), & 3) Therapeutic factor outcome variables (Table 9). This indicates that the significant effect of treatment was associated with improved psychosocial outcomes across all three domains. The following outcome variables did not significantly differ from the waitlist control group: PGIS_Planfulness ($p < .26$), PGIS_Intentional_Behavior, ($p < .24$), and BIPM_Insight ($p < .35$).

RQ 1 Results, Mental Health Outcome Variables (Table 7). While controlling for demographics, all models examining whether the below mental health outcome variable change scores differed from one another for the treatment group compared to the waitlist control group were significant.

- **Overall Mental Health (OQ-45_Total):** On average, the treatment group's OQ-45_Total score dropped (improved) by 9.42 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- **Symptom Distress (OQ-45_Subscale):** On average, the treatment group's OQ-45_Symptom_Distress score dropped (improved) by 6.37 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- **Interpersonal Relations (OQ-45_Subscale):** On average, the treatment group's OQ-45_Interpersonal_Relations score dropped (improved) by 6.02 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- **Social Relations (OQ-45_Subscale):** On average, the treatment group's OQ-45_Social_Relations score dropped (improved) by 1.08 points from Time 1 to Time 2 ($p < .05$) as compared to the waitlist control group.

- **Suicidal Ideation (OQ-45_One_Question):** On average, the treatment group’s OQ-45_Suicidal_Ideation score dropped (improved) by .15 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- **Anxiety (DASS_Subscale):** On average, the treatment group’s DASS_Anxiety score dropped (improved) by 2.94 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- **Depression (DASS_Subscale):** On average, the treatment group’s DASS_Depression score dropped (improved) by 2.93 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- **Stress (DASS_Subscale):** On average, the treatment group’s DASS_Stress score dropped (improved) by 3.93 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

Table 7

Change scores of treatment vs. control groups for mental health variables from pre- to post-Outward Bound Veterans Course

Mental Health Variables	n	β	Mean	SD	Range
Overall Mental Health (OQ-45_Total)	n(T): 188, n(WC): 20	-9.42***	-9.54	10.71	-43 - 14
Symptom Distress (OQ-45_Subscale)	n(T): 190, n(WC): 20	-6.03***	-6.37	7.64	-27 - 7
Interpersonal Relations (OQ-45_Subscale)	n(T): 188, n(WC): 20	-6.02**	-2.370	3.32	-13 - 7
Social Relations (OQ-45_Subscale)	n(T): 189, n(WC): 20	-1.08*	-1.40	3.10	-11 - 6
Suicide (OQ-45_Suicide Question)	n(T): 183, n(WC): 20	-.15*	-.12	.41	-1 - 1
Anxiety (DASS_Subscale)	n(T): 188, n(WC): 20	-2.94***	-3.64	4.21	-18 - 2
Depression (DASS_Subscale)	n(T): 184, n(WC): 20	-2.93***	-4.20	4.92	-18 - 6
Stress (DASS_Subscale)	n(T): 191, n(WC): 20	-3.93***	-5.00	5.80	-22 - 8

Note: Please see total possible range of scores for each mental health outcome variable in Table 4.

n (T) = Sample size of treatment group; n(WC) = Sample Size of waitlist control group; sample sizes differ because outliers were removed for each analysis.

β = The interaction variable indicates difference in change score (pre- to post- Outward Bound Veterans course) of waitlist control versus treatment group; for example if $\beta = .91^*$ significant difference ($p < .01$) exists between treatment and control, such that treatment group on average shows a higher change score of .91 compared to the waitlist control group.

Mean = Average of change scores.

SD = Standard deviation.

Range = Range of change scores.

Significance level = *** $p < .00$. ** $p < .01$. $p < .05^*$

RQ 1 Results, Interpersonal Outcome Variables (Table 8). While controlling for demographics, all models examining whether the below interpersonal outcome variable change scores differed from one another for the treatment group compared to the waitlist control group were significant.

- Sense of Social Connection (SCS)**
 On average, the treatment group’s SCS score increased (improved) by 6.53 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- Loneliness (UCLA_Loneliness_Scale)**
 On average, the treatment group’s UCLA_Loneliness_Scale score decreased (improved) by 6.68 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- Thwarted Belongingness (INQ)**
 On average, the treatment group’s INQ score decreased (improved) by .58 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

Table 8

Change scores of treatment vs. control groups for interpersonal variables from pre- to post-Outward Bound Veterans Course

Interpersonal Variables	n	β	Mean	SD	Range
Sense of Social Connection (SCS)	n(T): 190, n(WC): 20	6.53***	7.25	7.11	-3 - 29
Loneliness (UCLA_Loneliness_Scale)	n(T): 191, n(WC): 20	-6.68***	-6.11	6.16	-23 - 7
Thwarted Belongingness (INQ)	n(T): 191, n(WC): 20	-.58***	-.78	.74	-3.33 - .45

Note: Please see total possible range of scores for each interpersonal outcome variable in Table 5.

n (T) = Sample size of treatment group; n(WC) = Sample Size of waitlist control group; sample sizes differ because outliers were removed for each analysis.

β = The interaction variable indicates difference in change score (pre- to post- Outward Bound Veterans course) of waitlist control versus treatment group; for example if $\beta = .91^*$ significant difference ($p < .01$) exists between treatment and control, such that treatment group on average shows a higher change score of .91 compared to the waitlist control group.

Mean = Average of change scores.

SD = Standard deviation.

Range = Range of change scores.

Significance level = *** $p < .00$. ** $p < .01$. $p < .05$

RQ 1 Results, Therapeutic Factor Outcome Variables (Table 9). While controlling for demographics, all models examining whether the below therapeutic factor outcome variables change scores differed from one another for the treatment group compared to the waitlist control group were significant.

- **Life Satisfaction (LSQ)**

On average, the treatment group's LSQ score increased (improved) by .91 points from Time 1 to Time 2 ($p < .05$) as compared to the waitlist control group.

- **Personal Growth Initiative (PGIS_Total)**

On average, the treatment group's PGIS_Total score increased (improved) by .24 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

- **Readiness for Change (PGIS-Subscale)**

On average, the treatment group's PGIS_Readiness_For_Change Subscale score increased (improved) by .21 points from Time 1 to Time 2 ($p < .05$) as compared to the waitlist control group.

- **Using Resources (PGIS-Subscale)**

On average, the treatment group's PGIS_Using_Resources Subscale score increased (improved) by .64 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

- **Emotional Restriction (ERQ)**

On average, the treatment group's ERQ Subscale score decreased (improved) by 1.63 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

- **Psychological Mindedness (BIPM_Total)**

On average, the treatment group's BIPM_Total score increased (improved) by 4.05 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

- **Interest in Insight (BIPM-Subscale)**

On average, the treatment group's BIPM_Interest_Insight Subscale score increased (improved) by 4.72 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

- **Attitudes Towards Seeking Professional Psychological Help (ATSPPHS)**

On average, the treatment group's ATSPPH_Total score increased (improved) by .17 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

- Positive Psychological Attitude (IPPA_Total)**
 On average, the treatment group's IPPA_Total score increased (improved) by .58 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- Self-Confidence During Stressful Situations (IPPA_Subscale)**
 On average, the treatment group's IPPA_Self-Confidence_During_Stress Subscale score increased (improved) by .55 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.
- Sense of Life Purpose (IPPA_Subscale)**
 On average, the treatment group's IPPA_Sense_of_Life Purpose Subscale score increased (improved) by .58 points from Time 1 to Time 2 ($p < .00$) as compared to the waitlist control group.

Table 9

Change scores of treatment vs. control groups for therapeutic factor variables from pre- to post-Outward Bound Veterans Course

Therapeutic Factor Variables	n	β	Mean	SD	Range
Life Satisfaction (LSQ)	n(T): 187, n(WC): 20	.91*	1.62	2.51	-4 - 10
Personal Growth Initiative (PGIS_Total)	n(T): 187, n(WC): 20	.24***	.30	.34	-.78 - 1.21
Readiness for Change (PGIS-Subscale)	n(T): 188, n(WC): 20	.21*	.30	.48	-.75 - 1.75
Using Resources (PGIS-Subscale)	n(T): 190, n(WC): 20	.64***	.47	.71	-1 - 2.34
Emotional Restriction (ERQ)	n(T): 191, n(WC): 20	-1.63**	1.76	2.50	-11 - 3
Psychological Mindedness (BIPM_Total)	n(T): 191, n(WC): 20	4.05***	3.10	3.97	-5 - 15
Interest in Insight (BIPM-Subscale)	n(T): 189, n(WC): 20	4.72***	1.92	3.47	-6 - 10
Attitudes Towards Seeking Professional Psychological Help (ATSPPHS)	n(T): 189, n(WC): 20	.17***	.15	.24	-.6 - .8
Positive Psychological Attitude (IPPA_Total)	n(T): 190, n(WC): 20	.58***	.60	.48	-.25 - 2.16
Self-Confidence During Stressful Situations (IPPA_Sunscale)	n(T): 190, n(WC): 20	.55***	.55	.51	-1.07 - 2.2
Sense of Life Purpose (IPPA_Subscale)	n(T): 191, n(WC): 20	.58***	.64	.60	-.47 - 2.7

Note: Please see total possible range of scores for each therapeutic factor outcome variable in Table 6.
n (T) = Sample size of treatment group; n(WC) = Sample Size of waitlist control group; sample sizes differ because outliers were removed for each analysis.
 β = The interaction variable indicates difference in change score (pre- to post- Outward Bound Veterans course) of waitlist control versus treatment group; for example if $\beta = .91^*$ significant difference ($p < .01$) exists between treatment and control, such that treatment group on average shows a higher change score of .91 compared to the waitlist control group.
Mean = Average of change scores.
SD = Standard deviation.
Range = Range of change scores.
Significance level = *** $p < .00$. ** $p < .01$. $p < .05^*$

RQ 2 RESULTS

Research Question 2 (RQ 2): Does the change in psychosocial outcome variables indicate improvement or worsening of psychosocial outcome variables from Time 1 to Time 2, Time 2 to Time 3, and Time 1 to Time 3?

Overview of Results, RQ 2. Multilevel analyses indicated that time significantly predicted change (Time 1 – Time 2, Time 2 – Time 3, & Time 1 – Time 3) in the majority of the average of the outcome variables within the three psychosocial domains. See the following table of results for each domain area: 1) Mental health outcome variables (Table 10), 2) Interpersonal outcome variables (Table 11), & 3) Therapeutic factor outcome variables (Table 12). This indicates that time significantly predicted improvement in the average score of psychosocial outcomes across all three domains.

RQ 2 Results, Mental Health Outcome Variables (Table 10). While controlling for demographics, all models examining the change across time in the averages of the below mental health outcome variables were significant.

- **Overall Mental Health (OQ-45_Total):**
Time significantly predicted an average decrease (improvement) of 9.42 ($p < .00$) points in OQ-45_Total scores from Time 1 to Time 2, an average decrease (improvement) of 5.05 ($p < .00$) points in OQ-45_Total scores from Time 2 to Time 3, and an average decrease (improvement) of 14.47 ($p < .00$) points in OQ-45_Total scores from Time 1 to Time 3. The possible range of OQ-45_Total scores is 0 -180.
- **Symptom Distress (OQ-45_Subscale):**

Time significantly predicted an average decrease (improvement) of 6.03 ($p < .00$) points in OQ-45_Symptom_Distress Subscale scores from Time 1 to Time 2, an average decrease (improvement) of 2.60 ($p < .00$) points in OQ-45_Symptom_Distress Subscale scores from Time 2 to Time 3, and an average decrease (improvement) of 8.63 ($p < .00$) points in OQ-45_Symptom_Distress Subscale scores from Time 1 to Time 3. The possible range of OQ-45_Symptom_Distress Subscale scores is 0 - 100.

- **Interpersonal Relations (OQ-45_Subscale):**

Time significantly predicted an average decrease (improvement) of 6.02 ($p < .00$) points in OQ-45_Interpersonal_Relations Subscale scores from Time 1 to Time 2, an average decrease (improvement) of 1.27 ($p < .00$) points in OQ-45_Interpersonal_Relations Subscale scores from Time 2 to Time 3, and an average decrease (improvement) of 7.29 ($p < .00$) points in OQ-45_Interpersonal_Relations Subscale scores from Time 1 to Time 3. The possible range of OQ-45_Interpersonal_Relations Subscale scores is 0 - 44.

- **Social Relations (OQ-45_Subscale):**

Time significantly predicted an average decrease (improvement) of 1.08 ($p < .00$) points in OQ-45_Social_Relations Subscale scores from Time 1 to Time 2, an average decrease (improvement) of 1.19 ($p < .00$) points in OQ-45_Social_Relations Subscale scores from Time 2 to Time 3, and an average decrease (improvement) of 2.27 ($p < .00$) points in OQ-45_Social_Relations Subscale scores from Time 1 to Time 3. The possible range of OQ-45_Social_Relations Subscale scores is 0 -36.

- **Suicidal Ideation (OQ-45_Suicide_Question):**

Time significantly predicted an average decrease (improvement) of .15 ($p < .00$) points in OQ-45_Suicide Subscale scores from Time 1 to Time 2, an average decrease (improvement) of .21 ($p < .00$) points in OQ-45_Suicide Subscale scores from Time 1 to Time 3. Time did not significantly predict an average change in OQ-45_Suicide Subscale scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of OQ-45_Suicide Subscale scores is 0 -4.

- **Anxiety (DASS_Subscale):**

Time significantly predicted an average decrease (improvement) of 2.94 ($p < .00$) points in DASS_Anxiety Subscale scores from Time 1 to Time 2, an average decrease (improvement) of .51 ($p < .00$) points in DASS_Anxiety Subscale scores from Time 2 to Time 3, and an average decrease (improvement) of 3.45 ($p < .00$) points in DASS_Anxiety Subscale scores from Time 1 to Time 3. The possible range of DASS_Anxiety Subscale scores is 0 - 42.

- **Depression (DASS_Subscale):**

Time significantly predicted an average decrease (improvement) of 2.93 ($p < .00$) points in DASS_Depression Subscale scores from Time 1 to Time 2, an average decrease (improvement) of 3.13 ($p < .00$) points in DASS_Depression Subscale score from Time 1 to Time 3. Time did not significantly predict an average change in DASS_Depression Subscale scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of DASS_Depression Subscale scores is 0 - 42.

- **Stress (DASS_Subscale):**

Time significantly predicted an average decrease (improvement) of 3.93 ($p < .00$) points in DASS_Anxiety Subscale scores from Time 1 to Time 2, an average increase (worsening) of 1.58 ($p < .00$) points in DASS_Anxiety Subscale scores from Time 2 to Time 3, and an average decrease (improvement) of 2.35 ($p < .00$) points in DASS_Anxiety Subscale scores from Time 1 to Time 3. The possible range of DASS_Anxiety Subscale scores is 0 – 42.

Table 10

Time as a predictor of the average of mental health variables at Time 1, Time 2, and Time 3

Mental Health Variables	n	T1 – T2	T2 – T3	T1 – T3	Range
Overall Mental Health (OQ-45_Total)	n(T): 564	-9.42***	- 5.05***	- 14.47***	0 - 180
Symptom Distress (OQ-45_Subscale)	n(T): 570	-6.03***	- 2.60***	-8.63***	0 - 100
Interpersonal Relations (OQ-45_Subscale)	n(T): 564	-6.02***	- 1.27***	-7.29***	0 - 44
Social Relations (OQ-45_Subscale)	n(T): 567	-1.08***	- 1.19***	-2.27***	0 - 36
Suicide (OQ-45_Suicide Question)	n(T): 549	-0.15***	- .06	-0.21***	0 - 4
Anxiety (DASS_Subscale)	n(T): 564	-2.94***	- .51***	-3.45***	0 - 42
Depression (DASS_Subscale)	n(T): 552	-2.93***	- .20	-3.13***	0 - 42
Stress (DASS_Subscale)	n(T): 573	-3.93***	1.58***	-2.35***	0 - 42

Note: Please refer to Table 4 for mean values at each time point n (T) = Sample size of treatment group across Time 1, Time 2, and Time 3 (n = 199 at each time point) ; sample sizes differ because outliers were removed for each analysis. T1 – T2 = Fixed effect coefficient represents average change from Time 1 to Time 2. T1 – T2 = Fixed effect coefficient represents average change from Time 2 to Time 3. T1 – T2 = Fixed effect coefficient represents average change from Time 1 to Time 3. Range = Possible range of scores. Significance level = ***p < .00. **p < .01. p<.05*

RQ 2 Results, Interpersonal Outcome Variables (Table 11). While controlling for demographics, all models examining the change across time in the averages of the below interpersonal outcome variables were significant.

- **Sense of Social Connection (SCS)**

Time significantly predicted an average increase (improvement) of 6.53 (p<.00) points in SCS scores from Time 1 to Time 2, an average increase (improvement) of 3.34 (p<.00) points in SCS scores from Time 2 to Time 3, and an average increase (improvement) of 9.87 (p<.00) points in SCS scores from Time 1 to Time 3. The possible range of SCS scores is 20 - 120.

- **Loneliness (UCLA_Loneliness_Scale)**

Time significantly predicted an average decrease (improvement) of 6.68 (p<.00) points in UCLA Loneliness scores from Time 1 to Time 2, an average decrease (improvement) of 6.37 (p<.00) points in UCLA Loneliness score from Time 1 to Time 3. Time did not significantly predict an average change in UCLA Loneliness scores

from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of UCLA Loneliness scores is 20 - 80.

- **Thwarted Belongingness (INQ)**

Time significantly predicted an average decrease (improvement) of .58 ($p < .00$) points in INQ scores from Time 1 to Time 2, an average increase (worsening) of .11 ($p < .05$) points in INQ scores from Time 2 to Time 3, and an average decrease (improvement) of .47 ($p < .00$) points in INQ scores from Time 1 to Time 3. The possible range of INQ scores is 1 -7.

Table 11

Time as a predictor of the average of interpersonal variables at Time 1, Time 2, and Time 3

Interpersonal Variables	<i>n</i>	T1 – T2	T2 – T3	T1 – T3	Range
Sense of Social Connection (SCS)	n(T): 570	6.53***	3.34** *	9.87** *	20 - 120
Loneliness (UCLA_Loneliness_Scale)	n(T): 573	-6.68***	.31	- 6.37** *	20 - 80
Thwarted Belongingness (INQ)	n(T): 573	-0.58***	.11*	- 0.47** *	1 - 7

Note: Please refer to Table 5 for mean values at each time point

n (T) = Sample size of treatment group across Time 1, Time 2, and Time 3 (n = 199 at each time point); sample sizes differ because outliers were removed for each analysis.

T1 – T2 = Fixed effect coefficient represents average change from Time 1 to Time 2.

T1 – T2 = Fixed effect coefficient represents average change from Time 2 to Time 3.

T1 – T2 = Fixed effect coefficient represents average change from Time 1 to Time 3.

Range = Possible range of scores.

Significance level = *** $p < .00$. ** $p < .01$. $p < .05$ *

RQ 2 Results, Therapeutic Factor Outcome Variables (Table 12). While controlling for demographics, all models examining the change across time in the averages of the below therapeutic factor outcome variables were significant.

- **Life Satisfaction (LSQ)**

Time significantly predicted an average increase (improvement) of .91 ($p < .00$) points in LSQ scores from Time 1 to Time 2, an average increase (improvement) of 1.62 ($p < .05$) points in LSQ scores from Time 2 to Time 3, and an average increase

(improvement) of 2.53 ($p < .00$) points in LSQ scores from Time 1 to Time 3. The possible range of LSQ scores is 5 - 35.

- **Personal Growth Initiative (PGIS_Total)**

Time significantly predicted an average increase (improvement) of .24 ($p < .00$) points in PGIS_Total scores from Time 1 to Time 2, an average increase (improvement) of .01 ($p < .05$) points in PGIS_Total scores from Time 2 to Time 3, and an average increase (improvement) of .31 ($p < .00$) points in PGIS_Total scores from Time 1 to Time 3. The possible range of PGIS_Total scores is 0 - 5.

- **Readiness for Change (PGIS-Subscale)**

Time significantly predicted an average decrease (improvement) of .21 ($p < .00$) points in PGIS_Readiness_for_Change Subscale scores from Time 1 to Time 2, an average decrease (improvement) of .28 ($p < .00$) points in PGIS_Readiness_for_Change Subscale score from Time 1 to Time 3. Time did not significantly predict an average change in PGIS_Readiness_for_Change Subscale scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of PGIS_Readiness_for_Change Subscale scores is 0 - 5.

- **Using Resources (PGIS-Subscale)**

Time significantly predicted an average decrease (improvement) of .64 ($p < .00$) points in PGIS_Using_Resources Subscale scores from Time 1 to Time 2, an average decrease (improvement) of .63 ($p < .00$) points in PGIS_Using_Resources Subscale score from Time 1 to Time 3. Time did not significantly predict an average change in PGIS_Using_Resources Subscale scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of PGIS_Using_Resources Subscale scores is 0 - 5.

- **Emotional Restriction (ERQ)**

Time significantly predicted an average decrease (improvement) of 1.63 ($p < .00$) points in ERQ scores from Time 1 to Time 2, an average decrease (improvement) of 1.46 ($p < .00$) points in ERQ scores from Time 2 to Time 3, and an average decrease (improvement) of 3.09 ($p < .00$) points in ERQ scores from Time 1 to Time 3. The possible range of ERQ scores is 4 - 28.

- **Psychological Mindedness (BIPM_Total)**

Time significantly predicted an average increase (improvement) of 4.05 ($p < .00$) points in BIPM_Total scores from Time 1 to Time 2, an average increase (improvement) of 1.20 ($p < .00$) points in BIPM_Total scores from Time 2 to Time 3, and an average increase (improvement) of 5.25 ($p < .00$) points in BIPM_Total scores from Time 1 to Time 3. The possible range of BIPM_Total scores is 0 - 56.

- **Amount of Insight Gained (BIPM_Subscale)**

Time significantly predicted an average increase (improvement) of 1.48 ($p < .00$) points in BIPM_Amount_of_Insight_Gained Subscale scores from Time 1 to Time 2, an average increase (improvement) of 1.9 ($p < .00$) points in BIPM_Amount_of_Insight_Gained Subscale score from Time 1 to Time 3. Time did not significantly predict an average change in BIPM_Amount_of_Insight_Gained Subscale scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of BIPM_Amount_of_Insight_Gained Subscale scores is 0 – 28.

- **Interest in Insight (BIPM-Subscale)**

Time significantly predicted an average increase (improvement) of 4.72 ($p < .00$) points in BIPM_Interest_in_Insight Subscale scores from Time 1 to Time 2, an average increase (improvement) of 5.52 ($p < .00$) points in BIPM_Interest_in_Insight Subscale score from Time 1 to Time 3. Time did not significantly predict an average change in BIPM_Interest_in_Insight Subscale scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of BIPM_Interest_in_Insight Subscale scores is 0 – 28.

- **Attitudes Towards Seeking Professional Psychological Help (ATSPPHS)**

Time significantly predicted an average increase (improvement) of .17 ($p < .00$) points in ATSPPHS scores from Time 1 to Time 2, an average increase (improvement) of .13 ($p < .00$) points in ATSPPHS scores from Time 2 to Time 3, and an average increase (improvement) of .3 ($p < .00$) points in ATSPPHS scores from Time 1 to Time 3. The possible range of BIPM_Interest_in_Insight Subscale scores is 0 – 3.

- **Positive Psychological Attitude (IPPA_Total)**

Time significantly predicted an average increase (improvement) of .58 ($p < .00$) points in IPPA_Total scores from Time 1 to Time 2, an average increase (improvement) of

.51 ($p < .00$) points in IPPA_Total score from Time 1 to Time 3. Time did not significantly predict an average change in IPPA_Total scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of IPPA_Total scores is 0 – 7.

- **Self-Confidence During Stressful Situations (IPPA_Subscale)**

Time significantly predicted an average increase (improvement) of .55 ($p < .00$) points in IPPA_Self_Confidence_During_Stress Subscale scores from Time 1 to Time 2, an average increase (improvement) of .55 ($p < .00$) points in IPPA_Self_Confidence_During_Stress Subscale score from Time 1 to Time 3. Time did not significantly predict an average change in IPPA_Self_Confidence_During_Stress Subscale scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of IPPA_Self_Confidence_During_Stress Subscale scores is 0 – 7.

- **Sense of Life Purpose (IPPA_Subscale)**

Time significantly predicted an average increase (improvement) of .58 ($p < .00$) points in IPPA_Sense_of_Life_Purpose Subscale scores from Time 1 to Time 2, an average increase (improvement) of .48 ($p < .00$) points in IPPA_Sense_of_Life_Purpose Subscale Subscale score from Time 1 to Time 3. Time did not significantly predict an average change in IPPA_Sense_of_Life_Purpose Subscale Subscale scores from Time 2 to Time 3, indicating a tapering effect from Time 2 to Time 3. The possible range of IPPA_Sense_of_Life_Purpose Subscale Subscale scores is 0 – 7.

Table 12

Time as a predictor of the average of therapeutic factor variables at Time 1, Time 2, and Time 3

Therapeutic Factor Variables	<i>n</i>	T1 – T2	T2 – T3	T1 – T3	Range
Life Satisfaction (LSQ)	n(T): 561	.91***	1.62* **	2.53* **	5 - 35
Personal Growth Initiative (PGIS_Total)	n(T): 561	0.24***	.07*	0.31* **	0 - 5
Readiness for Change (PGIS-Subsclae)	n(T): 564	0.21***	.07	0.28* **	0 - 5

Using Resources (PGIS-Subscale)	n(T): 570	0.64***	-.01	0.63* **	0 - 5
Emotional Restriction (ERQ)	n(T): 573	-1.63***	- 1.46* **	- 3.09* **	4 - 28
Psychological Mindedness (BIPM_Total)	n(T): 573	4.05***	1.20* **	5.25* **	0 - 56
Amt. of Insight Gained (BIPM Subscale)	N(T): 570	1.48***	.41	1.90* **	0 - 28
Interest in Insight (BIPM-Subscale)	n(T): 567	4.72***	.80	5.52* **	0 - 28
Attitudes Towards Seeking Professional Psychological Help (ATSPPHS)	n(T): 567	0.17***	.13** *	0.3** *	0 - 3
Positive Psychological Attitude (IPPA_Total)	n(T): 570	0.58***	-.07	0.51* **	1 - 7
Self-Confidence During Stressful Situations (IPPA_Sunscale)	n(T): 570	0.55***	-.05	0.5** *	1 - 7
Sense of Life Purpose (IPPA_Subscale)	n(T): 573	0.58***	-.10	0.48* **	1 - 7

Note: Please refer to Table 6 for mean values at each time point

n (T) = Sample size of treatment group across Time 1, Time 2, and Time 3 (n = 199 at each time point) ; sample sizes differ because outliers were removed for each analysis.

T1 – T2 = Fixed effect coefficient represents average change from Time 1 to Time 2.

T1 – T2 = Fixed effect coefficient represents average change from Time 2 to Time 3.

T1 – T2 = Fixed effect coefficient represents average change from Time 1 to Time 3.

Range = Possible range of scores.

Significance level = ***p < .00. **p < .01. p<.05*

Discussion

Veterans who attended an Outward Bound Veterans course (treatment group) showed improvement compared to the waitlist control group across the majority of the psychosocial domains: 1) Mental health outcome variables, 2) Interpersonal outcome variables, and 3) Therapeutic factor outcome variables. However, the PGIS_Planfulness, PGIS_Intentional_Behavior, and BIPM_Insight therapeutic factor outcome variables did not significantly differ from the waitlist control group. Moreover, Veterans showed improvement across the three psychosocial domains from Time 1 to Time 3. However, some variables showed non-significant change from Time 2 to Time 3, indicating either a tapering effect or a minimal worsening or improvement of symptoms from Time 2 to Time 3. This effect may take place because they were not receiving the treatment from Time 2 to Time 3. The overall significant results indicate that the Outward Bound Veterans treatment model helps to increase overall mental health, interpersonal relations, resilience, sense of purpose, and greater interest in personal growth, relating to their emotions, and seeking help.

Considering the significance of these findings, it is important explore why Outward Bound Veterans may appeal to Veterans and promote psychosocial development. This is a critical point of exploration. The camaraderie that stems from overcoming challenges as a group can instill positive feelings of efficacy and togetherness for Veterans. Military culture promotes positive associations with camaraderie and team-based activity. The Outward Bound Veterans model is unique in that it aligns with Veterans' drive for group-based, physical activities and simultaneously promotes an emotionally supportive environment that encourages vulnerability. In other words, therapeutic adventure's use of the supportive group model intermixed with team challenges to promote camaraderie provides Veterans greater opportunity to be vulnerable and address personal issues (Scheinfeld & Buser, 2013; Scheinfeld et al., 2011). Thus, it is posited that camaraderie intermixed with an emotionally supportive group encourages vulnerability, which is a central component to promote therapeutic change.

Outward Bound Veterans likely appeals to Veterans because it aligns well with Veterans' attraction to adventure sports, such as backpacking, rock climbing, and canoeing. These activities often heighten Veterans' adrenaline and sense of accomplishment, because they involve a mixture of challenge, safe risk-taking, and physicality. Hoge (2010) posits that Veterans identify with experiences that induce adrenaline and are action-oriented. Additionally, Outward Bound Veterans's focus on physical activity supports Veterans' affinity to be healthy through activity and exercise (Buis et al., 2011). Mahoney (2010) also notes that high-adrenaline adventure activities can provide Veterans stress relief. Although levels of stress and adrenaline were not measured in this study, these are possible explanations for Veterans affinity towards the Outward Bound Veterans experience as an alternative to traditional therapy.

Some Veterans may prefer therapeutic adventure experiences because they hold positive associations with recreational activities, wilderness-based exploration and hunting. These elements of adventure activities (i.e. safe risk-taking, physical challenge) align with military culture, and they are experienced within an Outward Bound Veterans context that promotes camaraderie, therapeutic insight, and vulnerability. To this end, the Outward Bound Veterans program is poised to create a balanced approach that engages military Veterans' affinity towards adventure, while simultaneously promoting intrapersonal and interpersonal insight and growth.

The integration of adventure with informal emotional sharing may be a core component of the Outward Bound Veterans program model that helps reduce emotional restriction and increase several psychosocial markers. In other words, culture-aware approaches that can be helpful for Veterans often remove direct therapeutic facilitation and use experiential activity as the precipitator to engage exploration of intrapersonal emotions or cognitions. This suggests that Outward Bound Veterans may best align with Veterans' interests if do not overtly integrate structured therapy approaches with the adventure activities.

The positive findings from this study show that Outward Bound Veterans is a promising approach that supports the needs and preferences of Veterans. The alignment between the Outward Bound Veterans treatment model and Veterans' preferences likely helped promote therapeutic value and positive psychosocial outcomes for Veterans. However, additional research could focus on how specific course components help to meet Veterans' needs and interest, and whether specific demographic variables promote or detract from Veterans' improvement in psychosocial outcomes after attending an Outward Bound Veterans course.

Appendix A

MEASURES

Demographic Survey:

The demographic survey was developed to collect basic demographic information at pre-intervention about participants' age, race/ethnicity, level of education, marital status, and socioeconomic status. Information was collected about previous military involvement including length of active duty, whether they were or were not deployed, whether they experienced combat, the number of tours they went on, and their military occupational specialty. Additionally, information was collected about whether they had previously received counseling services and the number of sessions they had attended since being in the military.

Post-Course Components Questionnaire:

The Post-Course Components Questionnaire was developed to collect basic information about the course components such as, the start and end date of their course, and type of adventure activities they engaged in.

MENTAL HEALTH OUTCOME VARIABLES

OQ-45: The Outcomes Questionnaire-45 (Wells, Burlingame, Lambert, Hoag, & Hope, 1996):

The OQ-45 measures patients' mental health status and progress in therapy. It was designed for three uses: 1) To measure clients' current levels of distress; 2) As an outcome measure to be administered prior to and following treatment interventions; and 3) To monitor ongoing treatment response. The measure contains three subscales: 1) Symptom Distress (SD) Subscale, measuring subjective discomfort (intrapsychic functioning); 2) Interpersonal Relations (IR) Subscale, measuring how a person is getting along in friendships, family life, and marriage; and 3) Social Role Performance (SR) Subscale, measuring the level of dissatisfaction, conflict, or distress in employment, family roles, and leisure life. The questionnaire consists of 45 items answered on a 5-point Likert scale (0= *Almost Always* to 4= *Never*). Sample questions include, "I feel no interest in things" (Symptom Distress), "I feel lonely" (Interpersonal Relations), and "I

feel stressed at work/school” (Social Role Performance). Appropriate items are reversed scored, and raw scores are added for the Subscale and total scores.

Higher scores indicate greater symptom distress. An OQ-45 total score of 64 or above demarcates individuals who are within the *dysfunctional group*, indicating higher symptom distress. An OQ-45 total score of 63 or below is considered lower symptom distress and demarcates individuals who are in the *functional group*. Change of 14 points or greater in OQ-45 total scores represents reliable improvement or decline in mental health.

The OQ-45 has been shown to have good psychometric properties. Based on a normative sample (N = 1000+) collected from sites in seven different states, internal consistency and test-retest reliability estimates range from .70 to .93 and .78 to .84, respectively. Criterion validity studies reveal strong correlations between all scales of the OQ-45 and existing measures of anxiety, depression, interpersonal functioning, and social adjustment. Construct validity studies measuring sensitivity to change in patients undergoing outpatient psychotherapy from a university training clinic, Employee Assistance Programs, and managed care settings all produced highly significant pretest/posttest differences on all scales of the OQ-45 (Lambert et al., 1996). Further, the OQ-45 shows sensitivity to patient change, which is an important consideration when used in repeated measure designs.

DASS-21: Depression Anxiety Stress Scales (Henry & Crawford, 2005).

The Depression Anxiety Stress Scales 21 (DASS-21) is a short form of Lovibond and Lovibond’s (1995) 42-item self-report measure of depression, anxiety, and stress (DASS). The DASS-21 measures current (over the past week) symptoms of depression, anxiety, and stress. The DASS-Depression scale captures aspects of dysphoria, hopelessness, self-deprecation, and lack of interest and involvement. The DASS-Anxiety scale assesses autonomic arousal and fearfulness. Sample examples include, “I couldn’t seem to experience any positive feeling at all” (Depression) and “I felt that I was close to panic” (Anxiety).

PGIS-II: Personal Growth Initiative Scale-II (Robitschek et al., 2012):

The PGIS-II is a multidimensional scale that measures intentional engagement to promote personal growth. The scale examines one's active and intentional involvement in changing and developing as a person. It includes four subscales: Readiness for Change, Planfulness, Using Resources, and Intentional Behavior. The scale consists of 16 items answered on a 6-point Likert scale (0 = *Strongly Disagree* to 5 = *Strongly Agree*), with higher scores indicating greater desire for personal growth. Sample items include "I can tell when I am ready to make specific changes in myself" (Readiness for Change), "I set realistic goals for what I want to change about myself" (Planfulness), "I ask for help when I try to change myself" (Using Resources), and "When I get a chance to improve myself I take it" (Intentional Behavior). The PGIS was originally developed from an outcome evaluation protocol for Outward Bound adult programming (Robitschek, 1997) making this a particularly good fit for this study.

The PGIS-II has been shown to have good psychometric properties. Robitschek established concurrent validity by showing moderate to high correlations of PGIS-II with related measures (i.e. original PGIS (Robitschek, 1998), Rathus Assertiveness Schedule (RAS; Rathus, 1973), Personal Attributes Questionnaire (Spence & Helmreich, 1980), Locus of Control (Levenson, 1974), and Social Desirability Scale (Crowne & Marlowe, 1960)). Discriminant validity was also established by showing a low correlation with the Marlowe-Crowne Social Desirability Scale – Short Form (Ballard, 1992; Reynolds, 1982). Test-retest reliability showed temporal stability for the total scores of the PGIS-II, correlations are as follows: 1-week, $r = .82$; 2-week, $r = .67$; 4-week, $r = .70$; and 6-week, $r = .62$.

ATSPPHS: The Attitudes Toward Seeking Professional Psychological Help Scale (Fischer & Farina, 1995):

The ATSPPHS is a unidimensional scale that measures one's openness to seeking psychological help when their personal-emotional state warrants it. The scale consists of

10 items answered on a 4-point Likert scale (0 = *Strongly Disagree* to 3 = *Strongly Agree*) with higher scores indicating more positive attitudes towards seeking help. The ten items were taken from a larger multidimensional scale measuring attitudes towards seeking psychological help (Fischer & Turner, 1970). The items with the highest item-total scale correlations made up the final ten items of the scale. Sample items include, “I might want to have psychological counseling in the future” and “Personal and emotional troubles, like many things, tend to work out by themselves.”

The ATSPPHS has been shown to have good psychometric properties. Fischer and Farina reported test-retest reliability as $r = .8$ after a one month interval. The correlation between scores of the ATSPPHS and the original multidimensional scale were $.87$, showing good overlap between the two measures. Convergent and divergent validity were established on the original measure (Fischer & Turner, 1970).

BIPM: The Balanced Index of Psychological Mindedness (Nyklíček & Denollet, 2009):

The BIPM is a multidimensional instrument that measures one’s interest and ability to relate to and reflect upon his or her psychological states and processes. It includes two subscales: Insight Subscale and Interest Subscale. The scale consists of 16 items answered on a 5-point Likert scale (0 = *Not True* to 4 = *Very True*), with higher scores indicating greater interest, more insight, and higher psychological mindedness. Sample items include, “I love exploring my ‘inner’ self” (Interest) and “I am out of touch with my innermost feelings” (Insight).

The BIPM has shown to have good psychometric properties. The internal consistency reliability estimate are adequate (Cronbach $\alpha = .85$ for interest and $.76$ for insight), with a test-retest reliability of $r = .63$ (Interest Subscale), $r = .71$ (Insight scale) and $r = .75$ (Total). Convergent validity was established by showing substantial correlations between the PGIS-II and measures of self-consciousness, emotional intelligence, and alexithymia (negative). Discriminant validity was established by showing substantially low correlations with measures of basic personality traits of neuroticism and extraversion.

ERQ: Emotion Regulation Questionnaire (Gross & John, 2003):

The Emotion Regulation Questionnaire is a multidimensional instrument that measures emotional regulation through two subscales: emotional suppression and emotional reappraisal. Only items from the Emotional Suppression Subscale were used for this dissertation. This Subscale was chosen to examine how emotional restriction changes over time after attending an Outward Bound Veterans course. The Emotion Suppression Subscale consists of four items on a 7-point Likert scale (0 = Strongly Disagree to 7 = Strongly Agree), with higher scores indicating higher emotional suppression. “I control my emotions by not expressing them” is an example of the statements used in this assessment. Gross and John indicate the ERQ discriminates well between genders, making this scale particularly helpful for gender-related research. They also indicate strong, negative correlations between wellbeing and the Emotional Suppression Subscale. This further supports the importance of examining this construct and its overall relation to mental health.

The ERQ Suppression Subscale has shown to have good psychometric properties. The internal consistency reliability estimate are adequate (Cronbach $\alpha = .73$), with a test-retest reliability of $r = .69$. Convergent validity was established by showing strong correlations between the ERQ Suppression Subscale and measures of negative mood regulation, absence of emotional venting, and inauthenticity. Discriminant validity was established by showing substantially low correlations with measures of cognitive ability and personality.

LSQ: Life Satisfaction Questionnaire (Diener, Emmons, Larsen, and Griffin, 1985):

The Satisfaction with Life Questionnaire is a unidimensional instrument that measures satisfaction of life as a whole through asking participants about their subjective wellbeing. The scale consists of five items on a 7-point Likert scale (0 = *Strongly Disagree* to 7 = *Strongly Agree*), with higher scores indicating higher life satisfaction. “In

most ways my life is close to my ideal” is an example of the assessment text used in this scale. Diener et al. recommend using the LSQ as an adjunct to instruments that measure mental health because it provides complementary information about participants’ judgment of their own wellbeing.

The Satisfaction with Life Scale has shown to have good psychometric properties. The internal consistency reliability estimate are adequate (Cronbach $\alpha = .87$), with a test-retest reliability of $r = .82$. Convergent validity was established by showing strong correlations between the LSQ and measures of wellbeing.

TRS-R: The Therapeutic Realizations Scale-Revised (Kolden et al., 2000):

The TRS-R measures clients’ assessments of the therapeutic accomplishments that they experienced while, or as a result of participating in therapy sessions. It is a modification and refinement of the Therapeutic Realizations Scale (Kolden, 1991). Examples of therapeutic realizations measured by the TRS-R include unburdening, attainment of insight, problem clarification, encouragement, enhanced morale, and an increased sense of capacity to cope. The measure contains 4 subscales: 1) Remoralization Subscale, which measures a renewed sense of optimism and positive affectivity as exemplified by the therapeutic impacts of confidence, hope, enhanced self-control, reassurance, and encouragement; 2) Unburdening Subscale, which measures the emotional-cognitive process of reflective self-expression, and the experience of relief realized in interpersonal opportunities to verbalize troubling thoughts and feelings with a trusted listener; 3) Past-Focused Insight Subscale, which measures learning that occurs in psychotherapy characterized by the realization of connections between temporally remote experiences and present feelings, thoughts, actions, and ways of relating with the self and others; 4) Present-Focused Understanding Subscale, which measures the acquisition of new knowledge, skills, attitudes, and ways of coping. The scale consists of 17 items answered on a 5-point Likert scale (0 = *Not at All* to 4 = *A Great Deal*). Examples include, “More understanding of reasons behind my behavior and feelings” (Remoralization), “Help in talking about what was really troubling me” (Unburdening), “Increased awareness that

reactions and behaviors toward someone now are similar to reactions and behaviors towards others in the past” (Past-Focused Insight), and “Ideas for better ways of dealing with people and problems” (Present-Focused Insight). Higher scores indicated greater Remoralization, Unburdening, Past-Focused Insight, and Present-Focused Understanding.

The TRS-R has been shown to have good psychometric properties. The internal consistency reliability estimate for the TRS-R Total scale is .93. Reliabilities were calculated for each of the subscales using coefficient alpha: Remoralization, $\alpha=.89$; Unburdening, $\alpha=.86$; Past-Focused Insight, $\alpha=.89$; and Present-Focused Understanding, $\alpha=.74$. In regards to validity, factor analysis supported the four-factor structure. Criterion validity studies showed the TRS-R was highly correlated to measures of psychotherapy process from the perspective of both patients and therapists.

Appendix B

Participants from the treatment group have a mean age of 36, a median age of 34, and the age ranges from 22-66 years of age.

Demographic Variables as a Percentage for Treatment Group

Characteristic	Veteran Participants (n=199)
Gender	
Male	82
Female	18
Race	
White	82
Non-White	18
Marital	
Married	47
Not-Married	53
Employment/Student	
Full employment	56
No full employment	21
Student	23

Military History as a Percentage for Treatment Group

Characteristic	Veteran Participants (n=199)
Combat	
Experienced Combat	69
No Direct Combat	31
Tours	
Not deployed	2
One tour	40
Two tours	32
Three or more tours	26
Military Rank	
E-3 through E-9	79
O-1 through O-6	21
Military branch	
Army	42
Marine Corps	18
Navy	15
Air Force	8
U.S. Coast Guard	1
National Guard	16
Military Status	
Active Duty	25
Veteran	75
Active duty post 9/11/01	
Active duty since 9/11/01	92
Left military before 9/11/01	8

Psychological and Health History as a Percentage for Treatment Group

Characteristic	Veteran Participants (n=199)
Number of health symptoms from TBI, combat Stress, deployment injury	
No health symptoms	57
One health symptom	29
Two health symptoms	9
Three or more health symptoms	5
Health symptom from TBI	
Reported symptom	11

No symptom	89
Health symptom from combat stress	
Reported symptom	20
No symptom	80
Health symptom from combat or deployment injury	
Reported symptom	33
No symptom	67
Number of psychological symptoms	
No psychological symptoms	57
One symptom	24
Two symptoms	12
Three or more symptoms	7
Psychological symptom from TBI	
Reported symptom	14
No symptom	86
Psychological symptom from combat stress	
Reported symptom	35
No symptom	65
Psychological symptom from physical issue	
Reported symptom	14
No symptom	86
Psychological symptoms from family/reintegration stress	
Reported symptom	3
No symptom	97
Psychological symptoms from emotional grief	
Reported symptom	3
No symptom	97
Total psychological diagnoses	
No diagnoses	53
One diagnosis	27

Two diagnoses	7
Three or more diagnoses	13
PTSD diagnosis	
Reported diagnosis	35
No diagnosis	65
Depression diagnosis	
Reported diagnosis	30
No diagnosis	70
Substance abuse disorder	
Reported diagnosis	11
No diagnosis	89
Narcotic abuse disorder	
Reported diagnosis	6
No diagnosis	94
Generalized anxiety	
Reported diagnosis	25
No diagnosis	75
Adjustment disorder	
Reported diagnosis	2
No diagnosis	98
Visits to counselors	
Reported visiting counselor	40
No visit to counselor	60

Appendix C

Participants from the waitlist control group had a mean age of 32, median age of 31, and the age ranged from 24-46 years of age.

Demographic Variables as a Percentage for Waitlist Control

Characteristic	Veteran Participants (n=20)
Gender	
Male	90

Female	10
Race	
White	78
Non-White	22
Marital	
Married	44
Not-Married	56
Employment/Student	
Full employment	66
No full employment	17
Student	17

Military History as a Percentage for Waitlist Control Group

Characteristic	Veteran Participants (n=20)
Combat	
Experienced Combat	67
No Combat	33
Tours	
Not deployed	11
One tour	50
Two tours	28
Three or more tours	11
Military Rank	
E-3 through E-9	79
O-1 through O-6	21
Military branch	
Army	44.4
Marine Corps	22.2
Navy	5.6
Air Force	11.1
National Guard	16.7
Military Status	
Active Duty	11
Veteran	89
Active duty post 9/11/01	
Active duty since 9/11/01	100
Left military before 9/11/01	0

Psychological and Health History as a Percentage for Waitlist Control Group

Characteristic	Veteran Participants (n=20)
Number of health symptoms from TBI, combat Stress, deployment injury	
No health symptoms	78
One health symptom	17
Two health symptoms	0
Three or more health symptoms	5
Health symptom from TBI	
Reported symptom	11
No symptom	89
Health symptom from combat stress	
Reported symptom	11
No symptom	89
Health symptom from combat or deployment injury	
Reported symptom	11
No symptom	89
Number of psychological symptoms	
No psychological symptoms	83
One symptom	11
Two symptoms	0
Three or more symptoms	6
Psychological symptom from TBI	
Reported symptom	11
No symptom	89
Psychological symptom from combat stress	
Reported symptom	11
No symptom	89
Psychological symptom from physical issue	
Reported symptom	6
No symptom	94
Psychological symptoms from family/reintegration	

stress	
Reported symptom	0
No symptom	100
Psychological symptoms from emotional grief	
Reported symptom	0
No symptom	100
Total psychological diagnoses	
No diagnoses	72
One diagnosis	17
Two diagnoses	0
Three or more diagnoses	11
PTSD diagnosis	
Reported diagnosis	22
No diagnosis	78
Depression diagnosis	
Reported diagnosis	11
No diagnosis	89
Substance abuse disorder	
Reported diagnosis	6
No diagnosis	94
Narcotic abuse disorder	
Reported diagnosis	6
No diagnosis	94
Generalized anxiety	
Reported diagnosis	0
No diagnosis	100
Adjustment disorder	
Reported diagnosis	0
No diagnosis	100

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