

Occupational Therapy and Scuba Diving

Under the Waves



LOMA LINDA
UNIVERSITY

Study 1

- **Purpose:** *explore the form, function, and meaning of scuba diving being used as an occupation to improve the mental health of veterans.*
- **Participants:** *Recruited through The WAVES Project*
- *5 military veterans who were SCUBA Divers*
- *1 military veteran Divemaster and instructor*
- *1 non-veteran Divemaster and instructor*
- **Data collection:** *Semi-structured interviews (30-90 minutes)*
- *Life Event Checklist (LEC-5)*
- *PTSD Checklist for DSM 5 (PCL-5)*
- *Role Checklist¹¹*
- *Occupational Profile*

Questionnaire Findings

- 5 out of 6 veterans scored over 33 on the PCL-5 indicating symptoms of PTSD
- Veterans experienced between 5-21 traumatic life events, such as, assault with a weapon and combat
- There was a positive correlation between LEC-5 scores and PCL-5, $r_s = .96; p = .001$
- The roles most commonly reported as valuable were family member, worker, and student.

Themes	Description	Quotes
<p><u>Form/</u> <u>Barriers</u> <i>The who, what, where, and how of SCUBA diving</i></p>	<ul style="list-style-type: none"> ● Certification ● Equipment ● Ocean ● Pool ● Buddy System ● Family ● WAVES Divers ● SCUBA Barriers ● Risk Taking 	<p><i>“As far as skills, um, there's a set of 22 skills. Ninety-eight percent of those are, 'What do you do if this happens?' ...For instance, if your mask strap breaks and your mask falls off, what do you do?”</i></p> <p>- Derek</p>

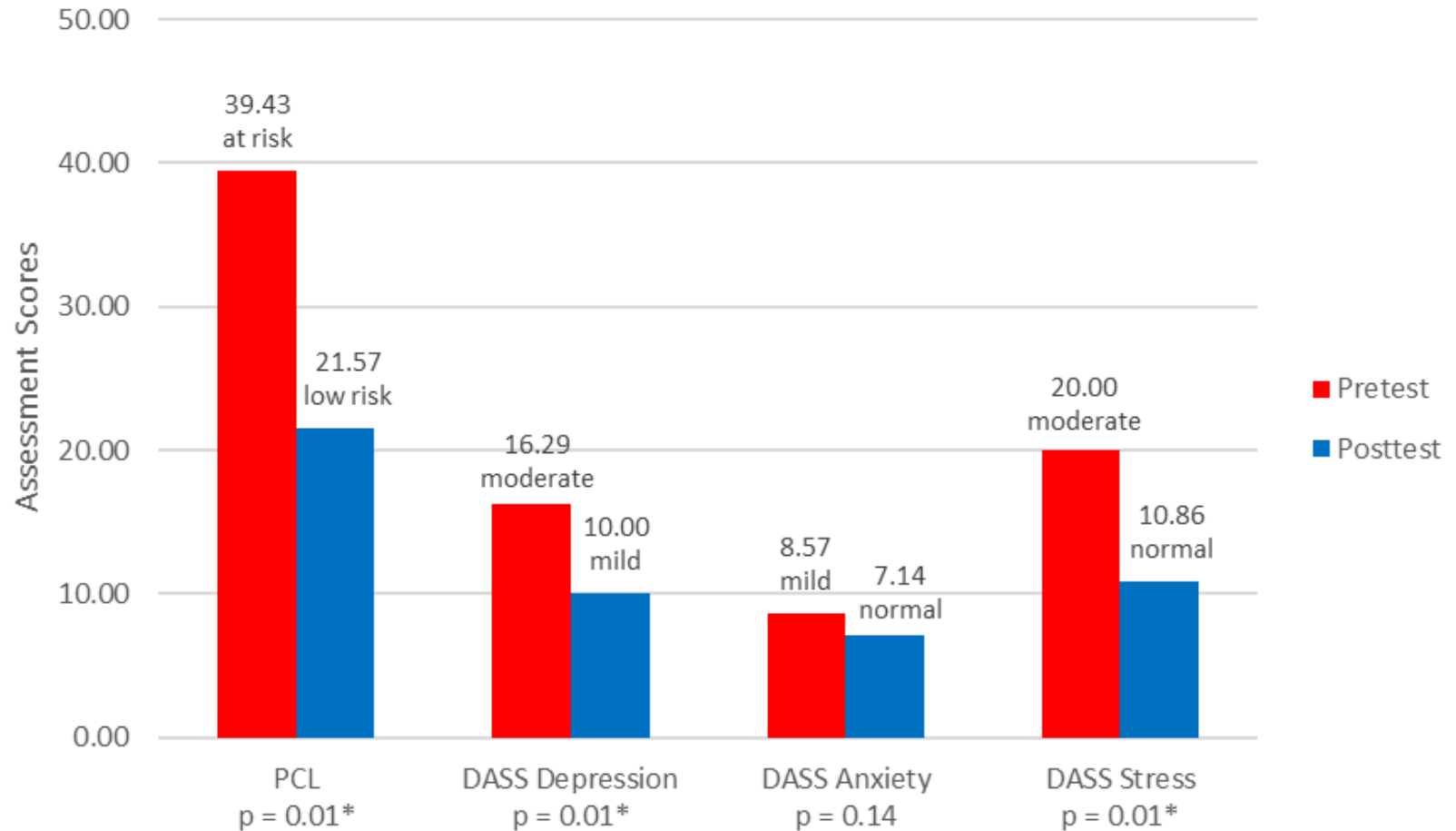
Themes	Description	Quotes
<p><u>Function</u> <i>The therapeutic benefits of SCUBA diving from an occupational therapist's perspective</i></p>	<ul style="list-style-type: none"> ● Skill transfer ● Fostering Trust ● Gaining Control ● Gaining Perspective ● Increasing Confidence ● Promoting Engagement ● Provoking Emotion ● Supporting Mental Health 	<p><i>“... ‘I feel alive’ ...that was the first time he was ever able to take a full breath since he'd been in his wheelchair.” - Richard</i></p>

Themes	Description	Quotes
<p><u>Meaning</u> <i>Motivation for veterans participating in SCUBA diving in search of a therapeutic benefit</i></p>	<ul style="list-style-type: none"> ● Reflection ● Cultural Value ● Meaningful Experience ● Belonging ● Spiritual Experience ● Volition 	<p><i>“Oh, it's everything to me. I mean, it's...for me, it's a way of life. It's just, being in the water and just being able to experience all the stuff that we see...it's everything.”</i> - Owen</p>

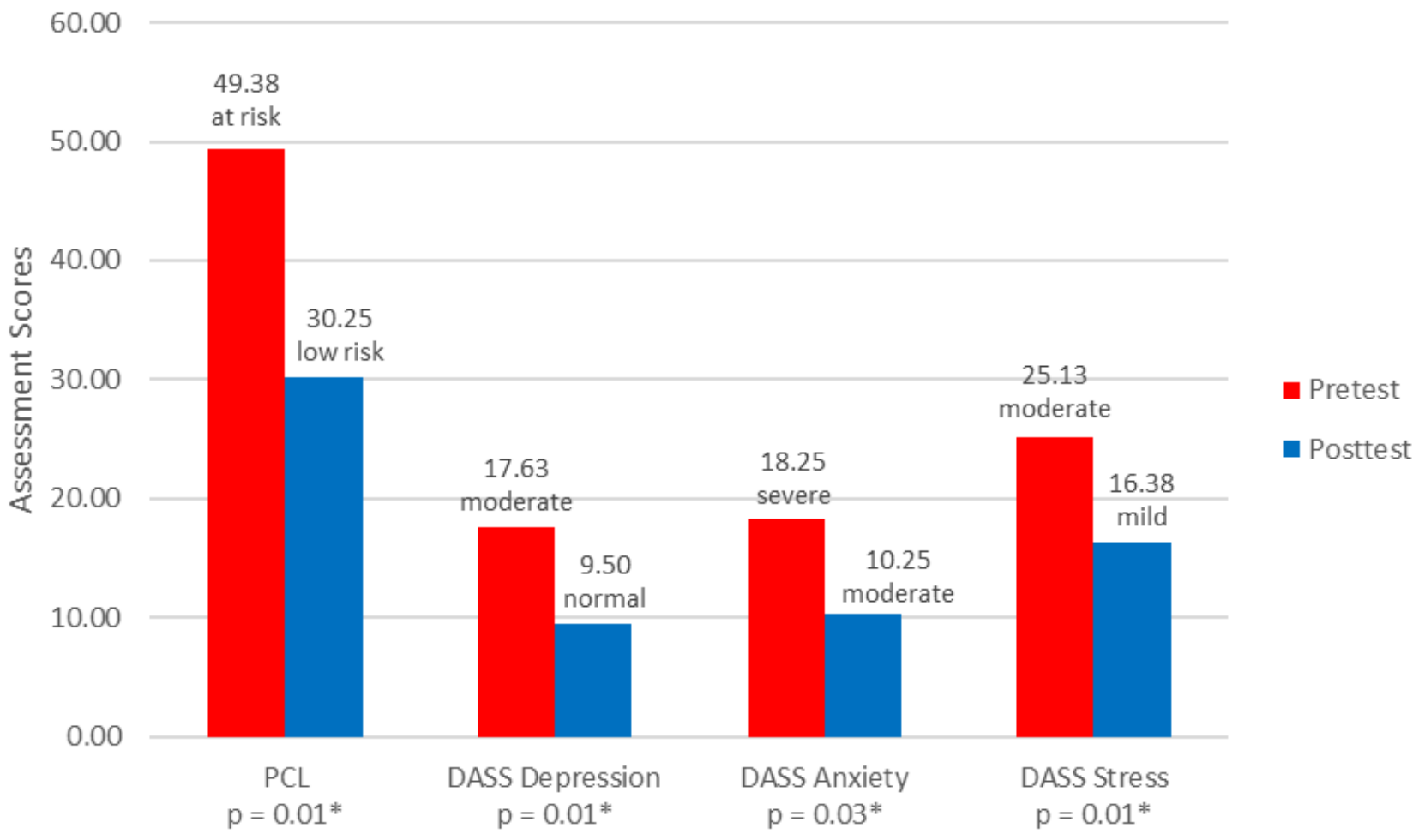
Study 2

- **Purpose:** *to explore whether an OT program could enhance mental health outcomes for veterans who SCUBA dive.*
- **Participants:** *Recruited through The WAVES Project*
- **Control Group:** *7 Participants*
- **Experimental Group:** *8 Participants*
- **Data collection:** *6-item Demographic Form.*
- *10-item Focus Group*
- *The PTSD Checklist for DSM-5 (PCL-5). 5*
- *Depression, Anxiety, and Stress Scales-21 Items (DASS-21). 6*

SCUBA



Occupational Therapy with SCUBA



Results

- Quantitative data showed that both SCUBA alone and SCUBA in combination with OT were effective methods in reducing PTSD, depression and stress symptoms.
- Findings suggest that symptoms of anxiety are decreased through engaging in OT with SCUBA.

RESEARCH

Reducing Veterans' Symptoms of Depression, Anxiety, Stress, and Posttraumatic Stress, and Enhancing Engagement in Occupations with SCUBA Diving and Occupational Therapy

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Veterans face significant occupational and mental health challenges. This article explores whether an occupational therapy program in combination with SCUBA diving can enhance occupational performance and mental health outcomes for veterans more than SCUBA diving alone. A two-group random assignment pretest-posttest design was implemented to compare outcomes across two groups. Veterans in Group 1 ($n = 7$) completed SCUBA diving while those in Group 2 ($n = 8$) completed SCUBA diving in combination with occupational therapy. Outcomes were measured using the Canadian Occupational Performance Measure, PTSD Checklist for DSM-5, and the Depression, Anxiety and Stress Scale. Both groups participated in a semi-structured focus group post-participation. Additionally, those in Group 2 engaged in follow-up phone interviews. Trial registration number: NCT03928392. All participants significantly improved their occupational performance and satisfaction with performance, and reduced symptoms of PTSD, depression and stress. Those in Group 2 also experienced significant reductions in anxiety levels and reported applying learned interventions to daily life. Participating in SCUBA diving may contribute to reduced symptoms of PTSD, depression and stress among veterans. Engaging in occupational therapy may additionally contribute to reduced symptoms of anxiety and aid in therapeutic application of interventions to daily life.

Keywords: Veterans; SCUBA diving; occupational therapy; depression; anxiety; stress; posttraumatic stress disorder; occupational performance

Introduction

The United States Department of Veterans Affairs estimates that the incidence of mental health disorders among veterans receiving services from the Veterans Health Administration increased from 27 percent in 2001 to 41 percent in 2014 (USDVA, 2017). Veterans are at risk of developing mental health conditions, such as posttraumatic stress disorder (PTSD), depression, and anxiety disorders due to encounters with traumatic events during combat (U.S. Department of Health and Human Services, n.d.). In addition, experiencing mental health problems may negatively impact the transition from combat to civilian life and interrupt participation in the occupations of sleep, health management, leisure, social participation, community mobility, work, and education (Plach & Sells, 2013; Hwang et al., 2013). Through the use of occupation-based interventions, occupational therapists aim to enhance participation in meaningful occupations by

addressing underlying factors such as depression, anxiety, and posttraumatic stress. One promising occupation-based intervention that has received little attention in the occupational therapy literature includes Self-Contained Underwater Breathing Apparatus (SCUBA) diving.

Morgan and colleagues (2017) conducted a study with 15 veterans in which they investigated the therapeutic benefits of participating in SCUBA diving for veterans who had experienced combat. Their findings suggested that SCUBA diving contributed to reduced symptoms of anxiety, depression, and insomnia, and improved social functioning (Morgan et al., 2017). The researchers proposed that SCUBA diving was beneficial as it demanded veterans' complete focus and provided a feeling of weightlessness (Morgan et al., 2017). Similarly, in a study with individuals with physical disabilities, Carin-Levy and Jones (2007) reported that the sensation of weightlessness enabled individuals to feel