

Trained, Peer Mentorship and Veteran Support Organization Membership to Assist Transitioning
Veterans: A Multi-arm, Parallel Randomized Controlled Trial
(A Preliminary Investigation)

Joseph Carl Geraci

Submitted in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy
in the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY

2018

© 2018

Joseph Carl Geraci

All Rights Reserved

ABSTRACT

Trained, Peer Mentorship and Veteran Support Organization Membership to Assist Transitioning

Veterans: A Multi-arm, Parallel Randomized Controlled Trial

(A Preliminary Investigation)

Joseph Carl Geraci

Objective: Some Veterans who recently served in the military report significant psychological problems based on their experiences in the military. Stressors that these Veterans face when they transition out of the military can exacerbate these problems and negatively impact their long-term physical and psychological well-being. We are conducting a randomized controlled trial (RCT) to evaluate the efficacy of providing Veterans who are transitioning back into their civilian communities trained, peer mentorship (Pro Vetus) and membership in a Veteran Support Organization (VSO- Team Red, White, and Blue) to reduce transition stressors, maintain psychological and physical health, reduce suicides and reduce criminal incidents.

Method: Six hundred, New York City area Veterans who transitioned out of the military since 2002 will be randomized to one of three study arms (1. Team Red, White and Blue membership plus trained, peer Pro Vetus mentorship; 2. Team Red, White, and Blue membership; and 3. Waitlist control). Intent-to-treat analysis will compare changes in transition stressors (proximal measures) as well as psychological and physical health, suicide, and criminal incidents (distal measures). For this preliminary investigation of the full RCT, the results of 58 Veterans who completed the pre-intervention and post-intervention were analyzed. For the analysis, the first and second study arms were combined into one intervention arm because of the unbalanced nature of the arms.

Results: The preliminary results indicate that Veterans in the combined intervention arm experienced less transition difficulties and had higher levels of social support at the four month post-intervention assessment. Though promising, there are still extensive limitations to the inferences that can be drawn from this research. These limitations will be reduced as data points increase and more Veterans participate in the research study.

TABLE OF CONTENTS

	Page
List of Tables.....	iii
List of Figures.....	iv
1. Introduction.....	1
2. Literature Review	3
Prevalence of Psychological Disorders.....	
Risk Factors.....	
Combat Exposure and Transition Difficulties.....	
Cumulative Disadvantage Theory.....	
Protective Factors.....	
Coping or Regulatory Flexibility.....	
Social Support.....	
Leadership.....	
Prophylactic and Community-Based Interventions (Trained, Peer Mentorship)	
Pro Vetus Program.....	
3. Method.....	26
Design.....	
Participants.....	
Recruitment and Randomization.....	
Assessment Measures.....	
Intervention.....	
Data Analysis.....	
4. Results.....	41

5. Discussion.....	51
6. References.....	74

LIST OF TABLES

Table

1	Research Variables and Timeline for Assessments.....	62
2	Sample Characteristics (TM RWB Post-Intervention Completers..... and Enrollers vs. Non-Completers and non-Enrollers	63
3	Sample Characteristics by Condition.....	64
4	Mixed Effect Model Results.....	65
5	Effects of Intervention on Distal and Proximal Outcomes.....	67

LIST OF FIGURES

Figure

1	Pro VetusOrganizational Structure.....	59
2	Graphical Depiction of Proximal and Distal Outcomes.....	60
3	Consort Flow Diagram.....	61
4	Military to Civilian Questionnaire Graph (Intervention vs Control).....	68
5	Income Graph (Intervention vs Control).....	69
6	Social Support Graph (Intervention vs Control).....	70
7	Quality of Life Graph (Intervention vs Control).....	71
8	PHQ Graph (Intervention vs Control).....	72
9	PTSD Graph (Intervention vs Control).....	73

Chapter I

Introduction

Since 9/11, over 2.6 million Service Members have served in Afghanistan (Operation Enduring Freedom- OEF) and Iraq (Operation Iraqi Freedom-OIF and Operation New Dawn-OND) and 1.7 million of these Service Members have already transitioned into the civilian sector (Military Friendly, 2014). Many of these already transitioned Service Members are finding jobs and going to college but many also suffer from psychological disorders resulting from exposure to traumatic events faced in combat and from stressors faced during their transition. Some companies- especially USAA, Verizon, CSX, GE, AT&T, Capital One, and PepsiCo- have hired approximately 117,000 Veterans and spouses in 2013. This represented an average of 14 percent of all new hires in the United States (Military Friendly, 2014). Regarding college, the Department of Veterans Affairs (VA) provided funding for 310,098 OEF/OIF/OND Veterans to attend college (Department of Veterans Affairs Office of the Inspector General, 2010), during the 2009-2010 academic year alone. But, unfortunately, many OEF/OIF/OND Veterans may face difficulties in successfully transitioning from the military to the civilian sectors, which can have long-term psychological impacts especially related Post Traumatic Stress Disorder (PTSD), Traumatic Brain Injury (TBI) and suicide. The purpose of this study is to test if providing Veterans both trained, peer mentorship and Veteran Support Organization (VSO) membership will improve the ability of Veterans to successfully transition into their civilian communities after their military service. I define *successful transition* for Veterans as them meeting necessary, individually specified requirements within five domains of transition (1. Employment/ Education, 2. Housing, 3. Family and Legal, 4. Social/Community/Physical Fitness and 5.

Medical Care) with at least stable psychological and physical health and minimal criminal incidents during their transition.

Chapter II

Literature Review

Prevalence of Psychological Disorders

As individuals face potentially traumatic events (PTEs; e.g., natural disasters, rape, and combat), it is natural for them to temporarily experience intrusive symptoms (recurrent, involuntary, and intrusive memories or flashbacks), to avoid distressing trauma-related stimuli after the event, to have negative alterations in cognition and mood (persistent and negative beliefs about oneself and the world, feeling alienated by others) and to have alterations in arousal and reactivity (irritable, self-destructive behavior, hypervigilance, exaggerated startle response, and problems in concentration; Bonanno, Westphal, & Mancini, 2011; American Psychiatric Association, 2013). An individual meets the diagnostic criteria for PTSD when these symptoms persist for a period longer than one month (APA, 2013). The current past year prevalence rate for PTSD has been estimated at 3.5 percent during a nationally representative survey conducted between 2001 and 2003 (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Given the negative impact that PTSD can have upon Veterans, it is important to understand the background and prevalence of PTSD within this population.

It appears that Veterans have experienced reactions to PTEs for thousands of years dating back to Herodotus' account of the psychological impact upon Greek Veterans from facing their Persian foes during the Battle of Marathon in 490 B.C. (Herodotus, 2008). During World War I, British pathologists coined reactions to combat-specific PTEs as "shell shock." In World War II, these reactions became known as "war neurosis," as well as "combat fatigue" or "combat exhaustion" leaving open the suggestion that they were only fatigued and could return for duty with a short rest (Gal & Jones, 1995). After the Vietnam War, Veterans became distressed by their combat-related reactions and lobbied the American Psychiatric Association (APA) to

construct a diagnosis that would “recognize the long-term psychological damage incurred by Soldiers in combat and would pave the way for therapeutic services” (Burstow, 2005). These, among other, actions resulted in the APA introducing, in 1980, the diagnosis of PTSD (APA, 1980). With this new diagnosis, many researchers began providing Veterans self-report surveys and conducting clinical interviews with them in an attempt to determine this impact by identifying the prevalence of PTSD among Vietnam Veterans. One study reported a current past year PTSD prevalence for male Vietnam Veterans as 15.2 percent (Kulka et al., 1990), although this research has been criticized regarding a number of methodological problems (Dohrenwend et al., 2006; McNally, 2007). Comparable research suggests that PTSD also impacts other professionals who operate in dangerous situations. For example, some researchers have reported a 7 percent current prevalence rate of PTSD (Carlier, Lamberts, & Gersons, 1997) for police officers while others have found rates as high as 19 percent shortly after police officers assisted during Hurricane Katrina (West, Bernard, Mueller, & Kitt, 2008).

Specific to the population participating in this study, a systematic review of primarily cross-sectional research with Service Members previously deployed to Iraq found that current prevalence estimates ranged between 10.3 and 17 percent (Sundin, Fear, Iversen, Rona, & Wessely, 2010). A more rigorous study of recent Service Members conducted a longitudinal investigation that was able to provide estimates of PTSD attributable to combat-related trauma alone. The researchers found that 7.6 percent of OEF/OIF/OND Service Members reporting that they experienced combat exposure during a deployment later developed PTSD (Smith et al., 2008). A separate longitudinal study reported a 6.7 percent rate for Service Members with a single deployment to Afghanistan or Iraq and 4.5 percent for Service Members with multiple deployments (Bonanno et al., 2012). It is difficult to project the true long-term impact and magnitude of the psychological problems that will face the entire population of OEF/OIF/OND

Veterans in the future. This most recent research with OEF/OIF/OND Service Members shows that Service Members who have experienced deployments to Afghanistan and Iraq cope remarkably well. But depending on the research methodology used and the subject cohort, Veterans apparently still experience a two to four fold increase in prevalence of PTSD compared to US civilians (Richardson, Frueh, & Acierno, 2009). This concern becomes even more apparent when including difficulties that Veterans face with TBI and suicide.

Sayer et al. (2014) found that between 10 and 23 percent of Service Members previously deployed to Iraq and Afghanistan may have had a deployment-related traumatic brain injury (TBI). Of even more concern, research suggests that psychological disorders and TBI prevalence may increase for these Veterans as time since deployment increases (Milliken, Auchterlonie, & Hoge, 2007; Sundin et al. 2010). Veterans also appear to experience a higher risk for suicide compared to their non-Veteran, civilian counterparts. The Veterans Health Administration (Veterans Health Administration [VHA], 2014) found that suicide rates for male Veterans who use VHA services was approximately 29 per 100,000 in 2010 and approximately 38 per 100,000 for male Veterans who have never used VHA services, which appear to be higher than the rate for their civilian counterparts (approximately 21 per 100,000). It appears that those most at risk are our youngest Veterans (18-24 year olds). The suicide rate for these young Veterans who used VA services increased from 46.1 per 100,000 in 2009 to 79.1 per 100,000 in 2011. Therefore, the above research does appear to indicate that Veterans are at an increased risk for the later development of psychological difficulties, which not only impacts the Veterans and their family members but their civilian communities in which they live and work.

Risk Factors

As highlighted by the prevalence rates for PTSD, it is apparent that most individuals do not develop PTSD after facing PTEs. Many factors- primarily risk and protective- play a part in

whether a person will later develop PTSD, which shows the heterogeneous nature of PTSD. Risk factors consist of variables that are biological, environmental, cognitive and psychological and can make individuals more susceptible to the later onset of the psychological disorder. The most studied risk factors are related to the characteristics of the traumatic event, such as the duration and severity of the traumatic event in a dose-repose manner (Dohrenwend & Dohrenwend, 1974; Kaysen, Rosen, Bowman, & Resick, 2010; Molnar, Buka, & Kessler, 2001). This simple model assumes that an individual's risk of developing PTSD varies with the duration and severity of the event. Specific to sexual abuse victims, studies have shown that abuse that is chronic and very severe (includes the use of force and sexual penetration) is linked to a greater prevalence of PTSD for victims (Boney-McCoy & Finkelhor, 1995; Hébert, M. & Lavoie, F., 2014; Molnar, Buka, & Kessler, 2001). The dose-response model may help to partially explain why professionals who operate in dangerous situations experience higher prevalence rates for PTSD compared to civilians, since these professionals are exposed to a great deal of PTEs in the execution of their professional duties. For example, one study found that cadets who graduated from the police academies in New York and California faced an average of seven PTEs during their first year of service. Of the police officers in the study, 87.6 percent encountered dying or dead bodies and 27 percent were threatened with a deadly weapon in their first year of service (Pole et al., 2009).

Combat Exposure and Transition Difficulties.

Similarly, combat exposure is one of the most studied military-specific risk factors. One study of Soldiers deployed to Afghanistan showed that 83.3 percent of the Soldiers had been attacked by insurgents and 82.9 percent knew someone injured or killed during their deployment (Mental Health Advisor Team, 2009). This study used cross-sectional data to categorize Soldiers into three exposure groups (Low Combat, Middle Combat, and High Combat) and found that

Soldiers in the High Combat group were 3.5 times more likely to screen positive for PTSD compared to the Low Combat Group. Additionally, Booth-Kewley et al. (2013) reported a causal relationship between combat exposure and the later development of PTSD. They found that U.S. Marines with no known previous psychological disorders who later experienced a high level of combat exposure, during their most recent deployment to Afghanistan, were two and a half times as likely to develop PTSD after the deployment compared to Marines who experienced a low level of combat exposure.

This previous research highlights that combat exposure can be a risk factor that worsens the psychological health of Veterans and creates difficulties for Veterans during their transition into the civilian sector. It is possible that these difficulties and transition stressors can be an additional risk factor, by themselves that further worsen Veterans' psychological health. They can be a risk factor independent of risk factors that Veterans face while in the military. For instance, Sayer et al. (2014) found that Veterans without a military-related or pre-existing psychological disorder still experienced difficulties in social functioning, community involvement and productivity when transitioning from the military to the civilian sector; though not to the same extent as for Veterans with a military-related or pre-existing psychological disorder. They found that a significant number of these Veterans, without a psychological disorder, also endorsed having extreme difficulty or problems with 'belonging in civilian society' (29 percent), 'confiding or sharing personal thoughts and feelings' (35 percent), 'getting along with spouse or partner' (27 percent), and 'doing what is needed for work' (17 percent).

Additionally; a longitudinal study ascertained the impact of transition stressors (i.e., issues with employment or financial difficulties, issues related to housing, and issues related to marital and family problems) a year after Service Members transitioned back into the civilian sector (Kline, Ciccone, Falca-Dodson, Black, & Losonczy, 2011). Transition stressors were not

only highly correlated with psychological problems (i.e., PTSD, depression and alcohol dependence) but were more associated with suicidal ideation than psychological disorders. In fact, after adjusting for individual psychological disorders, the odds of suicidal ideation among Veterans experiencing the highest number of transition stressors were 5.4 times that of Veterans experiencing no transition stressors (Kline et al., 2011). The impact of these stressors may help to explain why 96 percent of a sample of 754 OEF/OIF/OND Veterans, who sought care from the VA between 2003 and 2007, expressed interest in receiving services or information concerning transitioning problems. One of the most frequently reported interests (endorsed by 80 percent of Veterans surveyed) was related to receiving information about schooling, employment, or job training (Sayer et al. 2010).

Cumulative Disadvantage Theory.

The cumulative disadvantage theory may help to explain the psychological problems facing many Veterans, as well as the importance of Veterans experiencing a successful transition. The cumulative disadvantage theory emphasizes how early disadvantages or risk factors (e.g., genetic, environmental, cognitive and psychological) can accumulate over time and shape trajectories of psychological and physical health in both the short- and long-term (Ferraro & Kelley-Moore, 2003; Brenner, Homaifar, Wolfman, Kemp, & Adler, 2009; Seguin et al., 2007). Brenner et al. (2011) recently applied the cumulative disadvantage theory to explore the increased risk of suicide attempts for Veterans with a diagnosis of both PTSD and TBI. Specifically, they found that Veterans with a diagnosis of both PTSD and TBI were 3.3 times more likely to make a suicide attempt compared to Veterans with TBI alone. They discussed that the emotional and psychological disturbances associated with PTSD had a cumulative effect and exacerbated difficulties already associated with TBI, which significantly increased the risk for Veterans attempting suicide.

In line with the cumulative disadvantage theory, Service Members enter the military with different genetic predispositions for psychological disorders, levels of pre-existing traumas, and different life experiences (Cornelis, Nugent, Amstadter, & Koenen, 2011). Military-specific risk factors may accumulate with previous risk factors, which may then result in worsened psychological health. The research introduced above highlights that combat exposure may be an environmental and military-specific risk factor that accumulates with an individual's other risk factors and creates later difficulties for Veterans during their transition into the civilian sector. It appears that these resulting difficulties and transition stressors can be an additional risk factor, by themselves, that further worsen Veterans' psychological health. They can be a risk factor that impacts not only Veterans with PTSD but also Veterans without the diagnosis or other psychological disorders as they transition out of the military.

Therefore, it appears that combat exposure and transition stressors can accumulate to worsen the psychological health of Veterans and that transition stressors by themselves can worsen the psychological health of Veterans. Left unaddressed, these problems can have deleterious effects not only on the individual Veteran but also on his or her family. When Veterans experience such deleterious effects, they most likely will not be able to fulfill their potential in their civilian communities.

Protective Factors

Having discussed the risk factors to the psychological health of Veterans, it is important to present applicable factors that research has shown to protect against the later development of psychological disorders. Most likely, it appears that the protective factors most applicable to transitioning Veterans are coping or regulatory flexibility, social support, and leadership. Geraci, Baker, Bonanno, Tussenbroek, & Sutton (2011) developed a model in an attempt to explain how stressors and potentially traumatic events can lead to the later development of psychological

disorders for professionals who operate within dangerous situations (e.g., fire fighters, police officers, military Service Members). They also discussed how a combination of the protective factors of social support and leadership can combine to help buffer Service Members as they face profession-related risk factors, such as combat exposure. Such a buffer factor can maximize the coping or regulatory flexibility of the Service Members as they attempt to cope with the aftermath of facing the combat exposure. The authors contended that leadership is the most important of the protective factors since leaders can impact the level of social support within organizations and establish the climate that determines which styles of coping are acceptable for subordinates. This, then, impacts how individuals cope with the risk factors. Below, I will first present a review of their model. Then, I will propose how it might be extended to Veterans as they transition out of the service.

Coping or Regulatory Flexibility

The way that individuals cope after facing risk factors (e.g., combat exposure and transition stressors) plays a crucial role in determining their resulting trajectory of psychological health (Aldwin & Yancura, 2004). Coping styles are concerned with individuals' perceived ability to integrate certain means (emotional, cognitive, and behavioral responses) in order to reduce their distress level after experiencing traumatic or stressful events (Bonanno, Pat-Horenzcyk, & Noll, 2011). Two distinct coping styles have received significant attention by researchers over the last 25 years—problem-focused coping (e.g., positive reframing, active coping, and planning) and emotion-focused coping (e.g., mental disengagement, denial, venting; Burke and Paton, 2006). Much of the focus of this research has been upon identifying the superior coping style for decreasing the prevalence of psychological disorders. But to the dismay of the researchers, the results have been contradictory.

In an attempt to resolve the situation, Prati & Pietrantonio (2009) posited that coping styles are not inherently good or bad but that their adaptive qualities depend on the contexts of specific situations. Bonanno et al. (2011) built upon a similar concept to introduce the construct of coping or regulatory flexibility, which occurs when individuals are able to perceive themselves as flexible enough to engage in two separate styles of coping based on the demands of the situation. The first style of coping is forward focus, which emphasizes such means as maintaining goals and plans, attending to others, thinking optimistically, being able to laugh, reducing painful emotions and remaining calm and serious. The second style of coping is trauma focus and consists of such means as fully experiencing the emotions related to the traumatic event, reflecting upon the details of the event, and thinking realistically. In contrast to forward focus coping, trauma focus coping is more demanding and time-consuming as an individual may need to temporarily suspend normal goals and obligations to reflect upon and work through the traumatic experiences. The researchers (Bonanno et al., 2011) found that coping or regulatory flexibility—the perceived ability to use both styles of coping—was related to reduced PTSD symptoms in American and Israeli college samples, especially when the individuals had previously experienced higher levels of trauma. Additionally, they found that a perceived ability in only one of the types of coping predicted increased PTSD symptoms.

Geraci et al. (2011) contended that each individual is unique and may need different styles of coping after facing combat exposure. Many Service Members may only need to integrate a forward focus coping style by maintaining goals and plans, attending to others, thinking optimistically, being able to laugh, and reducing their own painful emotions related to the combat exposure. But one of the characteristics of traumatic events is that they may “shatter” our normal assumptions about ourselves, the world, or other people; thus necessitating some individuals to integrate a trauma focus coping style that enables them to fully experience the

emotions related to the traumatic event, reflect upon the details of the event, and make meaning of the event. As suggested by Resick (2001), many of the symptoms of PTSD will be reduced after individuals are able to process and make meaning of these emotions and the consequences of traumatic events. In fact, research has shown that a form of psychotherapy- Cognitive Processing Therapy- based on her work, has helped to cause significant reduction in PTSD symptoms for Veterans compared to a control group (Monson, Schnurr, Resick, Friedman, 2006).

Additionally, there may be a large number of Service Members who need to integrate a mix of the two coping styles. They may need to integrate a forward focus coping style to address the immediate demands of their current potentially traumatic situation but then temporarily integrate a trauma focus coping style (e.g., a few hours to several days or weeks after the event) before returning again to a forward focus coping style (Bonanno, 2013). Psychological disorders, most likely, result for Service Members after facing combat exposure when their external environment limits the coping styles that they can employ. Regarding the external environment, social support characterized as positive, encouraging, and accepting may create the right climate within which Service Members are able to demonstrate coping flexibility.

Social Support

In a military context, social support or camaraderie is an individual's perception or experience of the helpfulness of his or her social interactions both internal and external to his or her military unit (Pietrzak et al., 2010). This helpfulness can be offered through instrumental support (material aid), informational support (relevant information), and emotional support (empathy, caring, trust, reassurance), which then can enhance an individual's ability to cope with stress (Cohen, 2004). The concept of social support dates back to at least the time of the ancient Greek philosopher Aristotle when he described how social support was essential for dealing with

the emotional strains of combat (Sherman, 2005). Participating in military training, as well as sharing in the same deployment experiences (e.g., isolation, forced deprivations, and threats to life) often encourages Service Members to rely heavily upon each other for social and emotional support. As a natural result, a strong and lasting bond usually forms between these comrades (Stouffer et al., 1949). Lieutenant General (retired) Hal Moore captured the essence of social support after his experience as the battalion commander for 1st Battalion, 7th Cavalry during the Vietnam War. During the Battle of Ia Drang, his unit was encircled by a numerous superior enemy and he later wrote that “we discovered in that depressing, hellish place, where death was our constant companion, that we loved each other” (Moore & Galloway, 1992, prologue).

Social support has been widely studied with Veteran populations and has demonstrated to protect against the development of PTSD (Haglund, Nestadt, Cooper, Southwick, & Charney, 2007; Brewin, Andrews, & Valentine, 2000; Guay, Billette, & Marchand, 2006). For instance, Boscarino (1995) found that Vietnam Veterans with high levels of social support were 180 percent less likely to develop PTSD than those with lower levels. Pietrzak et al. (2009) confirmed the research of Boscarino (1995), with cross-sectional data, by finding that OEF/OIF/OND Veterans with higher levels of psychological health scored significantly higher on scales of social support. From studying Veterans for six months after they graduated from a residential treatment program for PTSD; Laffaye, Cavella, Drescher, & Rosen (2008) found that during this six month period that Veterans primarily utilized their fellow Veteran peers, above and beyond family members and non-Veteran friends, for emotional support to further facilitate their recovery. These studies together highlight the importance of Veteran, peer relationships. As mentioned previously, leadership may be the most important of the protective factors since leaders not only impact the level of social support within organizations but can also establish the

climate that determines which styles of coping are acceptable for subordinates. This climate, then, impacts how individuals cope with the risk factors.

Leadership

Since at least World War II, researchers have reported the protective value of leadership. Regarding the specific psychological health of Soldiers, U.S. Army Field Manual (FM) 3-24 (Department of the U.S. Army, 2006a) acknowledges the importance of leadership as it suggests that we must “ruthlessly replace ineffective leaders” (p. A-17). The manual makes the connection between leadership and psychological health when it states that “leaders remain aware of the emotional toll that constant combat takes on their subordinates” and that “caring leaders recognize these pressures and provide emotional ‘shock absorbers’ for their subordinates” (p. 7-12). The U.S. Army defines leadership as “the process of influencing others to accomplish the mission of providing purpose, direction, and motivation” (Department of the U.S. Army, 2006b, 1-2). Leadership is viewed as so critical to the Army’s function that its acronym (LDRSHIP) comprises the Army’s core values: loyalty, duty, respect, selfless service, honor, integrity, and personal courage. The work of scholars confirms the importance that the U.S. Army places upon leadership. Stouffer et al. (1949) found that units during World War II with good morale and leadership had fewer combat stress casualties than those without good morale and leadership. Castro & McGurk (2007) confirmed this relationship also existed for Service Members serving during OIF. Through cross-sectional data, they found that the Service Members of “high quality leaders” (e.g., tells Service Members when they have done a good job, does not embarrass Service Members in front of others, treats members of the unit fairly, are concerned about the safety of Service Members, etc.) had reduced levels of psychological disorders compared to Service Members of “low quality” leaders.

Booth-Kewley et al. (2013) demonstrated the protective value of leadership in one of the first prospective military studies to link subordinates' satisfaction with their leaders to resulting subordinate psychological health. They found that U.S. Marines who rated their leaders in the highest quartile were about half as likely to later develop a mental disorder as Marines in the lowest quartile. They concluded that "positive leadership has a beneficial effect on the mental health of combatants" and that there is a "need for the military to continue to develop programs to improve leadership" (p. 9). Other research has shown the positive relationship between levels of leadership and unit performance (Bass & Riggio, 2006; Lowe, Kroeck, & Sivasubramaniam, 1996). Therefore, it appears that effective leaders can increase the psychological health of Service Members and the effectiveness of their military units at the same time.

For over 40 years, researchers have reported that effective or "high quality" leaders influence subordinates primarily through two different types of behaviors—task-oriented and relational oriented behaviors (Fiedler, 1967). The execution of leadership is dynamic and complex since leaders who operate in dangerous situations must be adaptive, flexible and able to shift between task and relational-oriented leadership behaviors "depending on the phase of the mission and/or changing environmental demands" (Yammarino, Mumford, Connelly, & Dionne (2010). Task-oriented behaviors focus on accomplishing the mission and consist of behaviors such as defining tasks and work roles, ensuring that subordinates meet clearly established standards of task performance, and coordinating the efforts of subordinates in their unit.

An important task-oriented behavior for effective military leaders is to instill discipline and provide rigorous training that replicates the situations to be found later in combat (e.g. elevated but safe levels of risk and stress). Such training enables Service Members to hone their profession-specific skills and abilities as well as teaches them to prepare to face the risk factor of combat exposure. Albert Bandura (1997) refers to such experiences as "mastery experiences"

and states that they increase self-efficacy and enable individuals to “adopt strategies and courses of action designed to change hazardous environments into more benign ones” (p. 141). The value of training as “mastery experiences” prior to facing combat exposure cannot be over-stated and the relationship between combat effectiveness and effective training is well documented (Yammarino et al., 2010). Another beneficial type of training for leaders to integrate is rigorous/regular physical exercise (Haglund et al., 2007). An effect of the aforementioned training is that it can instill social support in units since the training pushes individuals to their limits and forces them to pull together and count on each other to successfully accomplish the training tasks. Such task-oriented leadership behaviors help to create a climate in which forward focus coping can be utilized by Service Members. Through seeing leaders model these leadership behaviors and belonging to units that have such a climate, Service Members learn to persevere and work through difficulties and challenges.

Through relational-oriented leadership behaviors, leaders can further develop social support in their units. Specifically, leaders can establish positive interpersonal relationships with their subordinates, show concern and respect for subordinates, treat subordinates as equals, and focus on the welfare of subordinates and their families (DeRue, Nahrgang, Wellman & Humphrey (2011). Leaders can learn about their subordinates’ lives, their families, and their aspirations. Carl Rogers (1995) believes that if leaders are able to integrate three essential characteristics of positive interpersonal relationships- genuineness (being honest and real with subordinates), unconditional positive regard (accepting or loving every aspect of subordinates and being nonjudgmental) and empathy (taking on the worldview of our subordinates to fully understand them), then they will create subordinates who are “more self-responsible, more creative”...and...“better able to adapt to new problems” (p. 37). Integrating these essential

characteristics can create a sense of “family” within their units and strengthen the bonds between the unit and the actual families of individuals in the unit.

Additionally, leaders can utilize positive interpersonal relationships to help their subordinates reach their full potential to face stressors and combat exposure through regular, performance and developmental counseling sessions with the leader. During these sessions, leaders can educate their subordinates about the different coping styles. Such relational-oriented leadership behaviors can help to instill a climate of trust and openness among Service Members in organizations. Having leaders model such behaviors can teach Service Members that they are encouraged to integrate a trauma focus coping style, if necessary. This is especially important given the prevalent stigma against Veterans seeking psychological treatments (Hoge et al., 2004; Pietrzak et al., 2009).

One study examined the effects of leadership and unit cohesion (social support) on mental health stigma and perceived barriers to care. In this study; Wright, Cabrera, Bliese, Adler, & Castro (2009) surveyed 680 soldiers from combat support units 3 months after their return from combat operations in Iraq. The survey included scales of psychological symptoms and perceptions of leader behaviors and unit cohesion, as well as items assessing stigma and barriers to care. The sample was used to test the independent and interactive effects of leadership and unit cohesion on soldiers’ perceptions of stigma and barriers to care. Analyses yielded significant interaction effects between leadership and cohesion in predicting stigma and barriers to care, while controlling for the effects of mental health symptoms. Soldiers who rated their leaders more highly and who reported higher unit cohesion also reported lower scores on both stigma and perceived barriers to care. Thus, positive leadership and unit cohesion can reduce perceptions of stigma and barriers to care, even after accounting for the relationship between mental health symptoms and these outcomes.

Prophylactic and Community-based Interventions (Trained, Peer Mentorship)

There are psychological treatments that have been shown to effectively treat psychological disorders that result from Veterans facing military-specific experiences (Foa, Keane, Friedman, & Cohen (2009). As discussed by Sayer et al. (2014), the VA has dedicated a considerable amount of resources towards integrating these effective treatments with positive results. But applying a prophylactic and community-based approach to address the transition stressors faced by Veterans could be beneficial in two ways. First, such an approach could potentially reduce the transition stressors that can accumulate and contribute toward the development of psychological disorders. As a result, a prophylactic approach could potentially reduce the number of Veterans who later experience psychological disorders and require psychological treatment. Second, it could help to extend interventions to Veterans who are resistant to seeking psychological treatments, in part, because of a prevalent stigma against mental health services (Hoge et al., 2004; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009). For example, Interian, Kline, Callahan, and Losonczy (2012) found that only 34 percent of National Guard Veterans in their sample who screened positive for PTSD after a deployment to Afghanistan actually sought treatment within their first year after redeploying home and transitioning back into the civilian sector.

Potential prophylactic and community-based solutions to this problem could include developing cost-effective ways to continue the protective factors of social support and leadership for all Veterans as they transition. Practically speaking, it is not feasible to replicate the formal and hierarchical structure found in the military as Veterans transition. In fact, some Service Members decide to leave the military to avoid being in such a system. But research does indicate that a trained, peer mentor program, (with a less formal structure) could potentially be beneficial to Veterans as they transition. This is because a growing body of research suggests that the

support provided by trained, peer mentors can have positive benefit to recipients of such support in many different fields including employment, college education and psychological treatment.

Results from a randomized clinical trial found that peer mentorship assisted more unemployed individuals with psychological disorders to find work compared to similar individuals who did not receive peer mentorship (Kaufmann, 1995). For individuals who are already employed, receiving mentorship has been shown to have numerous benefits such as improved job performance, early career socialization, career advancement, and retention (Chao, Walz, & Gardner, 1992; Ragins & Cotton, 1999; Scandura & Williams, 2004). Given the benefits in the workplace, there has been a growing interest in mentoring programs in several Fortune 500 companies such as IBM, Johnson & Johnson, Honeywell, AT&T, Sodexo, and Walmart (Hegstad & Wentling, 2004; Ghosh & Reio, 2013). Research with undergraduate students has also shown that mentoring by graduate students can help to reduce anxiety levels, foster academic success and enhance professional satisfaction (Kim, Edd, Riingen, Taylor, & Rankin, 2013). For individuals with psychological disorders, the addition of trained, peer mentorship to psychological treatment has shown to improve retention in active treatment, physical activity, and perceived ability to manage psychological disorders (Solomon, 2004; Cook, 2011; Druss et al., 2010).

Based on these, and similar results, the Veteran Affairs recently hired over 250 trained, peer mentors (termed Consumer Providers) to augment psychological treatment for patients. The intent of hiring these trained, peer mentors was to reach out to patients that were difficult to engage, assist patients with tasks of daily living, offer a variety of rehabilitation (vocational, social, residential) services, be role models who offer hope for recovery, and facilitate treatment for patients in therapeutic support groups (Hamilton, Chinman, Cohen, Oberman, & Young, 2013). The trained, peer mentors are all Veterans who had previously undergone treatment

through the Veterans Affairs. Prior to working with patients, the mentors receive thirty hours of training on appropriate peer support, basic counseling skills, and psychosocial rehabilitation. The peer mentors are full-time employees of the Veteran Affairs but it is unclear to what extent the Veteran Affairs will continue the program in the future.

Fortunately, Veterans are already familiar with trained, peer mentorship programs. For example, the U.S. Army has an extensive mentor/sponsorship program- Total Army Sponsorship Program- that assists every Soldier to successfully navigate a Permanent Change of Station, in which a Soldier transfers from one Army post to another. The U.S. Army assigns a trained and available sponsor equipped with the information and referral resources needed to assist Soldiers during their move to their new post. The Army describes that the sponsor supports mission readiness for the Army by mitigating stress while enhancing unit cohesion, resiliency, and spirit de corps (Department of the U.S. Army, 2014). In this existing program, the sponsor ensures that the Soldier transfers to the next duty station within such critical domains as- employment/duty, housing, family support, and medical care. The sponsor usually doesn't provide services within each of these domains but instead guides the transferring Soldiers and connects him or her (and their family members) to the organizations at the new location that do provide these services. Even more important than connecting them to these organizations is the comfort that transitioning Soldiers receive from knowing that a dedicated individual has a vested interest in assisting their transition. Unfortunately, there is no such sponsorship program that exists for all Service Members when they conduct their Expiration Term of Service (ETS) and transition out of the military into their civilian communities.

Attempting to explore the most effective ways to further apply peer mentorship, the Department of Defense Center of Excellence (DCOE) for Psychological Health & TBI (2011) published the "Best Practices Identified for Peer Support Programs." Within the report, the

authors reviewed 15 programs that provide peer mentorship to a wide range of individuals including Service Members, Veterans, and police officers. They reported that peer support might have the potential to address issues that Veterans face since it appears to foster social networking, improve quality of life, promote wellness, improve coping skills, support acceptance of an illness or situation, improve compliance, reduce concerns, and increase satisfaction with health status (DCOE, 2011). Consistent with their report, it is possible that peer mentorship programs could continue the protective benefits of social support and leadership after Veterans transition out of the military. When in the military, these factors help to protect Service Members against military-specific risk factors, such as combat exposure. These protective factors have the potential to continue their protective value after Service Members transition out of the military when they face the risk factor of transition stressors.

The report also highlighted that there is limited research that tests the effectiveness of the peer mentorship programs with Veterans. Most of the current research consists of anecdotal, cross-sectional and qualitative methods with only a limited amount of research utilizing the most rigorous method of research found within randomized clinical trials. Similarly, the Committee on the Assessment of Resiliency and Prevention Programs for Mental and Behavioral Health in Service Members and their Families (Institute of Medicine, 2014) published its recommendations that the Department of Defense should utilize only validated measures to test, monitor, and evaluate new resilience and prevention programs and that only evidence-based programs should continue to receive funding, while non-evidence based programs should be eliminated.

Pro Vetus Program

In this dissertation, I am attempting to provide a preliminary study of a cost-effective way to maximize the protective factors of leadership and social support for Veterans and their families as they transition from the military to the civilian sectors. It appears that a trained, peer

mentor program that is based on the research from other fields may assist Veterans to successfully transition and enable them to reach their full potential as the next leaders of their civilian communities. As part of the Pro Vetus program, volunteer mentors (a mix of Veterans and non-Veterans) in the civilian community work with transitioning Veterans for approximately four months within five transition domains (1. Employment/Education, 2. Housing, 3. Family and Legal, 4. Social/Community/ Physical Fitness and 5. Medical Care).

Similar to research presented by Geraci et al. (2011), I propose that trained, peer Pro Vetus mentors can integrate leadership behaviors- task and relational oriented- to strengthen the buffer factor for transitioning Veterans by providing them the protective factors of leadership and social support. As a result, this can then maximize the coping flexibility of Veterans as they transition from the military to the civilian sectors. Just as effective military leaders demonstrate task-oriented leadership behaviors to accomplish their primary military mission (e.g., closing with and destroying the enemy), effective Pro Vetus mentors can demonstrate similar task-oriented leadership behaviors to accomplish the new mission of successfully transitioning Veterans into their civilian communities.

One of the key task-oriented leadership behaviors of mentors consists of conducting a collaborative, initial assessment of a Veteran's status within each of the five domains and then helping the Veteran to establish domain-specific goals that the mentor and Veteran can evaluate on a monthly basis. In assisting Veterans to define their own goals, the Pro Vetus mentors will integrate components of the Goal-setting theory (Locke & Latham, 2006) in order to help Veterans establish high (hard), attainable, and meaningful goals that will help them to successfully transition into the civilian sector. Such task-oriented behaviors by the Pro Vetus mentors should not only improve the social support of Veterans but additionally increase their capacity to demonstrate a forward focus coping style as their mentors encourage them to

accomplish the mission of successfully transitioning. This focus on directly addressing the transition stressors is consistent with an Interpersonal Therapy approach in that one of the primary tasks of the mentor and the Veteran is to resolve the stressors associated with Veterans' major role transition (Lipsitz & Markowitz, 2013).

Similar to how effective military leaders integrate relational-oriented leadership behaviors to bolster social support internal to their units, Pro Vetus mentors also demonstrate these behaviors. They establish positive interpersonal relationships with Veterans as they navigate their role transition. Given the military background of most Pro Vetus mentors, the relationship that he or she establishes with a transitioning Veteran may be the only social support for the Veteran in which he or she feels understood. The three essential characteristics described by Carl Rogers (genuineness, unconditional positive regard, and empathy) are paramount for a Pro Vetus mentor to integrate into his or her interactions with transitioning Veterans as their relationship may fill a potential gap created from Veterans' separation from their comrades or role disputes with loved ones. Similar to Interpersonal Therapy, this relationship is intended to be short-term and a springboard for Veterans to develop, strength, and deepen other relationships in their lives (Lipsitz & Markowitz, 2013). Such relational-oriented leadership behaviors should help to instill a sense of trust and openness for transitioning Veterans and encourage them to integrate a trauma focus coping style, if necessary. As mentioned by Resick (2001), these Veterans may need to make meaning of emotions related to military-related risk factors. Additionally, they may also have varied and powerful emotions generated by their transition that they have difficulty tolerating and understanding (Markowitz, Milrod, Bleiberg, & Marshall, 2009).

An important element of the Pro Vetus program is the competence of the mentors to perform the leadership behaviors as demonstrated above. If the mentors are adaptive, flexible

and able to effectively shift between task and relational-oriented leadership behaviors based on the changing demands presented by Veterans, then it is highly likely that Veterans will successfully transition into the civilian sector. To ensure that Pro Vetus mentors have a necessary level of competence to fulfill their role, the training and supervision program for mentors consists of: an application and selection process for interested mentor candidates, a 20 hour training program focused on teaching mentors to integrate both the task and relational leadership behaviors, an experiential certification exam in which evaluators grade the mentor candidates, and a monthly training and support meeting for certified mentors. Additionally, the mentors will receive assistance from the VA's Suicide Prevention Coordinators (SPC). The SPCs will provide significant assistance to the Pro Vetus program and establish sound collaboration between Pro Vetus and the Veterans Affairs. The SPCs will provide suicide prevention training as part of the 20 hour training curriculum for mentors and participate in the monthly meetings to provide additional education concerning psychological health issues and services that the Veterans Affairs can offer. The mentors will also receive supervision from more senior Pro Vetus team leaders, who will conduct quarterly evaluations of Pro Vetus mentors (**Figure 1: Pro Vetus Organizational Structure**).

In developing the Pro Vetus program, we saw the opportunity to leverage the existing informal social network established by Team Red, White, and Blue (TM RWB). TM RWB is a 501(c)(3) non-profit, Veteran support organization founded in 2010. Its mission is to enrich the lives of America's Veterans by connecting them to their community through physical and social activity. It has over 60 chapters across the United States with 400% membership growth between 2012 and 2013 (membership increased from 5,000 to 25,000 over the course of 2013). Central to TM RWB's mission is that inspiring Veterans to become physically active will create opportunities to establish authentic connections to other Veterans, active duty military, and

civilians as well as improve the chances for continued successful transition into the civilian sector. Enrollment into TM RWB takes place by simply signing up online and providing a name, email address, and zip code (teamrwb.org). TM RWB is not designed as a mental health intervention. While the nature of the organization is to increase Veteran's social support network, it is an informal process and primarily structured around creating daily to weekly opportunities for individual engagement with members from the community. After joining TM RWB, participants are able to access a large online community through social media, and if nothing else, receive weekly emails from their respective chapter captains about local, upcoming events. Face-to-face engagement occurs (although not limited to) mostly during structured physical fitness activities such as running, cycling, triathlon, yoga, etc. It does not currently have a formal mentorship program and the organization has not been tested for effectiveness in any formal experimental evaluation. In simple terms, the Pro Vetus program is adding a formal, trained, and volunteer peer-mentorship to VSOs, such as TM RWB. This longitudinal study is taking place in the New York City chapter of TM RWB. Based on the results of the research, the Pro Vetus program will expand to other cities across the United States.

The primary study hypothesis for the randomized clinical trial is that Veterans who receive trained, peer Pro Vetus mentorship and belong to TM RWB (first study arm) will transition more successfully into the civilian sector compared to Veterans who belong to TM RWB (second study arm) and Veterans who are placed on the waitlist (third study arm). Additionally, we hypothesize that Veterans who belong to TM RWB (second study arm) will transition more successfully into the civilian sector compared to Veterans who are placed on the waitlist (third study arm).

Chapter III

Method

Design

For this dissertation, I will conduct a preliminary investigation of the ongoing longitudinal research project in New York City that is assessing the effectiveness of the Pro Vetus program and TM RWB over a five year period. As part of this multi-arm, parallel randomized clinical trial, the Teachers College IRB has approved the research team to recruit 600 Veterans. After providing informed consent and completing the pre-intervention assessment on the Qualtrics™ (Provo, Utah, United States) online platform, eligible research participants will be randomly assigned to one of the three study arms with a balanced allocation (1:1:1). The research participant will participate in their respective study arm and then complete a post-intervention assessment (four months after the first assessment), a follow-up assessment (six months after the post-intervention assessment), and a second follow-up assessment (twelve months after the post-intervention assessment). Additionally, the researchers will access the criminal and driving records of the Veterans and mortality data during the second follow-up and also five years later. For my dissertation, I am conducting a preliminary investigation of the program by analyzing the results for Veterans who completed both the pre-intervention and post-intervention assessments prior to April 2015. This investigation will help to provide valuable feedback to the Pro Vetus program and to Team Red, White, and Blue, as well as validate the methods and data analysis procedures utilized in the randomized clinical trial.

Participants

The study will include Veterans in the New York City area who have transitioned out of the military since 2002. Inclusion criteria for participants include being 18 years old and over, having prior military service within the last twelve years, and currently residing within the NYC

area (and anticipate staying within the area for at least one year) or will move to NYC area prior to December 31, 2015 (and anticipate staying for at least one year). Exclusion criterion includes previous membership within Team Red, White, and Blue.

Recruitment and Randomization

The recruitment will be population-based and target recent Veterans residing in the New York City area. The enrollment period began in September 2014 and will continue through May 2015. Participants will be recruited through IRB approved flyers and business cards given to agencies that provide services to Veterans in the New York City area, letters sent to recent Veterans living within the New York City area, and advertisements about the study posted on Facebook, Craigslist, Reddit and LinkedIn. All recruitment materials will direct research participants to access the Qualtrics website, which contains the approved informed consent and assessments. We anticipate enrolling 600 recent Veterans into the ongoing, longitudinal study. Research participants will receive a \$20 check in the mail after completing each online assessment. The research team will also mail a \$25 bonus check to research participants who complete all four assessments (pre-intervention, post-intervention, 6 month follow-up and 12 month follow-up). Therefore, the maximum reimbursement for research participants is \$105.

Other randomized clinical trials (Adler, Bliese, McGurk, Hoge, & Castro, 2009; Brief, Rubin, Keane, & Enggasser, 2013) that evaluated the effectiveness of interventions with large groups of non-clinical, Service Members and Veterans have informed our anticipated attrition rate and necessary sample size for our research. Brief et al. (2013) began their study with a sample size of 600 recent Veterans and experienced an attrition rate of 47.5% when studying the effectiveness of a web-based intervention for alcohol abuse and PTSD symptoms over an approximate five month period. Similarly, we estimated that 600 participants would be needed to ensure sufficient power (i.e., .80) to detect a difference between groups in a two-tailed test with

Type-I error of 5%, assuming a small effect size. We anticipate a similar attrition rate of 47.5%. For the post-intervention assessment (four months after the pre-intervention assessment), this would equate to approximately 105 Veterans remaining within each study arm. There are currently 129 research participants enrolled in the study (45 in the first study arm, 40 in the second study arm, and 42 in the waitlist arm) who completed the pre-intervention assessment.

We conduct random allocation (1:1:1) through the random number function in Excel 2007 (Microsoft, Redmond, WA, USA), as described by Kim & Shin (2014). The principal investigator and a small analysis team are the only individuals with access to the Qualtrics assessments. After research participants complete informed consent and the baseline assessment, the principal investigator confirms that participants meet eligibility requirements and then provides the names and addresses of eligible research participants to an independent researcher who processes the payments for the participants. In addition to processing the payments, this individual also uses the random number function in Excel to generate a random number (1, 2 or 3) for each research participant. They then provide this randomly generated number to the principal investigator who then takes the random number and compares the number for each participant to the allocation sequence key. This key changes monthly and specifies which arm that individuals with each random number are assigned. The allocation sequence key is concealed from the individual researcher generating the random numbers and changes monthly to further ensure concealment. The principal investigator then sends an IRB approved email to each research participant to inform them of their assignment and to provide them procedures outlining their further participation in the study. The Pro Vetus and TM RWB directors are blind to the research participants in the third arm (waitlist). The Pro Vetus mentors are blind to the research participants in the second (TM RWB membership) and the third arms (waitlist). All other investigators and staff, including the small analysis team, are blind to assignment of

research participants. All investigators, staff, and other individuals involved in the study (except the principal investigator and the small analysis team) are masked to the individual assessment results.

Assessment Measures

Research participants are asked to complete four different assessments as identified in **Table 1** (Research Variables and Timeline for Assessments) and **Figure 2 (Graphical Depiction of Proximal and Distal Outcomes)**. Each of the surveys listed in table 1 has been validated with Veteran populations.

Covariates.

Combat Experiences (Vogt, Smith, King, King, Knight, & Vasterling, 2013).

The Deployment Risk and Resiliency Inventory-2 (DRRI-2) is a collection of scales that assess key deployment-related risk and resilience factors with demonstrated implications for Veterans' long-term health. Section D of the DRRI-2 is the Combat Experiences Scale (DRRI-CES), which is comprised of questions that refer to exposure to combat-related circumstances such as firing a weapon, being fired on, being attacked or witnessing an attack, encountering friendly fire, and going on special missions and patrols that involve such experiences. Scoring of the 17-item measure is rated on a 6-point Likert scale (1 = *Never*; 6 = *Daily or almost daily*). In a study that validated the scale with OIF Soldiers, Cronbach's alpha on CES items was .93 (Vogt, Proctor, King, King, & Vasterling, 2008). These authors reported a mean and standard deviation of 31.98 and 10.27 for a sample of 591 male Soldiers who deployed to OIF and 22.45 and 4.68 for a sample 49 female Soldiers who deployed to OIF.

The Perceived Ability to Cope with Trauma (PACT). This survey assesses various behaviors relevant to flexibility in the specific context of coping with potentially traumatic life events (Bonanno et al., 2011). The scale asks participants to endorse their ability to

use different coping strategies on a 7-point scale (1=*not true*, 7=*extremely true*). Factor analysis revealed two subscales- trauma focus and forward focus. Trauma focus includes various facets of meaning making, such as remembering the details of the event and reflecting on the meaning of the event. It involves fully experiencing the emotional and cognitive significance of a potentially traumatic event, temporarily withdrawing from social interactions, revising goals and plans, and making meaning of the event. Forward focus assesses coping abilities related to thinking optimistically, attending to the needs of others, maintaining plans and goals, remaining calm, reducing painful emotion, and being able to laugh. Research suggests that individuals with an ability to employ a repertoire of coping strategies (both trauma and forward focus) based on the contextual demands of the environment are more well-adjusted after experiencing traumatic events (Galatzer-Levy, Burton, & Bonanno, 2012; Bonanno et al., 2011; Burton & Bonanno, 2013).

Proximal Outcomes.

The Military to Civilian Questionnaire (M2C-Q)(Sayer et al., 2011). It is a measure that assesses transition difficulties for Veterans within the following areas- (a) interpersonal relationships with family, friends, and peers; (b) productivity at work, in school, or at home, (c) community participation; (d) self-care; (e) leisure, and (f) perceived meaning in life. The 16 items on the measure are rated on a 5-point Likert scale with these response options: 0 = *No difficulty*, 1 = *A little difficulty*, 2 = *Some difficulty*, 3 = *A lot of difficulty*, and 4 = *Extreme difficulty*. Respondents can indicate *Does not apply* for the four items that assess relationship with spouse/partner, relationship with child/children, work, and school functioning. The measure has been validated in a study of 745 OEF/ OIF Veterans who sought healthcare services from the VA (Sayer et al., 2011).

The Quality of Life Enjoyment and Satisfaction Questionnaire–Short Form

(Q-LES-Q-SF; Endicott, Nee, Harrison, & Blumenthal, 1993). This survey is a 16-item version of the full Q-LES-Q (Endicott et al., 1993). It is scored on a 5-point Likert scale, ranging from *not at all or never* (1) to *all the time/often* (5), with higher scores indicating greater satisfaction. It has demonstrated good reliability, validity and, sensitivity to change (Endicott et al., 1993; Rucci et al., 2007). More specifically, the Q-LES-Q-SF has a Cronbach's alpha coefficient of .74 to .97 in patient samples, and is an 80% sensitive and 100% specific measure (Stevanovic, 2011). It has been used previously with a sample of Veterans seeking treatment for PTSD (Bormann, Thorp, Wetherell, & Golshan, 2008).

The Social Support Survey (MOS SSS) (Sherbourne & Stewart, 1991). This measure consists of 20 items related to perceived availability of social support. It consists of four subscales: emotional/ informational, tangible, affectionate, and positive social interactions. All but 1 item is rated on a 5-point Likert scale, from *none of the time* to *all of the time*. It has been previously used with OIE/OEF Veterans within six months of transitioning from the military (Currier, Lisman, Harris, Tait, & Erbes, 2013).

Distal Outcomes.

Criminal Record. Similar to procedures implemented by Pandiani, Ochs, & Pomerantz (2010); we will officially request from both the New York State Office of Court Administration and the Department of Motor Vehicle the criminal record of each Veteran in the study during the second follow-up and five years after completing the pre-intervention assessment. The Office of Court Administration will provide number of convictions and pending records (felony and misdemeanors, except DUI/DWI). The DMV records will provide number of accidents (reportable), convictions (to include DUI/DWI), expirations, point and insurance reduction program completions, suspensions and revocations.

Mortality- Suicide. During the second follow-up and five years after completing the pre-intervention assessment, we will utilize the same procedures described by Luxton et al. (2014) to assess completed suicides. Suicide counts will be based on death certificates recorded in the Centers for Disease Control and Prevention (CDC) National Death Index Plus (NDI-Plus). We will first use the Social Security Administration Death Master File (DMF) to identify deaths and then submit records to the NDI-Plus to ascertain mortality cause. The International Statistical Classification of Diseases and Related Health Problems (ICD-10) will be used to identify suicides from the NDI-Plus data. We will use the definition for suicide (“death caused by self-directed injurious behavior with intent to die as a result of the behavior”) as adopted by the CDC (2014).

PTSD Checklist Military Version (PCL-M). This is a 17 item self-report questionnaire in which each item is scored on a 1-5 scale (1= *not at all* and 5 = *extremely*). The possible range of scores is 17-85. Internal consistency scores range from .94 (Blanchard, Jones Alexander, Buckley, & Forneris, 1996) to .97 (Weathers et al., 1993). Test-retest reliability has been reported as .96 at 2-3 days and .88 at 1 week (Blanchard et al., 1996; Ruggiero, Del Ben, Scotti, & Rabalais, 2003). A cutoff score of 50 for a PTSD diagnosis has demonstrated good sensitivity (.78 to .82) and specificity (.83 to .86) (Blanchard et al., 1996). The mean score and standard deviation for a national sample of 425 student Veterans, who completed an online version of the survey, were 33.0 and 17.1, respectively (Gould et al., 2010).

The Patient Health Questionnaire (PHQ-15; Kroenke, Spitzer, & Williams, 2002). The survey is used to measure physical health among adults. It contains 15 items that account for more than 90% of symptoms seen in primary care excluding upper respiratory tract symptoms (Kroenke et al., 2002), and it assesses how much individuals have been bothered by each symptom during the past four weeks. Responses are recorded using three-point Likert

scales, ranging from *not bothered at all* (0) to *bothered a lot* (2). A general indicator of physical health can be obtained by computing a sum of scores, which range from 0 to 30. A higher score indicates greater symptom severity, with scores of 5, 10, and 15 representing cut-off points for mild, moderate, and severe levels of somatic symptoms, respectively. The PHQ-15 has demonstrated good reliability and validity (Kroenke, Spitzer, Williams, & Löwe, 2010). It has been used to investigate effects of PTSD on veterans' physical health problems (Hoge, Terhakopian, Castro, Messer, & Engel, 2007), and there is support for PHQ-15's sensitivity to change in clinical trials and longitudinal studies (Kroenke et al., 2010).

The Alcohol Use Disorders Identification Test–Consumption (AUDIT-C)

(Bradley et al., 2007). AUDIT-C as a brief screen for alcohol misuse in primary care. This scale is becoming an increasingly relied upon screening tool for alcohol use problems in modern medical practice. For example, the VA implemented annual alcohol screening in 2003 with the scale and requires that this scale be used to screen outpatients for alcohol misuse (Lapham et al., 2012). The three AUDIT-C questions ask about the frequency of drinking, typical quantity of drinking, and the frequency of drinking six or more drinks in one day. Scores on the AUDIT-C range from 0 to 12, with higher scores indicating greater alcohol misuse severity. Using data from 4,725 OEF/OIF VA outpatients with alcohol screening data; Grossbard et al. (2013) reported that 933 (19.7%) Veterans screened positive for alcohol misuse (AUDIT-C \geq 5).

Intervention

During the rolling enrollment period (September 2014- December 2015), the research team will recruit Veterans to enroll in the ongoing, longitudinal research project. Once recruited, participants will provide informed consent and then be able to access the on-line assessment on the Qualtrics website. After completing the pre-intervention assessment, eligible Veterans will be

randomly assigned to one of three different study arms. Each research participant will receive an email from the research team informing him or her of their respective assignment.

Study Arm #1 (TM RWB *PLUS* Pro Vetus Mentorship). Approximately 200 research participants will join TM RWB plus receive approximately four months of mentorship from a trained, peer Pro Vetus mentor. The research participants will receive an introductory email from the research team informing them that they were randomly assigned to this group and request that they voluntarily join TM RWB and receive mentorship from their matched and assigned mentor. After joining TM RWB online, they will receive an introductory email from the Chapter Captain of the NYC Chapter and weekly emails submitted to the entire NYC Chapter. These weekly emails provide lists of voluntary physical/social activities available to all Chapter members. No participation is required in these activities. In addition to TM RWB membership, research participants will also receive approximately four months of mentorship from a Pro Vetus mentor to assist them in further transitioning within the five domains.

Study Arm #2 (TM RWB Membership). Approximately 200 research participants will join TM RWB and voluntarily participate in the organization similar to the other 25,000 members who already belong to the organization. After completing the survey, the research participants will receive an introductory email from the research team informing them that they were randomly assigned to this arm and request that they voluntarily join TM RWB. After joining TM RWB online, they will receive an introductory email from the Chapter Captain of the NYC Chapter and weekly emails submitted to the entire NYC Chapter. These weekly emails provide lists of voluntary physical/social activities available to all Chapter members. No participation is required in these activities.

Study Arm #3 (Waitlist Arm). Approximately 200 research participants will be placed on a waitlist for approximately sixteen months. Based on their desires, the research participants

in this arm will have the opportunity to join TM RWB plus receive approximately four months of mentorship from a trained, peer Pro Vetus mentor.

Data Analysis

Differences in Demographic and Clinical Characteristics. Analysis was conducted in SPSS statistics package (Version 22). The significance level for all statistical tests was set at a two-tailed $p < .05$ level of significance. Preliminary data analyses included examination of dependent variables for skewness and kurtosis. To determine whether there was equivalence in demographic and clinical characteristics at baseline for the three study arms, I conducted one-way analyses of variance (ANOVAs) and compared all continuous demographic and outcome variables at baseline and chi-square tests to compare categorical measures. I used the same analyses to examine differences between participants who completed the post-intervention assessment with those who dropped out of the research. Any significant differences in demographic or baseline characteristics were controlled for in all analyses of between-group differences.

As shown in **Figure 3 (Consort Flow Diagram)**, there were a total of 70 Veterans who completed both the pre-intervention and post-intervention assessments (Arm1: Pro Vetus /TM RWB= 21, Arm2: TM RWB= 19, and Arm3: Waitlist= 30). Before analyzing the results, I checked to confirm the adherence of Veterans in the research protocol. This investigation found that three Veterans in Arm1 did not respond to several attempts by their mentors to initiate contact with them and nine Veterans in Arm2 did not sign up for TM RWB after assignment. Therefore, I decided to not include their completed data from the post-intervention survey into the analysis. Given the resulting small sample size and unbalanced nature of the three arms, I consolidated Arm 1 and Arm 2 into one Intervention arm for the purposes of this preliminary investigation. The results in **Table 2 (Sample Characteristics: TM RWB Comparison)**

show that the Veterans who signed up for TM RWB in Arm2 did not significantly differ from Veterans who did sign up for TM RWB after assignment. This approach will enable me to still conduct a preliminary investigation of the research program and enable me to validate the data analysis procedures for use throughout the follow-on study.

Outcomes at Post-Intervention. I analyzed the results of the pre-intervention and post-intervention assessments with HLM 7.0 (Raudenbush, Bryk, & Congdon, 2011). HLM random effects models examine within- and between-group change across time (pre- to post-intervention) and by condition (Intervention Arm and Waitlist). I used mixed effects modeling as it accounts for the underlying heterogeneity between and within participants (i.e., intercepts and slopes are allowed to vary across participants). This approach allowed me to identify differences in treatment effects and rates of change (slopes) in the dependent variables between study arms. It also allowed me to control for confounding variables that influenced Veteran outcomes. HLM incorporates participants with missing data by estimating the best fitting model from the data available for each participant (Hedeker & Gibbons, 2006). Given the small sample size, I conducted analysis for only Veterans who completed both the pre-intervention and post-intervention assessments and who adhered to the research protocol. In follow-on analysis, as the sample size increases, I will conduct intent-to-treat (ITT) analyses and all data points for participants who complete the pre-intervention assessment will be entered into the model.

I utilized a model-building approach for each dependant variable, as suggested by Raudenbush & Bryk, 2002), and examined all models using full maximum likelihood estimation because it allows for model comparisons. I first built a null model and analyzed each of the outcomes with no predictors at each level and utilized the results to estimate the Intraclass Correlation Coefficient (ICC). The ICC tests if there is a grouping-level clustering effect and if there are significant differences on the mean values of the dependent variable between variables

that form Level 2 of the model. The test is calculated by dividing the estimated level 2 variance (τ_{00}) by the sum of the estimated level 2 variance and the estimated level 1 variance for the model ($\tau_{00} + \sigma^2$).

Next, I examined an unconditional model in which only the time variable was entered as a predictor first as fixed and then as random. I entered time centered at the post-intervention assessment, so that the parameter for intercept (β_{01}) would represent the outcomes at post-intervention. This enabled treatment effect and growth to be predicted after controlling for pre-intervention levels of outcome variables and other predictors, mentioned below. I also report the results of time centered at the pre-intervention assessment in **Table 4 (Mixed Effects Model Results)** to show the impact of predictors upon the outcome variables at pre-intervention. Adding time to the null model as random did not improve the fit of any of the models in this preliminary investigation. But, in order to validate the analytic procedures for the continuation of the randomized clinical trial, I still continued the analysis with the unconditional model with the variance of time random.

For the next step, I examined three time-invariant, Veteran-related predictors (Level 2) to determine if they helped to account for the variation identified in the null model by adding them to both the intercept and slope equations. Based on the importance of the risk and protective factors identified above; I added one risk factor, level of combat exposure experienced in the military (CombatExp- continuous variable), and two protective factors, highest rank achieved in the military (Rank- dummy coded for enlisted=0, noncommissioned officer=1, and officer=2) and coping flexibility (CopFlex- continuous variable). I used the values provided by the Veterans during the pre-intervention survey for each of these covariates. In the last step, I created the full model by including the dummy coded variable for treatment into the equations (0=waitlist and 1=intervention) for the intercept and slope equations. This helped to determine if this addition

improved the model fit and if the treatment effect and the effect of the treatment upon the change in Veteran outcome scores from pre- to post-intervention were significant. The equations below highlight the level 1 (Equation 1), level 2 (Equation 2), and the mixed model (Equation 3) equations utilized in the analysis for each outcome variable.

Equation1. Level 1: $Outcome_{ij} = \beta_{01} + \beta_{10}Time_{ij} + e_{ij}$

Equation2. Level 2:

$$\beta_{01} = \gamma_{00} + \gamma_{01}(TX_i) + \gamma_{02}(Rank) + \gamma_{03}(CombatExp) +$$

$$\gamma_{04}(CopFlex) + u_{0i}$$

$$\beta_{10} = \gamma_{10} + \gamma_{11}(TX_i) + \gamma_{12}(Rank) + \gamma_{13}(CombatExp) + \gamma_{14}(CopFlex) + u_{1i}$$

Equation3.

$$Outcome_{ij} = \gamma_{00} + \gamma_{01}(TX_i) + \gamma_{02}(Rank) + \gamma_{03}(CombatExp)$$

$$+ \gamma_{04}(CopFlex) + Time_{ij} * \gamma_{10} + Time_{ij} * \gamma_{11}(TX_i) + Time_{ij} * \gamma_{12}(Rank)$$

$$+ Time_{ij} * \gamma_{13}(CombatExp)$$

$$+ Time_{ij} * \gamma_{14}(CopFlex) + Time_{ij} * u_{1i} + u_{0i} + e_{ij}$$

Substituting the intercept and slope equations back into the level 1 equation provides a mixed effects model (Equation 3). In this equation, $Outcome_{ij}$ represents the dependent variable measured for Veteran i at the post-intervention after controlling for pre-intervention, β_{01} represents the intercept or the dependent variable for Veteran i at the post-intervention assessment, β_{10} represents the linear rate of growth for Veteran i across each time point, $Time_{ij}$ represents the exact time for the assessment and is centered on the post-intervention assessment of Veteran i , and e_{ij} is the residual or error term indicating the deviation of each Veteran's score from their own modeled regression line. For the intercept equation at level 2, γ_{00} is the mean response across all Veterans in the sample included in the analysis at post-intervention, γ_{01} is the

main effect of treatment for the change in means for the different arms at post-intervention, TX_i is a dummy coded indicator for waitlist as the reference arm (0) and the intervention arm as 1, u_{oi} is the random effect associated with the mean. For the slope equation at level 2, γ_{1o} , is the average growth rate across all Veterans included in the analysis, γ_{11} is the main effect of treatment for the growth rate from pre- to post-intervention, and u_{1i} is the random effect associated with the growth rates.

The first ten terms are the fixed effects that capture the average model and the last three terms are the random effects (i.e., $Time_{ij} * u_{1i}$, u_{oi} , and e_{ij}) that capture the variation between individual regression models and the average models as well as the variation between individual observations and the regression model within each Veteran (i.e., e_{ij}). The two most important variables for the analysis are $\gamma_{o1}(TX_i)$, which is the treatment effect of the intervention, and the cross-level interaction effect, $\gamma_{11}(TX_i) * Time_{ij}$. Substituting these equations creates the cross-level interaction effect, which will predict the average slope or rate of growth from pre- to post-intervention assessment for Veterans in the intervention arm compared to Veterans in the waitlist (O'Connor, Capella).

To accurately estimate the effect of Level 2 predictors on the Level 1 outcomes, I centered all continuous predictors at Level 2 around their grand mean (Raudenbush, 2009). Non-continuous predictors will not be centered. The effect sizes for each outcome between intervention arms were calculated using the equation suggested by Raudenbush, Sprybrook, Liu, & Congdon (2005, p. 16):

$$\frac{\text{treatment gamma (or coefficient)}}{\sqrt{\tau^{00} + \sigma^2}}$$

where treatment gamma is equal to the fixed effect for treatment (TX_i) and where τ^{00} (the between-class variance component) and σ^2 (the within-class variance component) are taken from the unconditional model prior to entering the treatment effect into the full model.

Chapter IV

Results

The average Veteran served 9.10 years (SD=6.37) in the military with no differences internal to the intervention arms (PVs: M=9.67 years, SD=7.96 and TM RWB: M=7.70 years, SD=3.95) and between the waitlist arm (M=9.23 years, SD=6.07)(**Table 3: Sample Characteristics by Condition**). The Veterans were represented across the service branches (Army, Marines, Air Force, Navy) and participants within each arm did not significantly differ regarding the amount of combat exposure experienced during deployments to Afghanistan and/or Iraq, the highest military rank achieved in the service, nor race. Additionally, there was no difference internal to the intervention arms (PVs: M=81.11, SD=17.90 and TM RWB: M=71.40, SD=14.27) and between the waitlist arm (M=73.20, SD=22.87) on scores for Coping Flexibility. Regarding missing values for dependent variables, I conducted a test of random missingness (Little, 1988) for each level 1 dependent variable and the results indicated that the data was missing completely at random (Little's MCAR $X^2(58) = 116.02, p = .73$. HLM allows Level 1 missing data for estimates of growth, so I did not implement multiple imputation methods for the data.

Proximal Outcomes

Military to Civilian Transition

The ICC for M2CQ [$1.04/(1.04+.11)$] was .90 suggesting that 90% of the variance in M2CQ scores are due to individual Veteran differences (Level 2) and only 10% of the variance is due to within-Veteran change (Level 1). An ICC of this magnitude, as well as a statistically significant τ_{00} , [$X^2(56) = 993.64, p < .001$], indicates the need for multilevel modeling (Garson, 2013). Similar to the other outcomes, the decrease in model deviance from the unconditional model with time fixed to the unconditional model with time random was not

statistically significant [$X^2_{LR}(2) = .21, p > .05$]. But, in order to validate the analytic procedures for the continuation of the randomized clinical trial, I still continued analysis with the unconditional model with the variance of time random and will continue this procedure for the additional outcomes. The addition of the three covariates (Rank, CombatExp, and CopFlex) to the unconditional (with time random) model improved the fit of the model, [$X^2_{LR}(6) = 42.10, p < .001$]. The addition of the treatment variable to the full model reduced the deviance score of the model but did not significantly improve upon the fit of the unconditional model (time random and three covariates), [$X^2_{LR}(2) = 4.15, p = .12$]. Similarly, I continued the analysis with the treatment variable to validate the data analysis procedures.

Within the full model, the coefficient of the intercept (β_{00}) at post-intervention was 1.77 (**Table 4: Mixed Effects Model Results**), which was statistically significant [$t(52) = 10.02, p < .001$] indicating that the average of M2CQ scores across Veterans at post-intervention was 1.77 and was different than zero. This value is the predicted score on M2CQ for referenced Veterans with the lowest rank (enlisted=0), with no previous combat exposure (CombatExp=0), with no coping flexibility (CopFlex=0), and who are in the waitlist arm (TX=0). As anticipated, a Veteran's previous rank in the military [$\gamma_{o2} = -.39, t(52) = -2.76, p < .01$] and their level of coping flexibility [$\gamma_{o4} = -.03, t(52) = -5.62, p < .0001$] were significant differentials of a Veteran's M2CQ score, though previous combat exposure was not [$\gamma_{o3} = .01, t(52) = -.85, p > .05$].

The treatment effect for Veterans who participated in the treatment arm was significant [$\gamma_{o1} = -.41, t(52) = -2.04, p < .05$] showing that there was a significant difference between the two arms at post-intervention after controlling for the covariates and including the pre-intervention M2CQ scores into the repeated measure outcome variable. The effect size for this

treatment effect was calculated as follows: $(treat\ gamma)/\sqrt{(\tau^2 + \sigma^2)} = (-.41)/\sqrt{(.52 + .09)} = .51$, which is a moderate effect based on Cohen's *d* effect sizes (Cohen, 1998). Of note, when time is centered at pre-intervention the predictor of *TX* was not significant, thus demonstrating equivalence of the intervention and waitlist arms at pre-intervention. The mean changes for the adjusted scores at post-intervention were -.17 for the intervention arm and .04 for the waitlist arm resulting in a -.21 (95% CI: -.42 to .16) point improvement in adjusted mean scores at post-intervention (**Table 5. Effects of Intervention on Distal and Proximal Outcomes**).

The coefficient for change from pre to post test (β_{10}) was .06, which was not statistically significant [$t(52) = .56, p > .05$] indicating that the average linear change in M2CQ scores for all Veterans in the sample from pre- to post-intervention was not different from zero. None of the anticipated differentials of the change in M2CQ scores were significant- rank in the military [$\gamma_{12} = -.07, t(52) = -.91, p > .05$], level of coping flexibility [$\gamma_{14} = .001, t(52) = .34, p > .05$], nor previous combat exposure [$\gamma_{13} = -.002, t(52) = -.46, p > .05$]. Similarly, the coefficient for the intervention arm was not significant [$\gamma_{11} = -.20, t(52) = -1.53, p = .13$]. Therefore, the effects of the treatment (Intervention vs. Waitlist) on M2CQ scores did not identify a significant difference in the rate of change in M2CQ scores from pre- to post-intervention.

Income

There was a concern regarding skewness for the variable of income. Therefore, I conducted a logarithmic (base 10) transformation of the variable, which resolved the issue. The ICC for income [$.93/(.93+.18)$] was .84 suggesting that 84% of the variance in income scores are due to individual Veteran differences (Level 2) and only 16% of the variance is due to within-Veteran change (Level 1). The addition of the three covariates (Rank, CombatExp, and CopFlex)

to the unconditional (with time random) model improved the fit of the model [$X^2_{LR}(6) = 23.54$, $p < .001$]. Though, the addition of the treatment variable to the full model did not improve upon the fit of the unconditional (time random) model, [$X^2_{LR}(2) = 1.06$, $p > .05$].

The coefficient of the intercept (β_{00}) was 1.82, which was statistically significant, [$t(53) = 8.53$, $p < .001$], indicating that the average of income scores across Veterans at post-intervention was 1.82 and different than zero. This value is the predicted income, at post-intervention, for referenced Veterans with the lowest rank (enlisted=0), with no previous combat exposure (CombatExp=0), with no coping flexibility (CopFlex=0), and who are in the waitlist arm. As anticipated, a Veteran's previous rank in the military [$\gamma_{02} = .47$, $t(52) = 2.82$, $p < .01$] was a significant differential of a Veteran's predicted income at post-intervention. Though, their level of coping flexibility and previous combat exposure were not. The treatment effect for Veterans who participated in the treatment arm was not significant [$\gamma_{01} = .25$, $t(52) = 1.05$, $p > .05$]. Therefore, there was no significant change in mean scores between the intervention and waitlist arms at post-intervention.

The coefficient for change (β_{10}) nor any of the predictors for this change were significant indicating that the average linear change in income for all Veterans in the sample from pre- to post-intervention was not different from zero. Therefore, it appears that that the effect of treatment (Intervention vs. Waitlist) on income did not approach significance for a linear trend suggesting no difference in the steepness of the linear change in income for the waitlist arm compared to the intervention arm.

Social Support

There was an issue with kurtosis for the post-intervention score for social support, so I conducted a logarithmic (base 10) transformation of the variable, which resolved the issue. The ICC for social support [$1.09/(1.09+.46)$] was .70 suggesting that 70% of the variance in social

support scores are due to individual Veteran differences (Level 2) and only 30% of the variance is due to within-Veteran change (Level 1). The addition of the three covariates (Rank, CombatExp, and CopFlex) to the unconditional (with time random) model improved the fit of the model [$X^2_{LR}(6) = 18.47, p < .01$]. Similarly, the addition of the treatment variable to the full model improved upon the fit of the unconditional model (time random and three covariates), [$X^2_{LR}(2) = 6.47, p < .05$].

The coefficient of the intercept (β_{00}) was 1.66, which was statistically significant, [$t(52) = 23.21, p < .001$], indicating that the average of social support scores across Veterans at post-intervention was 1.66 and different than zero. This value is the predicted social support score, at post-intervention, for referenced Veterans with the lowest rank (enlisted=0), with no previous combat exposure (CombatExp=0), with no coping flexibility (CopFlex=0), and who are in the waitlist arm. As anticipated, a Veteran's level of coping flexibility [$\gamma_{04} = .001, t(53) = 2.97, p < .01$] was a significant differential of a Veteran's social support score. Though, previous rank in the military and previous combat exposure were not. The treatment effect for Veterans who participated in the treatment arm was significant [$\gamma_{01} = .23, t(53) = 2.46, p < .05$]. The effect size for this treatment effect was calculated below as follows:

$(\text{treat } \gamma_{01}) / \sqrt{(\tau^2 + \sigma^2)} = (.23) / \sqrt{(.09 + .03)} = .68$, which is a moderate effect based on Cohen's d effect sizes (Cohen, 1998). Of note, when time is centered at pre-intervention the predictor of TX was not significant, thus demonstrating equivalence of the intervention and waitlist arms at pre-intervention. The mean changes for the adjusted social support scores at post-intervention were .22 for the intervention arm and -.06 for the waitlist arm resulting in a .28 (95% CI: -.25 to .81) point improvement in adjusted mean scores at post-intervention (**Table 5**).

The coefficient for change (β_{10}) nor any of the predictors for this change were significant indicating that the average linear change in social support for all Veterans in the sample from pre- to post-intervention was not different from zero. Therefore, it appears that the effect of treatment (Intervention vs. Waitlist) on social support did not approach significance for a linear trend suggesting no difference in the steepness of the linear change in social support for the waitlist arm compared to the intervention arm.

Quality of Life

The ICC for quality of life [$389.12/(389.12+76.20)$] was .84 suggesting that 84% of the variance in quality of life scores are due to individual Veteran differences (Level 2) and only 16% of the variance is due to within-Veteran change (Level 1). The addition of the three covariates (Rank, CombatExp, and CopFlex) to the unconditional (with time random) model improved the fit of the model [$X^2_{LR}(6) = 26.13, p < .001$]. Though, the addition of the treatment variable to the full model did not significantly improve upon the fit of the unconditional model (time random and three covariates), [$X^2_{LR}(2) = 2.08, p > .05$].

The coefficient of the intercept (β_{00}) was 56.31, which was statistically significant, [$t(52) = 13.653, p < .001$], indicating that the average of quality of life scores across Veterans at post-intervention was 56.31 and different than zero. This value is the predicted quality of life score, at post-intervention, for referenced Veterans with the lowest rank (enlisted =0), with no previous combat exposure (CombatExp=0), with no coping flexibility (CopFlex=0), and who are in the waitlist arm. As anticipated, a Veteran's level of coping flexibility [$\gamma_{04} = .57, t(52) = 4.81, p < .0001$] was a significant differential of a Veteran's quality of life score. Though, previous rank in the military [$\gamma_{02} = 2.58, t(52) = .85, p > .05$] and previous combat exposure were not [$\gamma_{03} = .02, t(52) = .11, p > .05$]. The treatment effect for Veterans who participated in the treatment arm was not significant [$\gamma_{01} = 6.91, t(52) = 1.48, p > .05$].

The coefficient for change (β_{10}) nor any of the predictors for this change were significant indicating that the average linear change in quality of life for all Veterans in the sample from pre- to post-intervention was not different from zero. Therefore, it appears that the effect of treatment (Intervention vs. Waitlist) on quality of life did not approach significance for a linear trend suggesting no difference in the steepness of the linear change in quality of life score for the waitlist arm compared to the intervention arm.

Distal Outcomes

Veteran Health

The ICC for PHQ score [$31.67/(31.67+6.19)$] was .84 suggesting that 84% of the variance in PHQ scores are due to individual Veteran differences (Level 2) and only 16% of the variance is due to within-Veteran change (Level 1). The addition of the three covariates (Rank, CombatExp, and CopFlex) to the unconditional (with time random) model did not significantly improve the fit of the model [$X^2_{LR}(6) = 11.71, p = .07$]. Additionally, the addition of the treatment variable to the full model did not significantly improve upon the fit of the unconditional model (time random and three covariates), [$X^2_{LR}(2) = 2.95, p > .05$].

The coefficient of the intercept (β_{00}) was 11.28, which was statistically significant, [$t(52) = 9.54, p < .001$], indicating that the average of PHQ scores across Veterans at post-intervention was 11.28 and different than zero. This value is the predicted PHQ score, at post-intervention, for referenced Veterans with the lowest rank (enlisted=0), with no previous combat exposure (CombatExp=0), with no coping flexibility (CopFlex=0), and who are in the waitlist arm. As anticipated, a Veteran's level of coping flexibility [$\gamma_{04} = -.11, t(52) = -3.11, p < .01$] was a significant differential of a Veteran's PHQ score. None of the additional covariates, including treatment effect, were significant differentials of a Veteran's PHQ score.

The coefficient for change (β_{10}) nor any of the predictors for this change were significant indicating that the average linear change in PHQ scores for all Veterans in the sample from pre- to post-intervention was not different from zero. Therefore, it appears that the effect of treatment (Intervention vs. Waitlist) on PHQ scores did not approach significance for a linear trend suggesting no difference in the steepness of the linear change in PHQ scores for the waitlist arm compared to the intervention arm.

PTSD

The ICC for quality of life [$299.74/(299.74+33.47)$] was .89 suggesting that 89% of the variance in quality of life scores are due to individual Veteran differences (Level 2) and only 11% of the variance is due to within-Veteran change (Level 1). The addition of the three covariates (Rank, CombatExp, and CopFlex) to the unconditional (with time random) model improved the fit of the model [$X^2_{LR}(6) = 34.91, p < .001$]. Though, the addition of the treatment variable to the full model did not significantly improve upon the fit of the unconditional model (time random and three covariates), [$X^2_{LR}(2) = 3.82, p > .05$].

The coefficient of the intercept (β_{00}) was 48.13, which was statistically significant, [$t(52) = 18.61, p < .001$], indicating that the average of PTSD scores across Veterans at post-intervention was 48.13 and different than zero. This value is the predicted PTSD score, at post-intervention, for referenced Veterans with the lowest rank (enlisted=0), with no previous combat exposure (CombatExp=0), with no coping flexibility (CopFlex=0), and who are in the waitlist arm. As anticipated, a Veteran's previous rank in the military [$\gamma_{02} = -4.49, t(52) = -2.03, p < .05$] and their level of coping flexibility [$\gamma_{04} = -.38, t(52) = -4.80, p < .001$] were significant differentials of a Veteran's PTSD score, though previous combat exposure was not [$\gamma_{03} = -.00, t(52) = -.05, p > .05$]. The treatment effect for Veterans who participated in the treatment arm approached significance [$\gamma_{01} = -7.01, t(52) = -1.98, p = .053$].

The coefficient for change (β_{10}) and most of the predictors for this change were not significant indicating that the average linear change in PTSD scores for all Veterans in the sample from pre- to post-intervention was not different from zero. Coping flexibility was the one exception in that it was significant [$\gamma_{14} = .13, t(52) = 3.05, p < .01$] in differentiating the rate of change for Veterans from pre- to post-intervention. Therefore, it appears that the cross-level interaction effect for treatment (Intervention vs. Waitlist) did not approach significance for a linear trend suggesting no difference in the steepness of the linear change in PTSD for the waitlist arm compared to the intervention arm.

Alcohol Abuse

The ICC for AUDIT-C scores [$5.61/(5.61+.95)$] was .86 suggesting that 86% of the variance in alcohol abuse scores are due to individual Veteran differences (Level 2) and only 14% of the variance is due to within-Veteran change (Level 1). The addition of the three covariates (Rank, CombatExp, and CopFlex) to the unconditional (with time random) model improved the fit of the model [$X^2_{LR}(6) = 34.91, p < .001$]. The addition of the treatment variable to the full model approached significance regarding the improvement upon the fit of the unconditional model (time random and three covariates), [$X^2_{LR}(2) = 5.09, p = .08$].

The coefficient of the intercept (β_{00}) was 3.56, which was statistically significant, [$t(52) = 7.13, p < .001$], indicating that the average of AUDIT-C scores across Veterans at post-intervention was 3.56 and different than zero. This value is the predicted AUDIT-C score, at post-intervention, for referenced Veterans with the lowest rank (enlisted=0), with no previous combat exposure (CombatExp=0), with no coping flexibility (CopFlex=0), and who are in the waitlist arm. As anticipated a Veteran's level of coping flexibility [$\gamma_{04} = -.04, t(52) = -1.78, p < .10$] approached significance and previous combat exposure was significant [$\gamma_{03} = .09, t(52) = 4.12, p < .001$]. Though, a Veteran's previous rank in the military [$\gamma_{02} =$

-.48, $t(52) = -1.23, p > .05$] nor treatment effect were significant differentials of a Veteran's AUDIT-C score.

The coefficient for change (β_{10}) and most of the predictors for this change were significant indicating that the average linear change in AUDIT-C scores for all Veterans in the sample from pre- to post-intervention was not different from zero. Combat exposure was the one exception in that it was significant [$\gamma_{13} = .03, t(52) = -1.78, p < .01$] in differentiating the rate of change for Veterans from pre- to post-intervention. Therefore, it appears that that the cross-level interaction effect for treatment (Intervention vs. Waitlist) did not approach significance for a linear trend suggesting no difference in the steepness of the linear change in AUDIT-C scores for the waitlist arm compared to the intervention arm.

Chapter 5

Discussion

The results suggest that a combination of both TM RWB membership and Pro Vetus mentorship may significantly bolster Veteran adjustment compared to the waitlist arm. Two variables showed the clearest treatment effect- reduced transition difficulties and improved social support. These results are preliminary but are consistent with our identification of these outcomes as proximal with an anticipated and significant treatment effect in the near-term for Veterans after receiving Pro Vetus mentorship and membership in Team Red, White, and Blue. Transition difficulties were measured by the M2CQ, which captures difficulties within interpersonal relationships (e.g., family, friends, and peers), productivity in their lives (e.g., work, school, and home), community participation, self-care, and perceived meaning in life. Previous research (Sayer et al. 2014; Kline et al. 2011) has demonstrated a relationship between these transition difficulties and the later occurrence of psychological problems (i.e., PTSD, depression and alcohol dependence) and suicidal ideation. Social support demonstrates a Veteran's perception or experience of the helpfulness of his or her social interactions and has been shown to protect against the later development of psychological disorders (Haglund et al. 2007; Brewin et al. 2000; Guay et al. 2006). Given the combination of both intervention arms into one intervention arm for this analysis, we cannot ascertain to what extent the Pro Vetus mentorship contributed to these significant treatment effects above and beyond membership in TM RWB alone. Though too early to make any strong inferences about the results, they do appear to be promising. They show that a prophylactic and community-based approach may indeed be beneficial in reducing the risk factor of transition stressors faced by Veterans and improve the protective factor of social support in the near-term.

The results also appear to indicate that a combination of TM RWB membership and Pro Vetus mentorship do not significantly alter Veterans' income levels nor their quality of life in the near-term. It is possible that both of these outcome variables are better suited as distal outcome variables since the impact of the Pro Vetus mentorship and TM RWB membership may take more time to develop in order to observe significant improvements. For example, 31% of the Veterans in the study are currently enrolled in either full-time or part-time higher education (undergraduate or graduate) and the window for the research occurred from October 2014 through April 2015, which coincided with an academic year. So, the student-Veterans in the study were most likely not pursuing employment during this window. Previous studies have shown a relationship between income and quality of life (Mansfield, Dealy, & Keitner, 2013). Therefore, I will categorize both income and quality of life as distal outcomes for the remainder of the randomized clinical trial.

Participation in the intervention arm did not significantly improve the distal outcomes. These results are preliminary but are consistent with our identification of these outcomes as distal with an anticipated and significant treatment effect only occurring in the long-term for Veterans after receiving Pro Vetus mentorship and membership in TM RWB. I anticipate that both of the intervention arms will experience further reductions in the risk factor of transition stressors coupled with further improvements in the protective factor of social support (in the near-term), which will then facilitate income improvement, quality of life improvement, reduced psychological disorders and crime, as well as completed suicides (in the long-term).

The results showed a significant treatment effect for M2CQ and social support when comparing the intervention arms to the waitlist arm at post-intervention after controlling for the covariates and including pre-intervention into the repeated-measures outcome variable. But, the results did not identify a significant cross-level interaction effect between the rates of growth

(slopes) from pre- to post-intervention for Veterans in the intervention arm compared to Veterans in the waitlist for any of the outcome variables. One potential reason for the absence of a significant cross-level interaction effects is that I identified extremely high ICCs in each of the models. These values ranged from .70 to .90 indicating that 70% to 90% of the variance in the outcome variables was due to individual differences (e.g., baseline grouping, previous combat experience, highest rank in the military, coping flexibility, as well as other variables not included in the model) and only 10% to 30% was attributed to the change within-Veteran based on their scores (pre- to post-intervention). The cross-level interaction effect is a variable greatly influenced by this within-Veteran variance.

One of the factors that contributed to such high ICCs is that the between-class variance component (τ^{00}) remained significant in each of the final models even after adding the covariates and treatment variable to the final models. This means that there is still a significant amount of unexplained variance at level 2 in each model. A likely contributor to such high between-class variance is the fact that we had a small sample size and used a population-based approach with very broad inclusion criteria and very few exclusion criteria. This approach facilitates testing of a prophylactic and community-based intervention that may be helpful to all transitioning Veterans. In comparison, most randomized clinical trials of treatment outcomes, such as PTSD, with Veterans consist of the researchers first excluding individuals who do not screen positive for PTSD (Foa et al. 2009; Monson et al. 2006). Since I have not excluded such individuals in the Pro Vetus randomized clinical trial, I have greatly increased the amount of variance at level 2. As the randomized clinical trial continues with additional data points and an increased sample size, it is possible that the ICCs will reduce and within-Veteran differences will start to emerge. After the within-Veteran differences emerge, it may be possible to identify significant cross-level interaction effects that highlight differences between the rates of growth

(slopes) from pre- to post-intervention for Veterans in the intervention arm compared to Veterans in the waitlist arm.

Certain trends appeared in the results specific to the covariates. Coping flexibility emerged as one of the most significant differentiators of each of the outcomes at both pre-intervention and post-intervention (**Table 4**). Most of the studies that have researched coping flexibility (Bonanno et al. 2011) have been cross-sectional. This study used a prospective design and showed that an individual's coping flexibility score at pre-intervention predicted differences in outcome variables—in this case M2CQ, social support, quality of life, PHQ, PTSD, and AUDIT-C— at level 2. Follow-up studies could further explore the importance of coping flexibility over time and study the extent to which the two styles of coping, trauma focus and forward focus, impact outcome variables of interest.

The highest rank achieved by Veterans in the military appeared to predict the amount of transition difficulties that a Veteran experiences at post-intervention, the income at post-intervention, and PTSD scores at post-intervention. This is an important finding since it indicates that there is more difficulty faced by lower ranking individuals as they transition and that extra emphasis should be placed upon assisting these lower ranking and younger Veterans. Consistent with information previously presented, it is also younger and lower ranking Veterans who experienced the greatest increase in suicide rates from 46.1 per 100,000 in 2009 to 79.1 per 100,000 in 2011.

Surprisingly, the level of combat exposure during previous deployments to Afghanistan and Iraq did not significantly predict any of the outcome variables at post-intervention, except for alcohol abuse (AUDIT-C) scores. Follow-up studies could explore the cumulative disadvantage theory and research to what extent transition stressors accumulate with pre-existing combat exposure and result in increased psychological disorders. In addition to the analysis

reported above, I also analyzed the impact of adding the time since a Veteran transitioned out of the military to the full models for each outcome variable and it was not significant in any of the models. This continuous variable showed equivalence between the arms at pre-intervention (**Table 3**). Therefore, it appears that the time since a Veteran transitioned out of the military does not predict outcome scores at post-intervention. This could potentially indicate that all Veterans could benefit from aspects of the intervention, regardless of how long ago that they transitioned out of the military.

There are several and extensive limitations to the results presented in this preliminary investigation. Most importantly, the investigation cannot differentiate the impact of Pro Vetus mentorship above and beyond membership in TM RWB. This was related to two factors. First, there was a discrepancy in the completion rate between the original three arms for the post-intervention (Arm #1-TM RWB *PLUS* Pro Vetus Mentorship: 72% completion rate; Arm #2-TM RWB: 58%; Arm #3-Waitlist Arm: 91%). The completion rates are counter to the expected rates for the arms as I anticipated that the waitlist arm would have the lowest completion rate followed by the TM RWB arm and then the Pro Vetus /TM RWB arm. One potential explanation for this actual disparity is that the Veterans in the waitlist may be interested in receiving a mentor to assist them with their transition and to help them address their symptoms of PTSD after the waitlist period so are staying engaged in the study. The PCL-M scores for the Veterans in this study are higher than other population-based samples. For example, Gulin (2014) conducted a study with 463 National Guard and Reserve soldiers and found that the mean score for this population was 30.70 (SD=11.7) compared to a mean score of 42.86 (SD=19.75) for the sample in this study. With this line of reasoning, it may be possible that Veterans in the TM RWB arm were disappointed that they didn't receive a mentor and only received the TM RWB intervention so may have lost interest in staying engaged in the study, though they also have the option to

receive a mentor after their initial participation in the study. Second, there was a low adherence for Veterans in the TM RWB arm, in that 9 of the 19 Veterans who completed the post-intervention assessment did not sign up for the organization after random assignment to that arm. These two factors together impacted my ability to compare each of the three original arms. As the randomized clinical trial continues with additional data points and an increased sample size, it will be important to monitor the extent to which Veterans assigned to this arm complete additional assessments and adhere to the research protocol. The completion and adherence rate differences between the arms may elucidate interesting and unexpected results of the study.

Another limitation is that I utilized HLM to conduct the analysis with the intent of validating the data analysis procedures in anticipation for further analysis of the randomized clinical trial in the future. When using HLM to investigate linear trends, it is optimal to have three data points and I only had two data points in this analysis. Most likely, this limitation impacted the ability of HLM to identify significant cross-level interaction effects that highlight differences between the rates of growth (slopes) from pre- to post-intervention for Veterans in the intervention arm compared to Veterans in the waitlist arm. This will not be a limitation in further analysis, which will have additional data points. Lastly, given the small sample size, I was not able to conduct meaningful analysis of the evaluations of the mentors that Veterans in the Pro Vetus arm completed in the post-intervention assessment. Similarly, I will have a large enough sample to conduct this analysis as the sample size increases.

Chapter 6

Summary

Veterans are at an increased risk for the later development of psychological difficulties. In line with the cumulative disadvantage theory, it appears that pre-existing combat exposure and transition stressors can accumulate to worsen the psychological health of Veterans and that transition stressors by themselves can worsen the psychological health of Veterans. Left unaddressed, these problems can have deleterious effects not only on the individual Veteran but also on his or her family. When Veterans experience such deleterious effects, they most likely will not be able to fulfill their potential in their civilian communities. There are psychological treatments that have been shown to effectively treat psychological disorders that result from Veterans facing military-specific experiences (Foa, Keane, Friedman, & Cohen (2009) and the VA has dedicated a considerable amount of resources towards integrating these effective treatments with positive results. But the addition of more prophylactic and community-based approaches to address the problems facing Veterans could be beneficial and reduce the number of Veterans requiring such effective psychological treatments, as well as reach Veterans who do not currently seek treatment because of the pervasive stigma against seeking care.

The Department of Defense Center of Excellence (DCOE) for Psychological Health & TBI (2011) reported that prophylactic interventions focused on peer support may be helpful. Such interventions could also continue the protective benefits of social support and leadership after Veterans transition out of the military. But, unfortunately, there is an absolute dearth of research to show the effectiveness of such interventions.

The purpose of the randomized clinical trial is to research if providing Veterans both trained, peer mentorship and Veteran Support Organization (VSO) membership will improve their ability to successfully transition into their civilian communities after their military service

compared to a waitlist arm. In this preliminary investigation of the randomized clinical trial, we discovered that peer mentorship, in conjunction with membership in a Veteran Support Organization, may indeed assist in this transition. Specifically, it appears that Veterans in the combined intervention arm experienced less transition difficulties and had higher levels of social support at post-assessment. Though promising, there are still extensive limitations to the inferences that can be drawn from this research. These limitations will be reduced as data points increase and more Veterans participate in the research study.

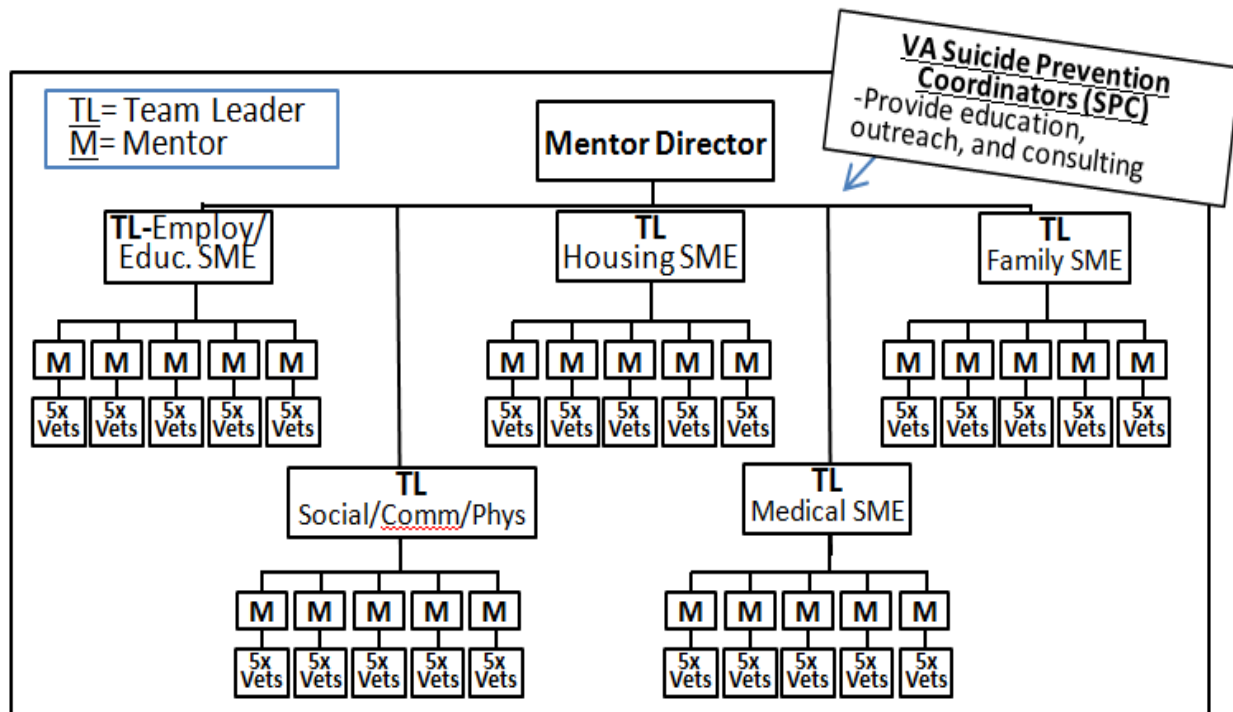


Figure 1: Pro Vetus Organizational Structure

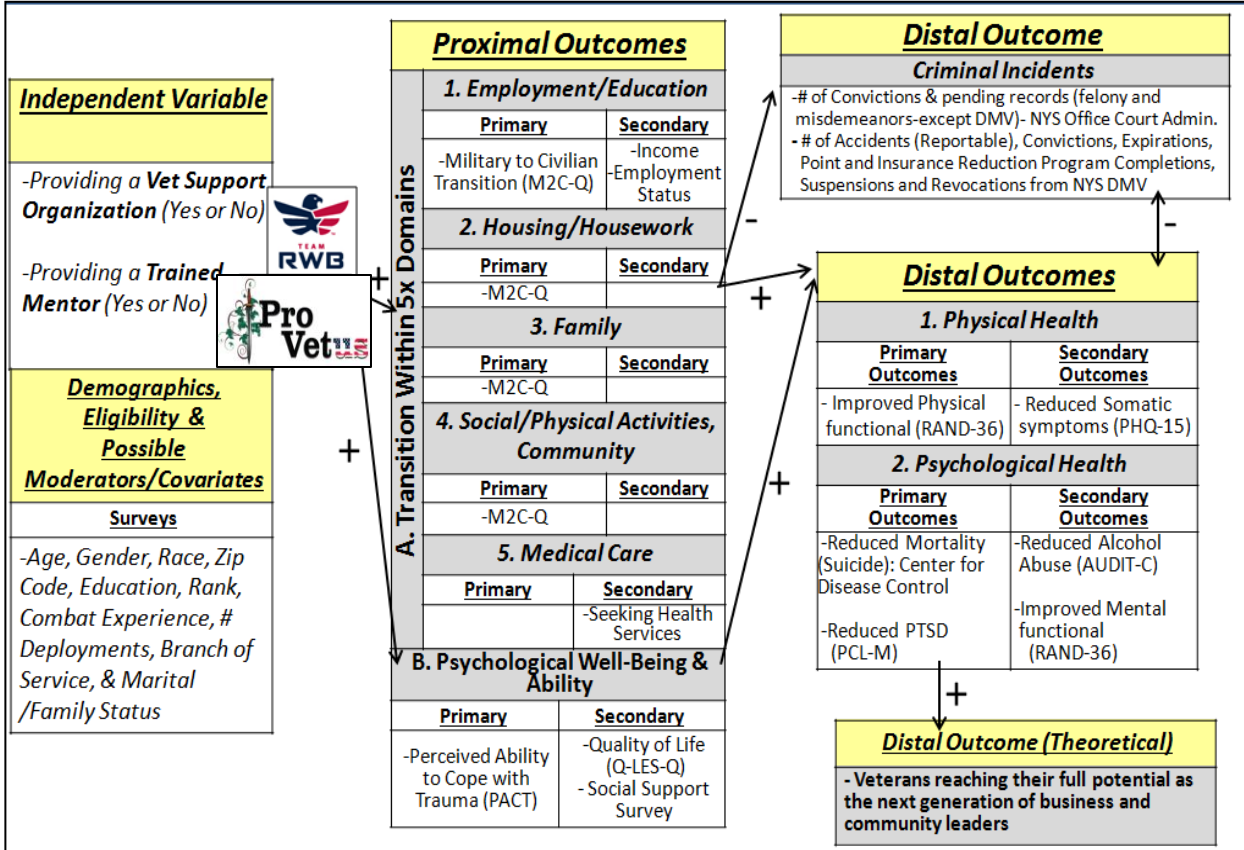


Figure 2: Graphical Depiction of Proximal and Distal Outcomes

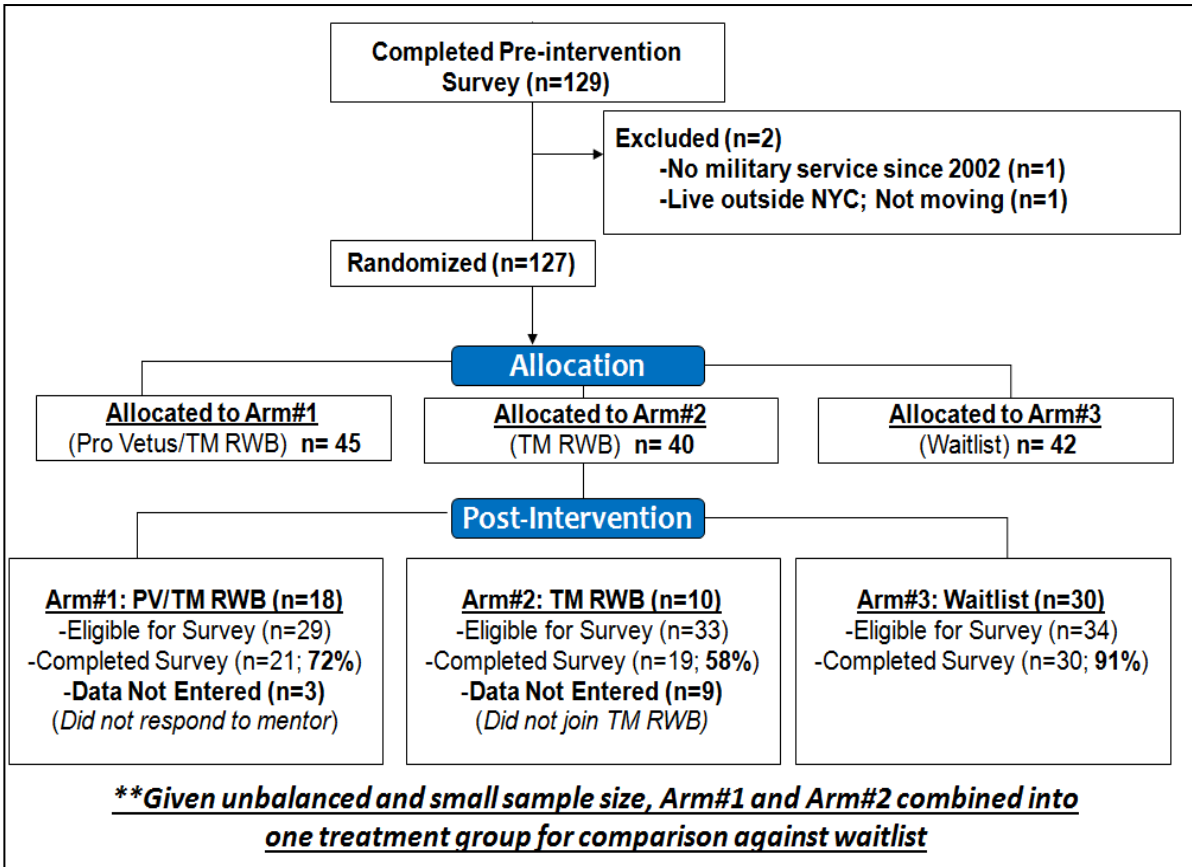


Figure 3: Consort Flow Diagram

Table 1. Research Variables and Timeline for Assessments

Variable	Pre-Intervention	Post-Intervention (4 months after pre-intervention)	Follow-Up #1 (6 months after post-intervention)	Follow-Up #2 (12 months after post-intervention)	5 Years after post-intervention
Demographic, Eligibility, & Possible Moderators/Covariates					
-Age, Gender, Race	X				
-Current and Future Address/Phone Number	X	X	X	X	
-Education, Marital, Children, Employment/Student Status	X	X	X	X	
-Branch, MOS, Rank, Years in Military, Units	X				
-Membership & Involvement in Vet Organizations	X	X	X	X	
-# Deployments	X				
-Combat Experiences	X				
-Perceived Ability to Cope w/Trauma (PACT)	X	X	X	X	
Proximal Measurements					
-Income and Employment status	X	X	X	X	
-M2C-Q: Military to Civilian Questionnaire	X	X	X	X	
-Quality of Life, Enjoyment and Satisfaction	X	X	X	X	
-Social Support Scale	X	X	X	X	
-Have Sought Services from the VA	X	X	X	X	
Distal Measurements					
-Criminal Record (NYS Office of Court & DMV)				X	X
-Mortality (Suicide)				X	X
-PTSD (PCL-M)	X	X	X	X	
-PHQ-15 (Physical Health)	X	X	X	X	
-Alcohol Use Disorders Identification (Audit-C)	X	X	X	X	

Table 2

Sample Characteristics (TM RWB Post-Intervention Completers and Enrollers vs. Non-Completers and non-Enrollers)

Characteristic	Condition				Test statistic	p
	<u>Non Completers/ Non-Enrollers</u>		<u>Arm2: TM RWB</u>			
	N or M	% or SD	N or M	% or SD		
<i>Gender</i>					F(2)=4.36	.11
Male	19	82.61%	7	70.00%		
Female	4	17.39%	3	30.00%		
<i>Race</i>					F(2)=1.67	.95
White	12	52.17%	5	50.00%		
African Amer.	3	13.04%	1	10.00%		
Hispanic	7	30.43%	3	30.00%		
Asian	1	4.35%	1	10.00%		
Other	0	0.00%	0	0.00%		
<i>Rank</i>					F(2)=5.77	.45
Enlisted	17	73.91%	4	40.00%		
Non-Comm	4	17.39%	4	40.00%		
Officer	2	8.70%	2	20.00%		
<i>Age</i>					F(2)=2.98	.40
18-19 years	0	0.00%	0	0%		
20-24 years	1	4.25%	0	0%		
25-29 years	7	30.43%	6	60.00%		
30-39 years	13	56.52%	3	30.00%		
Over 40 years	2	8.70%	1	10.00%		
<i>Branch</i>					F(2)=4.42	.35
Army	13	56.52%	6	60.00%		
Marines	5	21.74%	2	20.00%		
Air Force	3	13.04%	1	10.00%		
Navy	2	8.70%	0	0%		
Other	0	0%	1	10.00%		
<i>Combat Exposure</i>			31.20	15.73	F(1)=	.31
<i>Years Service</i>			7.70	3.95	F(1)=	.40
<i>Years Since ETS</i>						
<i>Coping Flexibility</i>	79.47	17.95	71.40	14.27	F(1)=1.28	.27

Table 3
Sample Characteristics by Condition

Characteristic	Condition								Test statistic	p
	Total	Arm1: TM RWB + Mentor		Arm2: TM RWB		Arm3: Waitlist				
	N or M	% or SD	N or M	% or SD	N or M	% or SD	N or M	% or SD		
Baseline										
<i>Gender</i>									$X^2(2)=.43$	.81
Male	46	79.66%	15	83.33%	7	70.00%	24	80.00%		
Female	12	20.34%	3	16.67%	3	30.00%	6	20.00%		
<i>Race</i>									$X^2(8)=3.88$	.87
White	28	48.28%	9	50.00%	5	50.00%	14	46.67%		
African	8	13.79%	3	16.67%	1	10.00%	4	13.33%		
Hispanic	14	24.14%	3	16.67%	3	30.00%	8	26.67%		
Asian	7	12.07%	2	11.11%	1	10.00%	4	13.33%		
Other	1	1.72%	1	5.56%	0	0.00%	0	0.00%		
<i>Rank</i>									$X^2(26)=20.2$	.78
Enlisted	27	46.5%	9	50.00%	4	40.00%	14	46.67%		
Non-Comm	18	31.03%	4	22.22%	4	40.00%	10	33.33%		
Officer	13	22.41%	5	27.78%	2	20.00%	6	20.00%		
<i>Age</i>									$X^2(6)=7.64$	.27
20-24 yrs	3	5.17%	0	0%	0	0%	3	10.00%		
25-29 yrs	22	37.93%	8	44.44%	6	60.00%	8	26.67%		
30-39 yrs	25	43.10%	8	44.44%	3	30.00%	14	46.67%		
Over 40 yrs	8	13.79%	2	11.11%	1	10.00%	5	16.67%		
<i>Branch</i>									$X^2(8)=6.13$	.63
Army	42	72.41%	14	77.78%	6	60.00%	22	73.33%		
Marines	7	12.07%	1	5.56%	2	20.00%	4	13.33%		
Air Force	4	6.90%	2	11.11%	1	10.00%	1	3.33%		
Navy	3	5.17%	1	5.56%	0	0%	2	6.67%		
Other	2	3.45%	0	0%	1	10.00%	1	3.33%		
<i>Combat Expos</i>	29.41	13.76	25.78	9.98	31.20	15.73	31.00	15.00	$F(2) = .54$	.59
<i>Years Service</i>	9.10	6.37	9.67	7.96	7.70	3.95	9.23	6.07	$F(2) = .25$	.78
<i>Years Since ETS</i>	3.16	3.51	3.67	3.69	2.60	2.55	3.03	3.73	$F(2) = .86$	.36
<i>Coping Flex</i>	75.34	20.24	81.11	17.90	71.40	14.27	73.20	22.87	$F(2) = 1.31$	.28
<i>M2CQ (Pre)</i>	1.36	1.06	1.15	.93	1.07	.96	1.60	1.16	$F(2) = 1.37$	.26
<i>Income (Pre0)</i>	6.46	5.59	7.56	6.22	7.80	7.21	5.31	4.42	$F(2) = 1.26$	.29
<i>Social Support</i>	3.39	1.17	3.40	1.23	4.41	.75	3.04	1.09	$F(2) = 5.61$	.02
<i>Quality of Life</i>	58.64	21.35	60.32	17.03	67.86	20.69	54.27	23.45	$F(2) = 1.61$	.21
<i>PHO (Pre)</i>	9.39	6.45	8.44	5.08	7.20	5.65	10.79	7.31	$F(2) = 1.45$	.24
<i>PTSD (Pre)</i>	42.86	19.75	39.72	15.53	35.10	19.64	47.48	21.43	$F(2) = 1.85$	.17
<i>AUDIT-C (Pre)</i>	4.16	2.59	3.83	2.71	5.5	2.37	3.90	2.53	$F(2) = 1.67$	.20

Table 4
Mixed Effect Model Results

<i>Proximal Outcomes</i>								
Fixed Effect	M2CQ (Pre)		M2CQ (Post)		Income (Pre)		Income (Post)	
	Coef	SE	Coef	SE	Coef	SE	Coef	SE
Between-Veteran Estimates								
Intercept, β_{00}	1.71	.17***	1.77	.17***	1.79	.22***	1.82	.21**
Treatment vs. WL	-.21	.20	-.41	.20*	.22	.23	.25	.24
Rank (0,1,2)	-.32	.14*	-.39	.14**	.59	.17	.47	.16**
Combat Exposure	.01	.01	.00	.01	.00	.01	-.01	.01
Coping Flexibility	-.03	.01***	-.03	.01***	.01	.01*	.01	.01
Within-Veteran Estimates (Pre to Post)								
	<i>Coef</i>		<i>SE</i>		<i>Coef</i>		<i>SE</i>	
Time Slope, β_{10}	.07		.09		.03		.12	
Treatment vs. WL	-.20		.13		.04		.15	
Rank	-.07		.08		-.11		.12	
Combat Exposure	-.00		.00		.00		.00	
Coping Flexibility	.00		.00		.00		.00	
Additional Info								
ICC (Null Model)	.90				.84			
Fixed Effect	Social Support (Pre)		Social Support (Post)		Quality of Life (Pre)		Quality of Life (Post)	
	Coef	SE	Coef	SE	Coef	SE	Coef	SE
Between-Veteran Estimates								
Intercept, β_{00}	1.67	.06***	1.66	.07***	52.68	3.68***	56.31	4.12**
Treatment vs. WL	.15	.08	.23	.09*	5.89	4.69	6.91	4.66
Rank	.10	.05*	.09	.06	4.33	3.11	2.58	3.03
Combat Exposure	.00	.00	.00	.00	.01	.20	.002	.20
Coping Flexibility	.01	.00***	.01	.00**	.45	.13**	.57***	.12
Within-Veteran Estimates								
	<i>Coef</i>		<i>SE</i>		<i>Coef</i>		<i>SE</i>	
Time Slope, β_{10}	-.01		.06		3.62		2.44	
Treatment vs. WL	.08		.08		1.02		3.46	
Rank	-.01		.05		-1.75		2.17	
Combat Exposure	.00		.00		.01		.14	
Coping Flexibility	.00		.00		.11		.09	
Additional Info								
ICC (Null Model)	.70				.84			

+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4 (Continued)
Mixed Effect Model Results

<i>Distal Outcomes</i>								
Fixed Effect	PHQ (Pre)		PHQ (Post)		PTSD (Pre)		PTSD (Post)	
	<i>Coef</i>	<i>SE</i>	<i>Coef</i>	<i>SE</i>	<i>Coef</i>	<i>SE</i>	<i>Coef</i>	<i>SE</i>
Between-Veteran Estimates								
Intercept, β_{00}	11.33	1.42***	11.28	1.18***	49.52	3.15***	48.13	2.59***
Treatment vs. WL	-2.61	1.43	-2.15	1.36	-6.16	3.87	-7.01	3.50+
Rank (0,1,2)	-.64	.99	-1.03	.97	-4.87	2.49+	-4.49	2.21*
Combat Exposure	-.04	.07	-.06	.06	.16	.17	.15	.15
Coping Flexibility	-.12	.04**	-.11	.04**	-.52	.09***	-.38	.08***
Within-Veteran Estimates (Pre to Post)								
	<i>Coef</i>		<i>SE</i>		<i>Coef</i>		<i>SE</i>	
Time Slope, β_{10}	-.04		.68		-1.39		1.58	
Treatment vs. WL	.46		1.03		-.84		2.18	
Rank	-.39		.73		.38		1.19	
Combat Exposure	-.02		.04		.00		.08	
Coping Flexibility	.01		.02		.14		.04***	
Additional Info								
ICC (Null Model)	.84				.89			
AUDIT-C (Pre) AUDIT-C (Post)								
Fixed Effect	<i>Coef</i>	<i>SE</i>	<i>Coef</i>	<i>SE</i>				
Between-Veteran Estimates								
Intercept, β_{00}	3.61	.47***	3.56	.50***				
Treatment vs. WL	1.19	.62	1.34	.56				
Rank	-.24	.46	-.47	.39				
Combat Exposure	.06	.02**	.09	.02***				
Coping Flexibility	-.03	.02+	-.04	.02+				
Within-Veteran Estimates								
	<i>Coef</i>		<i>SE</i>					
Time Slope, β_{10}	-.06		.31					
Treatment vs. WL	.15		.35					
Rank	-.24		.25					
Combat Exposure	.03		.01+					
Coping Flexibility	.00		.01					
Additional Info								
ICC (Null Model)	.86							

+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5 Effects of Intervention on Distal and Proximal Outcomes

	<u>Pre</u>		<u>Post</u>		<u>Adjusted Score</u>	<u>Score</u>	<u>d</u>
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<u>Change (Mean)</u> (SE)†	<u>Difference</u> (95% CI)+	<u>Effect</u> <u>Size</u>
Proximal #1 (Transition into Civilian Sector: A. Military to Civilian Questionnaire)							
Arm1(PV&TMRWB) (n=15)	1.15	.93	1.21	.91	-.04 (.12)		
Arm2 (TMRWB) (n=9)	1.07	.96	.66	.75	-.41 (.15)		
Combined Intervention (n=24)	1.13	.92	1.00	.88	-.17 (.10)	-.21	.50
Waitlist Group (n=25)	1.60	1.06	1.51	1.16	.04 (.10)	(-.42 to .16)	
Proximal #2 (Income) F(2)=.85, p=.44 (Log transformation)							
Arm1(PV&TMRWB) (n=17)	.74	.41	.75	.46	.06 (.15)		
Arm2 (TMRWB) (n=10)	.72	.45	.69	.32	-.18 (.19)		
Combined Intervention (n= 27)	.73	.42	.72	.41	-.03 (.12)	.03	
Waitlist Group (n=28)	.57	.41	.54	.43	-.06 (.12)	(.26 to -.26)	
Proximal #3 (Social Support) F(2)=5.86, p=.01							
Arm1(PV&TMRWB) (n=17)	3.40	1.23	3.69	1.31	.39 (.24)		
Arm2 (TMRWB) (n=9)	4.41	.75	4.36	.83	-.09 (.32)		
Combined Intervention (n= 26)	3.76	1.18	3.92	1.19	.22 (.19)	.28	.68
Waitlist Group (n=28)	3.04	1.09	3.00	1.35	-.06 (.18)	(-.25 to .81)	
Proximal #4 (Quality of Life) F(2)=1.61, p=.21							
Arm1(PV&TMRWB) (n=18)	60.32	17.03	66.77	20.71	6.45 (2.83)		
Arm2 (TMRWB) (n=9)	67.86	20.69	66.27	18.46	-1.79 (3.99)		
Combined Intervention (n=27)	63.01	18.41	66.60	19.63	3.70 (2.35)	1.47	
Waitlist Group (n=28)	54.27	23.45	56.28	23.84	2.23 (2.31)	(-4.95 to 7.89)	
Distal #1 (Improved Physical Functioning: PHQ)							
Arm1(PV&TMRWB) (n=16)	8.44	5.08	8.38	5.19	-.69 (.89)		
Arm2 (TMRWB) (n=9)	7.20	5.65	8.22	4.06	1.89 (1.12)		
Combined Intervention (n=25)	8.00	5.22	8.32	4.72	.24 (.70)	.50	
Waitlist Group (n= 27)	10.79	7.31	10.45	6.40	-.26 (.70)	(-1.48 to 2.46)	
Distal #2 (Improved Mental Functioning: PTSD)							
Arm1(PV&TMRWB) (n=17)	39.72	15.53	37.47	14.79	-3.53 (1.95)		
Arm2 (TMRWB) (n=9)	35.10	19.64	33.33	13.56	2.44 (2.68)		
Combined Intervention (n=26)	38.07	16.90	36.04	14.24	-1.46 (1.61)	-.15	
Waitlist Group (n=29)	47.48	21.43	46.33	17.35	-1.31 (1.49)	(-4.18 to 4.48)	
Distal #3 (Alcohol Abuse: AUDIT-C)							
Arm1(PV&TMRWB) (n=16)	3.83	2.71	3.69	2.02	-.25 (.32)		
Arm2 (TMRWB) (n=9)	5.5	2.37	5.33	1.94	.00 (.43)		
Combined Intervention (n= 25)	4.43	2.67	4.28	2.11	-.16 (.26)	.03	
Waitlist Group (n= 27)	3.90	2.53	3.36	2.88	-.19 (.25)	(-.65 to .71)	

+ Data refer to the number of points by which the mean score changed between the pre- and post-intervention periods. Positive numbers refer to a reduction in scores.

† Data adjusted using mixed model approach.

Figure 4. Military to Civilian Questionnaire

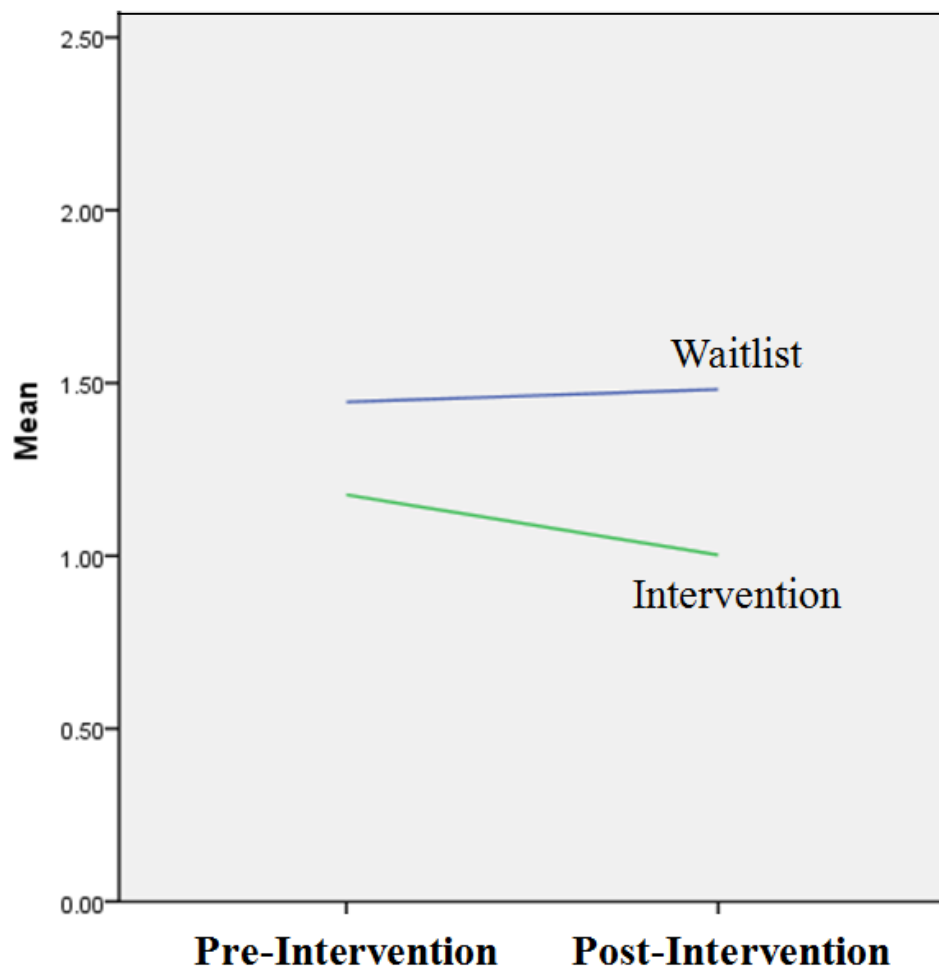


Figure 4. Military to Civilian Question. Adjust mean scores produced from HLM7 analysis

Figure 5. Income

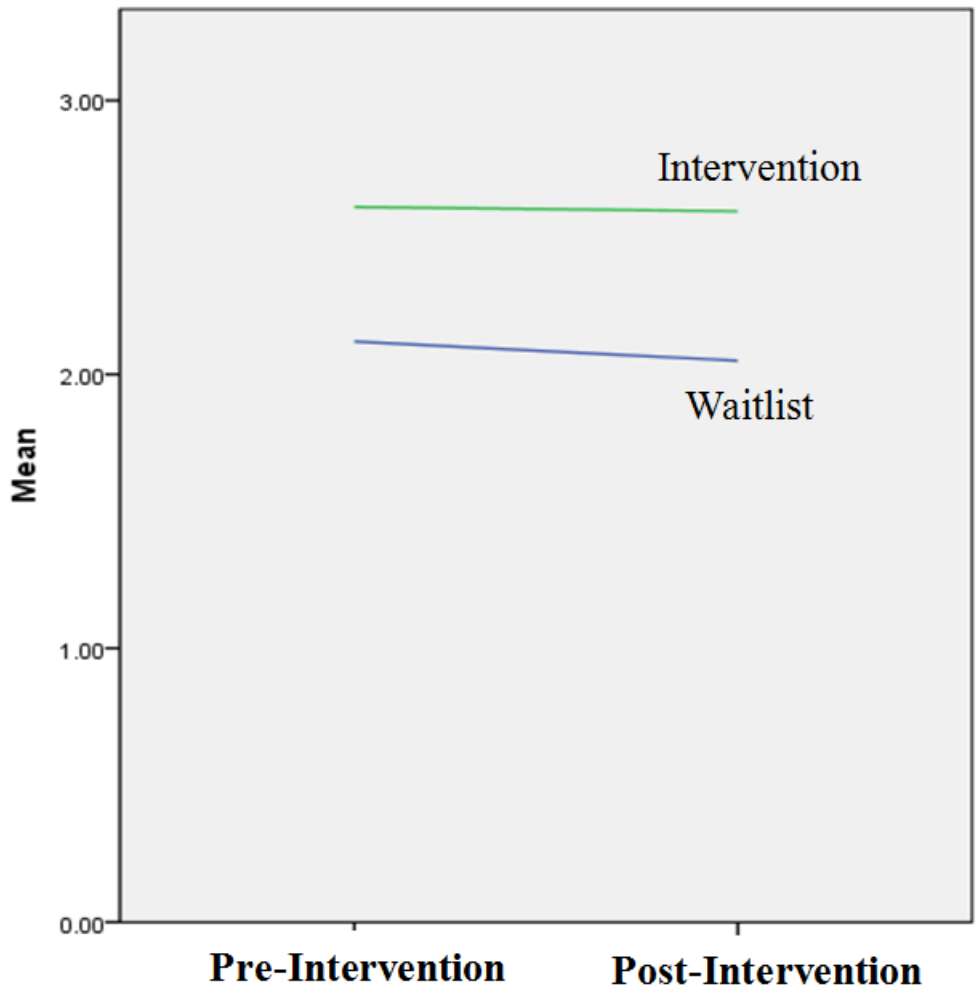


Figure 5. Income. Adjust mean scores produced from HLM7 analysis

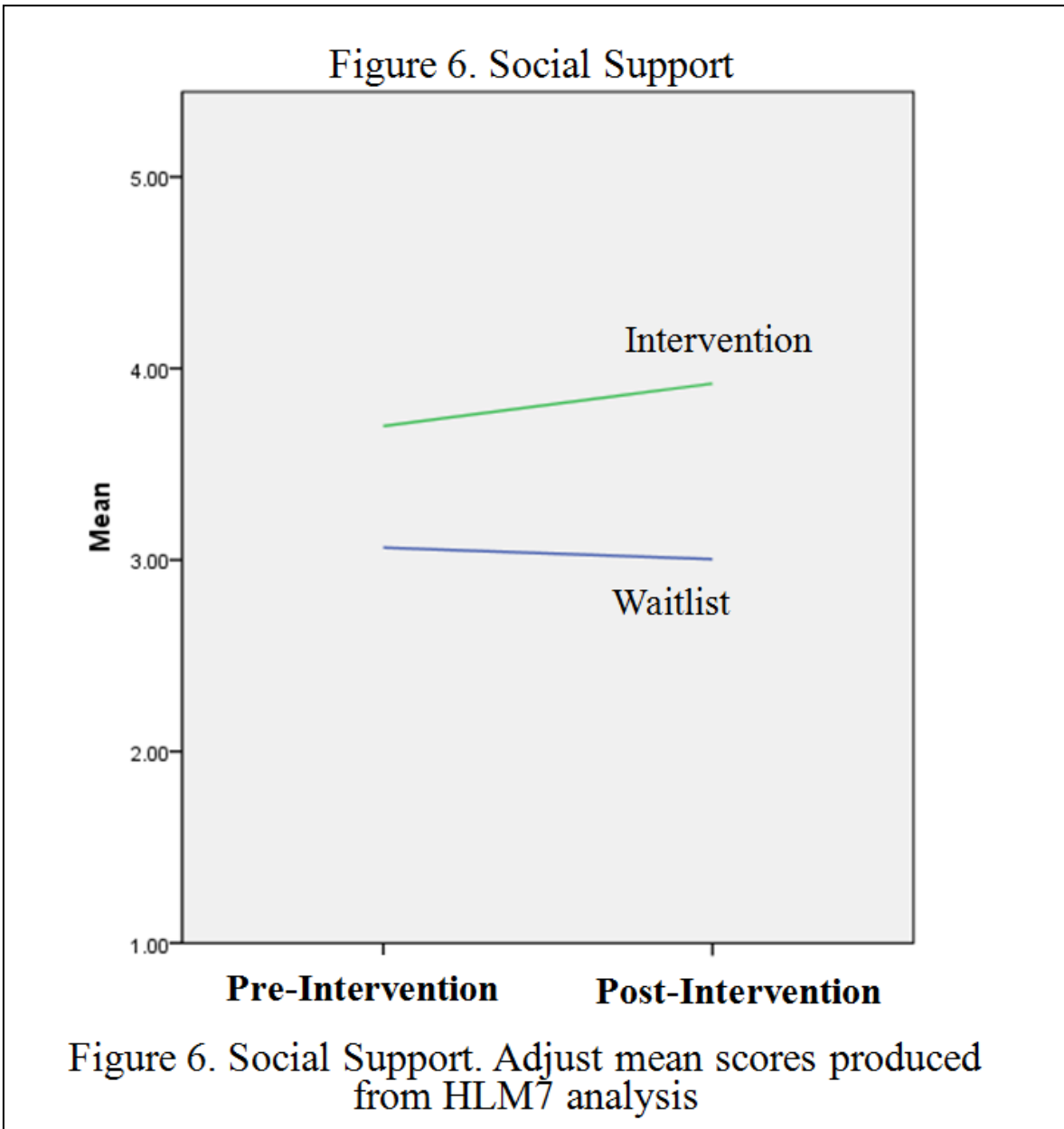


Figure 7. Quality of Life

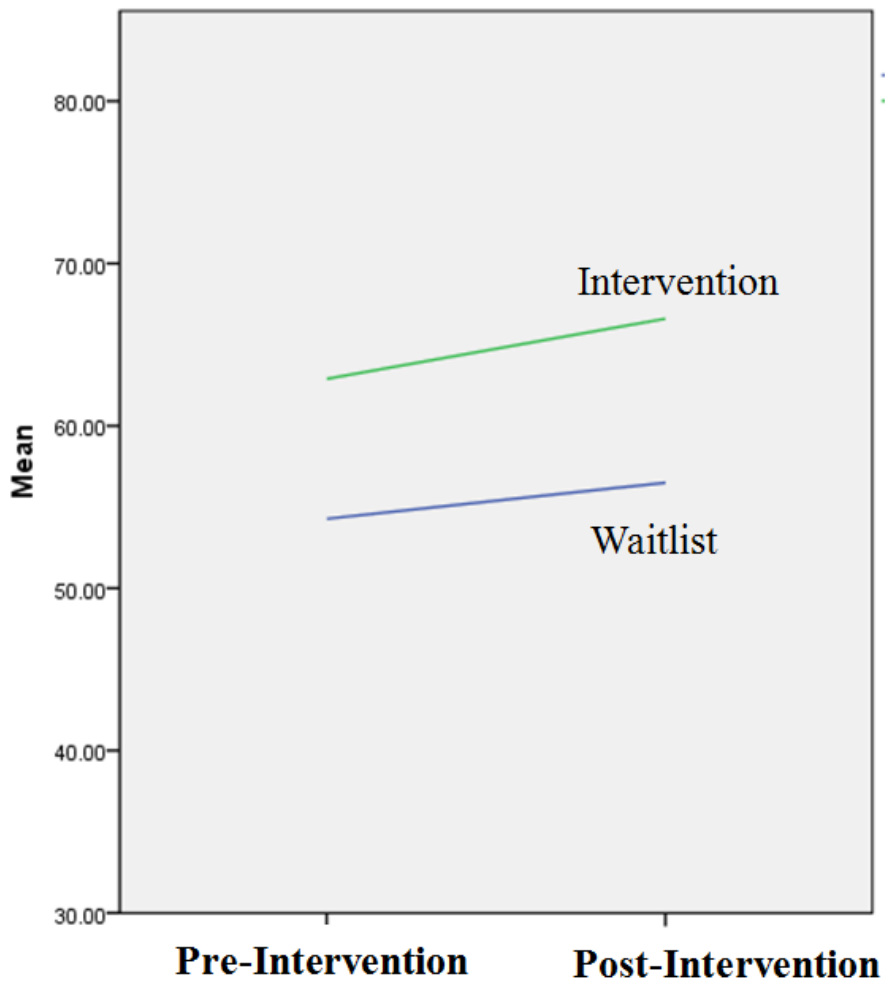


Figure 7. Quality of Life. Adjust mean scores produced from HLM7 analysis

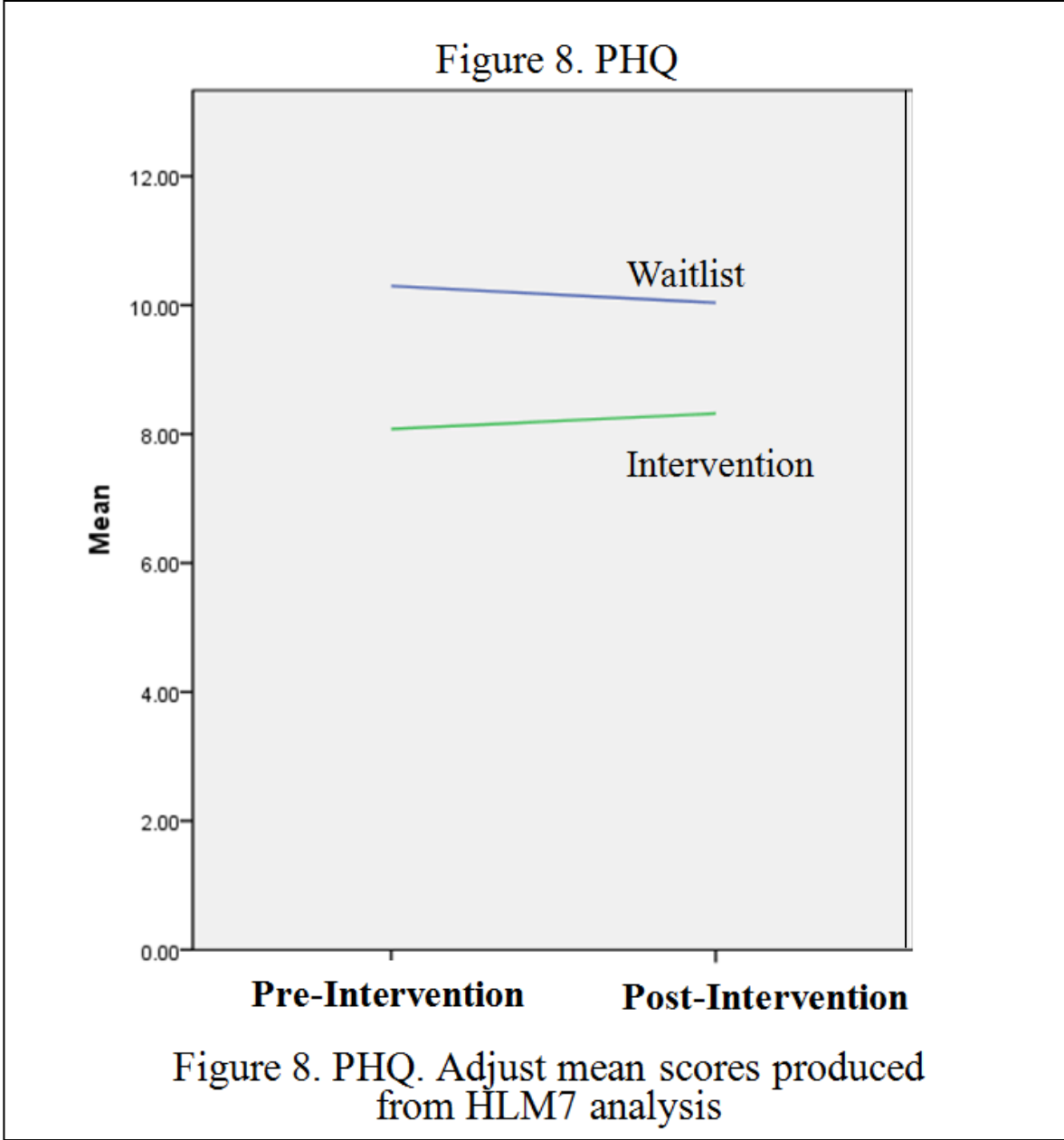


Figure 9. PTSD

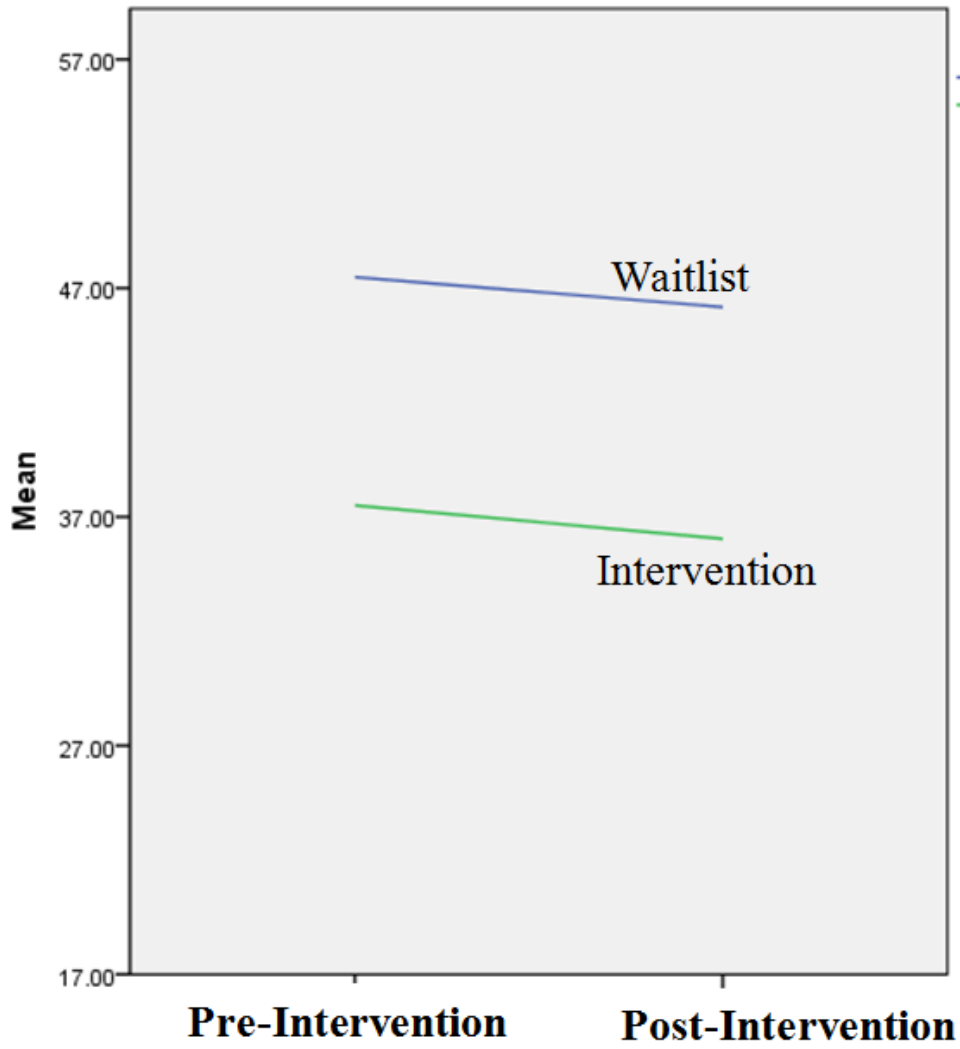


Figure 9. PTSD. Adjust mean scores produced from HLM7 analysis

References

- Adler, A. B., Bliese, P. D., McGurk, D., Hoge, C. W., & Castro, C. A. (2009). Battlemind Debriefing and Battlemind Training as early interventions with soldiers returning from Iraq: Randomization by platoon. *Journal of Consulting and Clinical Psychology, 77*, 928–940. doi:10.1037/a0016877
- Aldwin, C, Yancura, LA. (2004). Coping and health: A comparison of the stress and trauma literatures. In P. P. Schnurr & B. L. Green (Eds.), *Physical health consequences of exposure to extreme stress* (pp. 99-126). Washington D.C.: American Psychological Association.
- American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: author.
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: author.
- Bandura, A. (1997). *Self-Efficacy. The exercise of control*. New York: Freeman.
- Bass, B.M. & Riggio, R.E (2006). *Transformational leadership*. Mahwah, New Jersey 07430: Lawrence Erlbaum Associates, Inc.
- Blanchard, E. B., Jones Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behaviour Research and Therapy, 34*, 8, 669-673. doi: 10.1016/0005-7967(96)00033-2
- Bonanno, G. A., Wortman, C. B., & Nesse, R. M. (2004). Prospective patterns of resilience and maladjustment during widowhood. *Psychology and Aging, 19*, 260-271.
- Bonanno, G. A., Pat-Horenczyk, R., & Noll, J. (2011). Coping flexibility and trauma: The Perceived Ability to Cope with Trauma (PACT) scale. *Psychological Trauma-Theory Research Practice and Policy, 3*, 117-129. doi:10.1037/a0020921
- Bonanno, G. A., Westphal, M., & Mancini, A. D. (2011). Resilience to loss and potential trauma. *Annual Review of Clinical Psychology, 7*, 511-535. doi:10.1146/annurev-clinpsy-032210-104526
- Bonanno, G.A., Mancini, A.D., Horton, J.L., Powell, T.M., Leardmann, C.A....& Smith, T.C. (2012). Trajectories of trauma symptoms and resilience in deployed U.S. military service members: prospective cohort study. *British Journal of Psychiatry, 200*, 4, 317-323. doi: 10.1192
- Bonanno, G.A. (2013). Meaning making, adversity, and regulatory flexibility. *Memory, 21*, 1, 150-156. <http://dx.doi.org/10.1080/09658211.2012.745572>

- Bonanno, G. A. & Burton, C.L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science*, 8, 6, 591-612. doi: 10.1177/1745691613504116
- Boney-McCoy S, Finkelhor D. Prior victimization: A risk factor for child sexual abuse and for PTSD related symptomatology among sexually abused youth. *Child Abuse & Neglect*, 19, 12, 1401-1421.
- Booth-Kewley, S., Schmied, E. A., Highfill-McRoy, R. M., Larson, G. E., Garland, C. F., & Ziajko, L. A. (2013). Predictors of psychiatric disorders in combat veterans. *BMC psychiatry*, 13, 1-11.
- Bormann, J. E., Thorp, S., Wetherell, J. L., & Golshan, S. (2008). A spiritually based group intervention for combat veterans with Posttraumatic Stress Disorder feasibility study. *Journal of Holistic Nursing*, 26, 2, 109-116. doi: 10.1177/0898010107311276
- Boscarino, J.A. (1995). Post-traumatic stress and associated disorders among vietnam veterans: The significance of combat exposure and social support. *Journal of Traumatic Stress*, 19958, 317–36.
- Bradley, K. A., DeBenedetti, A. F., Volk, R. J., Williams, E. C., Frank, D., & Kivlahan, D. R. (2007). AUDIT-C as a brief screen for alcohol misuse in primary care. *Alcoholism, Clinical and Experimental Research*, 31, 7, 1208–1217. doi:10.1111/j.1530-0277.2007.00403.x.
- Brenner, L.A., Homaifar, B. Y., Wolfman, J.H., Kemp, J., & Adler, L.E. (2009). Suicidality and veterans with a history of traumatic brain injury: Precipitating events, protective factors, and prevention strategies. *Rehabilitation Psychology*, 54, 390–397.
- Brenner, L.A., Betthausen, L.M., Homaifar, B.Y., Villarreal, E., Harwood, J.E., Staves, P.J., & Huggins, J.A. (2011). Posttraumatic stress disorder, traumatic brain injury, and suicide attempt history among veterans receiving mental health services. *Suicide and Life-Threatening Behavior*. 41, 4, 416-423.
- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, 68, 748–766.
- Brief, D., Rubin, A., Keane, T., Enggasser, J., et al. (2013). Web intervention for OEF/OIF veterans with problem drinking and PTSD symptoms: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 81, 5, 890-900. doi: 10.1037/a0033697.
- Burke, K.J., Paton, D. (2006). Well-being in protective services personnel: organisational influences. *Australasian Journal of Disaster*, 2, 1-13.
- Burstow, B. (2005). A critique of posttraumatic stress disorder and the DSM. *Journal of Humanistic Psychology*, 45, 429-445.

- Carlier, I., Lamberts, R., Gersons, B. (1997). Risk factors for posttraumatic stress symptomatology in police officers: a prospective analysis. *Journal of Nervous & Mental Disease, 185*, 498–506.
- Castro, C.A., & McGurk, D. (2007). The intensity of combat and behavioral health status. *Traumatology, 13*, 6-23.
- Centers for Disease Control and Prevention (2014). Definitions: self-directed violence. Retrieved from <http://www.cdc.gov/violenceprevention/suicide/definitions.html>
- Chao, G. T., Walz, P. M., & Gardner, P. D. (1992). Formal and informal mentorships: A comparison on mentoring functions and contrast with nonmentored counterparts. *Personnel Psychology, 45*, 619–636.
- Cohen, J. (1988), *Statistical Power Analysis for the Behavioral Sciences, 2nd Edition*. Hillsdale: Lawrence Erlbaum.
- Cohen, S. (2004). Social relationships and health. *American psychologist, 59*, 8, 676-684.
- Cook, J.A. (2011). Peer-delivered wellness recovery services: From evidence to widespread implementation. *Psychiatric Rehabilitation Journal, 35*, 2, 87–89
- Cooney, G. M., Dwan, K., Greig, C. A., Lawlor, D. A., Rimer, J., Waugh, F. R.,... & Mead, G. E. (2013). Exercise for depression. *Cochrane Database System Review, 9*, 1-157. doi:10.1002/14651858.CD004366.pub6
- Cornelis, M., Nugent, N.R., Amstadter, A.B., Koenen, K.C. (2010). Genetics of posttraumatic stress disorder: Review and recommendations. *Current Psychiatry Reports, 12*, 4, 313-326.
- Currier, J. M., Lisman, R., Harris, J. I., Tait, R. & Erbes, C. R. (2013). Cognitive processing of trauma and attitudes toward disclosure in the first six months after military deployment. *Journal of Clinical Psychology, 69*, 3, 209–221. doi: 10.1002/jclp.21930
- Department of Defense Center of Excellence for Psychological Health and TBI (2011). *Best practices identified for peer support programs*. Retrieved from http://www.dcoe.mil/content/Navigation/Documents/Best_Practices_Identified_for_Peer_Support_Programs_Jan_2011.pdf
- Department of the U.S. Army (2006a). *Field Manual 3-24 (CounterInsurgency)*. Located at the following website- <http://www.fas.org/irp/doddir/army/fm3-24.pdf>.
- Department of the U.S. Army (2006b). *Field Manual 6-22 (Army Leadership)*. Located at the following website- <http://www.fas.org/irp/doddir/army/fm6-22.pdf>.
- Department of the U.S. Army (2014). IMCOM: Total Army Sponsorship Program. Retrieved from <http://www.imcom.army.mil/Organization/G1Personnel/sponsorship.aspx>

- Department of Veterans Affairs Office of the Inspector General, Office of Audits & Evaluations & Veterans Health Administration. (2010). *Audit of education claims and payments for the post-9/11 GI bill (09-03458- 18)*. Retrieved from <http://www.va.gov/oig/52/reports/2011/VAOIG-09-03458-18.pdf>
- DeRue, D., Nahrgang, J., Wellman, N., & Humphrey, S. (2011). Trait and behavioral theories of leadership: A meta-analytic test of their relative validity. *Personnel Psychology, 64*, 1, 7-52.
- DiRamio, D., & Jarvis, K. (2011). Veterans in higher education: When Johnny and Jane come marching to campus. *ASHE Higher Education Report, 37*, 3.
- Dohrenwend, B.P., Turner, J.B., Turse, N.A., Adams, B.G., Koenen, K. and Marshall, R. (2006). The psychological risks of vietnam for U.S. veterans: A revisit with new data and methods. *Science, 18*, 313, 979-982.
- Druss, B., Zhao, L., von Esenwein, S., DiClemente, R., Bona, R., Fricks, L., ... Lorig, K. (2010). The Health and Recovery Peer (HARP) Program: A peer-led intervention to improve medical self-management for persons with serious mental illness. *Schizophrenia Research, 118*, 1–3, 264–270.
- Endicott, J., Nee, J., Harrison, W., & Blumenthal, R. (1993). Quality of life enjoyment and satisfaction questionnaire: A new measure. *Psychopharmacology Bulletin, 29*, 321–326.
- Erbes, C., Kaler, M., Schult,T., Polusny, M., & Arbisi, P. (2011). Mental health diagnosis and occupational functioning in national guard/reserve Veterans returning from Iraq. *Journal of Rehabilitation Research & Development, 48*, 10, 1159-1170. doi:10.1682/JRRD.2010.11.0212
- Ferraro, K.F., & Kelley-Moore, J.A. (2003). Cumulative disadvantage and health: Long-term consequences of obesity? *American Sociological Review, 68*, 5, 707–729.
- Fiedler, F. (1967). *A theory of leadership effectiveness*. McGraw-Hill: Harper & Row Publishers.
- Foa, E., Keane, T., Friedman, M., & Cohen, J. (Eds.) (2009). *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies*. New York: Guildford Press
- Gal, R., & Jones, F. D. (1995). A psychological model of combat stress. In J. W. Stokes (Ed.), *War psychiatry* (pp. 133-148). Falls Church, VA: Department of the Army Office of the Surgeon General.
- Galatzer-Levy, I. R., Burton, C. L., & Bonanno, G. A. (2012). Coping flexibility, potentially traumatic life events, and resilience: A prospective study of college student adjustment. *Journal of Social & Clinical Psychology, 31*, 542–567. doi:10.1521/jscp.2012.31.6.542

- Garson, G.D. (2013). *Hierarchical Linear Modeling. Guide and Applications*. Thousand Oaks, CA.: Sage.
- Geraci, J.C., Baker, M., Bonanno, G., Tussenbroek, B., & Sutton, L. (2011). Understanding and mitigating post traumatic stress disorder. In P. Sweeney, M. Matthews, & P. Lester. *Leadership in Dangerous Situations: A Handbook for the Armed Forces*. Annapolis, MD: Naval Institute Press (pp 78-96).
- Ghosh, R., Reio, T. G., Jr., & Haynes, R. K. (2012). Mentoring and organizational citizenship behavior: Estimating the mediating effects of organization-based self-esteem and affective commitment. *Human Resource Development Quarterly*, 23, 1, 41–63.
- Gould, M., Adler, A., Zamorski, M., Castro, C., Hanily, N., & Steele, N. (2010). Do stigma and other perceived barriers to mental health care differ across armed forces? *Journal of the Royal Society of Medicine*. 103, 148–156.
- Grossbard, J., Hawkins, E., Lapham, G., Williams, E., Rubinsky, A., & Simpson, T. (2013). Follow-up care for alcohol misuse among OEF/OIF veterans with and without alcohol use disorders and posttraumatic stress disorder. *Journal of Substance Abuse Treatment*, 45, 409-415. doi:10.1016/j.jsat.2013.04.007
- Guay, S., Billette, V., & Marchand, A. (2006). Exploring the links between posttraumatic stress disorder and social support: Processes and potential research avenues. *Journal of Traumatic Stress*, 19, 327–338.
- Gulin, S. (2014). *Examining the role of unit cohesion as a moderator of the relationship between warfare exposure and PTSD*. VCU Theses and Dissertations. Paper 3506.
- Haglund, M., Nestadt, P., Cooper, N., Southwick, S., & Charney, D. (2007). Psychobiological mechanisms of resilience. *Development and Psychopathology*, 19, 889-920.
- Hegstad, C. D., & Wentling, R. M. (2004). The development and maintenance of exemplary formal mentoring programs in fortune 500 companies. *Human Resource Development Quarterly*, 15, 4, 421–448.
- Hamilton, A.B., Chinman, M., Cohen, A., Oberman, R.S., Young, A.S. (2013). Implementation of consumer providers into mental health Intensive case management teams. *Journal of Behavioral Health Services & Research*, 1–8. DOI 10.1007/s11414-013-9365-8
- Hankin, B.L. & Abela, J. R. (2005). *Development of psychopathology: A vulnerability-stress perspective*. New York: Sage Publications.
- Hedeker, D. & Gibbons, R.D. (2006). *Longitudinal Data Analysis*. Hoboken, NJ: John Wiley & Sons.

- Hébert, M. & Lavoie, F., (2014). Post Traumatic Stress Disorder/PTSD in adolescent victims of sexual abuse: resilience and social support as protection factors. *Ciência & Saúde Coletiva*, 19, 3, 685-694.
- Herodotus. (2008). *The boys' and girls' Herodotus; Being parts of the history of Herodotus* (John White, Trans.). Charleston, SC: Bibliolife.
- Hinojosa, R. & Hinojosa, S.H. (2011). Using military friendships to optimize postdeployment reintegration for male Operation Iraqi Freedom/Operation Enduring Freedom veterans. *Journal of Rehabilitation Research & Development*, 48, 10, 1145–1158. doi:10.1682/JRRD.2010.08.0151
- Hoge, C.W., Castro, C.A., Messer, S.C., McGurk, D., Cotting, D.I., Koffman, R.L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *The New England Journal of Medicine*. 351, 1, 13–22. DOI:10.1056/NEJMoa040603
- Hoge, C. W., Terhakopian, A., Castro, C. A., Messer, S. C., & Engel, C. C. (2007). Association of posttraumatic stress disorder with somatic symptoms, health care visits, and absenteeism among Iraq war veterans. *American Journal of Psychiatry*, 164, 1, 150-153. doi: 10.1176/appi.ajp.164.1.150
- Institute of Medicine (2014). *Assessment of resiliency and prevention programs for mental and behavioral health in service members and their families*. Retrieved from <http://www.iom.edu/Activities/Veterans/MilitaryMentalBehavioralHealth.aspx>
- Interian, A., Kline, A., Callahan, L., Losonczy, M. (2012). Readjustment stressors and early mental health treatment seeking by returning national guard soldiers with PTSD. *Psychiatric Services*, 63, 9, 855-861.
- Jordan, B. K., Marmar, C. R., Fairbank, J. A., Schlenger, W. E., Kulka, R. A., Hough, R. L., & Weiss, D. S. (1992). Problems in families of male Vietnam veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 60, 6, 916-926.
- Kaufmann, C. (1995). The self-help employment center: Some outcomes from the first year. *Psychosocial Rehabilitation Journal*, 18, 145-162.
- Kaysen, D., Rosen, G., Bowman, M., & Resick, P. (2010). Duration of exposure and the dose-response model of PTSD. *Journal of Interpersonal Violence*, 25, 1, 63-74.
- Kazis, L. E., Miller, D. R., Skinner, K. M., Lee, A., Ren, X. S., Clark, J. A.,...& Fincke, B. G. (2006). Applications of methodologies of the Veterans health study in the VA healthcare system: conclusions and summary. *The Journal of Ambulatory Care Management*, 29, 2, 182–188.
- Kessler, R.C., Berglund, P., Demler, O., Jin, R., Merikangas, K.R., Walters, E.E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62, 593–602.

- Kessler, R.C., Chiu, W.T., Demler, O., Merikangas, K.R., & Walters, E.E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 6, 617-627.
- Kim, J. & Shin, W. (2014). How to do random allocation (randomization). *Clinics in Orthopedic Surgery*. *6*, 1, 103–109. doi: [10.4055/cios.2014.6.1.103](https://doi.org/10.4055/cios.2014.6.1.103)
- Kim, S.C., Edd, D.O., Riingen, M., Taylor, B., Rankin, L. (2013). Randomized controlled trial of graduate-to-undergraduate student mentoring program. *Journal of Professional Nursing*, *29*, 6, 43–49. <http://dx.doi.org/10.1016/j.profnurs.2013.04.003>
- Kline, A., Ciccone, D.S., Falca-Dodson, M., Black, C.M., & Losonczy, M. (2011). Suicidal ideation among National Guard troops deployed to Iraq: the association with postdeployment readjustment problems. *Journal of Nervous and Mental Disease*, *199*, 12, 914-920. doi: 10.1097/NMD.0b013e3182392917.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2002). The PHQ-15: Validity of a new measure for evaluating the severity of somatic symptoms. *Psychosomatic Medicine*, *64*, 258-266.
- Kroenke, K., Spitzer, R. L., Williams, J. B. W., & Löwe, B. (2010). The patient health questionnaire somatic, anxiety, and depressive symptom scales: A systematic review. *General Hospital Psychiatry*, *32*, 4, 345-359. doi: 10.1016/j.genhosppsy.2010.03.006
- Kulka, R.A., Schlenger, W.A., Fairbanks, J.A., Hough, R.L., Jordan, B.K., Marmar, C.R., ... Cranston, A.S. (1990). *Trauma and the Vietnam War generation: Report of findings from the National Vietnam Veterans Readjustment Study*. New York: Brunner/Mazel.
- Laffaye C, Cavella S, Drescher K, Rosen C. (2008). Relationship among PTSD symptoms, social support, and support source in veterans with chronic PTSD. *Journal of Traumatic Stress*. *21*, 394–401.
- Lapham, G., Achtmeyer, C., Williams, E., Hawkins, E., Kivlahan, D., & Bradley, K. (2012). Increased documented brief alcohol interventions with a performance measure and electronic decision support. *Medical Care*, *50*, 179–187. doi:10.1097/MLR.0b013e3181e35743
- Lipsitz, J & Markowitz, J. (2013). Mechanisms of change in interpersonal therapy (IPT). *Clinical Psychology Review*, *33*, 1134–1147.
- Locke, E. A., & Latham, G. P. (2006). New directions in goal-setting theory. *Current Directions in Psychological Science*, *15*, 265–268.
- Lokken, J.M., Pfeffer, D.S., McAuley, J., & Strong, C. (2009). A statewide approach to creating veteran-friendly campuses. *New Directions for Student Services*, *126*, 45-54. DOI: 10.1002/ss.315

- Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the MLQ literature. *The Leadership Quarterly*, 7, 3, 385–425.
- Luxton, D., Thomas, E., Chipps, et al. (2014). Caring letters for suicide prevention: Implementation of a multi-site randomized clinical trial in the U.S. military and veteran affairs healthcare systems. *Contemporary Clinical Trials*, 37, 252-260. doi.org/10.1016/j.cct.2014.01.007
- Mansfield, A.K., Dealy, J.A., & Keitner, G.I. (2013). Family functioning and income. *The Family Journal*, 21, 297-305.
- Markowitz, J. C., Milrod, B., Bleiberg, K., & Marshall, R. D. (2009). Interpersonal factors in understanding and treating posttraumatic stress disorder. *Journal of Psychiatric Practice*, 15, 2, 133–140.
- McNally, R.J. (2007). Revisiting Dohrenwend *et al.*'s revisit of the National Vietnam Veterans Readjustment Study. *Journal of Trauma Stress*, 20, 481–486.
- Mental Health Advisory Team (2009). *Operation enduring freedom 06: Final Report*. Washington D.C.: Office of the Surgeon General United States Army Medical Command.
- Military Friendly (2014). *2014 military friendly employers reported hiring*. Retrieved from <http://militaryfriendly.com/>
- Milliken, C.S., Auchterlonie, J.L., Hoge, C.W. (2007). Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *JAMA*, 298, 18, 2141–48. DOI:10.1001/jama.298.18.2141
- Molnar, B.E., Buka, S.L., & Kessler, R.C. (2001). Child sexual abuse and subsequent psychopathology: Results from the National Comorbidity Survey. *American Journal of Public Health*, 91, 5, 753-760.
- Monroe, S.M., & Simons, A.D. (1991). Diathesis–stress theories in the context of life stress research: Implications for the depressive disorders. *Psychological Bulletin*, 110, 3, 406–425.
- Monson, C., Schnurr, P., Resick, P., Friedman, M. (2006). Cognitive processing therapy for veterans with military-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 74, 898-907.
- Moore, H.G. & Galloway, J.L. (1992). *We were soldiers once and young*. New York, NY: Random House.
- Ottomanelli, L., Barnett, S. D., & Goetz, L. L. (2013). A prospective examination of the impact of a supported employment program and employment on health-related quality of life, handicap, and disability among Veterans with SCI. *Quality of Life Research*, 22, 8, 2133-

2141. doi: 10.1007/s11136-013-0353-5

- Pandiani, J.A., Ochs, W.R., Pomerantz, A.S. (2010). Criminal justice involvement of armed forces veterans in two systems of care. *Psychiatric Services, 61*, 8, 835-837. doi: 10.1176/appi.ps.61.8.835.
- Paykel, E. S., Myers, J. K., Dienelt, M. N., Klerman, G. L., Lindenthal, J. J., & Pepper, M. P. (1969). Life events and depression. A controlled study. *Archives of General Psychiatry, 21*, 6, 753–760.
- Pietrzak, R., Johnson, D., Goldstein, M., Malley, J., & Southwick, S. (2009). Perceived stigma and barriers to mental health care utilization among OEF-OIF veterans. *Psychiatric Services, 60*, 8, 1118-1122.
- Pietrzak, R. H., Johnson, D. C., Goldstein, M. B., Malley, J. C., Rivers, A. J., Morgan, C. A., & Southwick, S. M. (2010). Psychosocial buffers of traumatic stress, depressive symptoms, and psychosocial difficulties in veterans of Operations Enduring Freedom and Iraqi Freedom: the role of resilience, unit support, and postdeployment social support. *Journal of affective disorders, 120*, 1, 188-192.
- Pole, N., Neylan, T., Otte, C., Henn-Hasse, C., Metzler, T., Marmar, C. (2009). Prospective prediction of posttraumatic stress disorder symptoms using fear potentiated auditory startle responses. *Biological Psychiatry, 65*, 235-240.
- Prati, G., Luigi, P., & Pietrantonio, L. (2009). Coping strategies and professional quality of life among emergency workers. *Australasian Journal of Disaster, 1*, 1-12.
- Ragins, B. R., & Cotton, J. L. (1999). Mentor functions and outcomes: A comparison of men and women in formal and informal mentoring relationships. *Journal of Applied Psychology, 84*, 529–550.
- Raudenbush, S.W., Bryk, A.S., & Congdon, R. (2011). *HLM 7 for Windows* [Computer software]. Skokie, IL: Scientific Software International, Inc.
- Raudenbush, S.W., Spybrook, J., Liu, X., & Congdon, R. (2005). Optimal design for longitudinal and multilevel research, version 1.55 [Computer software]. Retrieved from http://sitemaker.umich.edu/gropu-based/optimal_design_software
- Resick, P. (2001). *Stress and trauma*. London: Psychology Press.
- Richardson, L.K., Frueh, B.C., & Acierno, R. (2009). Prevalence estimates of combat-related post-traumatic stress disorder: critical review. *Australian and New Zealand Journal of Psychiatry, 44*, 4–19.
- Rogers, C. (1995). *On becoming a person*. Boston, MA: Houghton Mifflin Company.

- Rucci, P., Rossi, A., Mauri, M., Maina, G., Pieraccini, F., Pallant, S., & Endicott, J. (2007). Validity and reliability of Quality of Life, Enjoyment and Satisfaction Questionnaire, Short Form. *Epidemiologia E Psichiatria Sociale*, *16*, 1, 82–89. doi: [10.1017/S1121189X00004656](https://doi.org/10.1017/S1121189X00004656)
- Ruggiero, K. J., Del Ben, K., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric Properties of the PTSD Checklist--Civilian Version. *Journal of Traumatic Stress*, *16*, 5, 495-502. doi: [10.1023/A:1025714729117](https://doi.org/10.1023/A:1025714729117)
- Sajatovic, M., & Ramirez, L. F. (2012). *Rating scales in mental health* (3rd ed.). Baltimore, MD: John Hopkins University Press.
- Savoca, E., & Rosenheck, R. (2000). The civilian labor market experiences of Vietnam-era veterans: The influence of psychiatric disorders. *The Journal of Mental Health Policy and Economics*, *3*, 4, 199–207. Doi: <http://dx.doi.org/10.1002/>
- Sayer, N.A., Noorbaloochi, S., Frazier, P., Carlson, K., Gravely, A., & Murdoch, M. (2010). Reintegration problems and treatment interests among Iraq and Afghanistan combat veterans receiving VA medical care. *Psychiatric Services*, *61*, 6, 589-597. doi:10.1176/appi.ps.61.6.589
- Sayer, N.A., Frazier, P., Orazem, R.J., Murdoch, M., Gravely, A., Carlson, K., et al. (2011). Military to civilian questionnaire: A measure of postdeployment community reintegration difficulty among veterans using Department of Veterans Affairs medical care. *Journal of Traumatic Stress*, *24*, 660–670. doi:10.1002/jts.20706.)
- Sayer, N.A., Orazem, R.J., Noorbaloochi, S., Gravely, A., Frazier, P., Carlson, K.F., Schnurr, P.P. & Oleson, H. (2014). Iraq and afghanistan war veterans with reintegration problems: Differences by veterans affairs healthcare user status. *Administration and Policy in Mental Health and Mental Health*. Published online. DOI 10.1007/s10488-014-0564-2
- Scandura, T. A., & Williams, E. A. (2004). Mentoring and transformational leadership: The role of supervisory career mentoring. *Journal of Vocational Behavior*, *65*, 448–468.
- Seguin, M., Lesage, A., Turecki, G., Bouchard, M., Chawky, N...Tremblay, N. (2007). Life trajectories and burden of adversity: Mapping the developmental profiles of suicide mortality. *Psychological Medicine*, *37*, 1575–1583.
- Sherbourne, C. D., & Stewart A. L. (1991). The MOS Social Support Survey. *Social Science & Medicine*, *32*, 6, 705–714. doi: [10.1016/0277-9536\(91\)90150-B](https://doi.org/10.1016/0277-9536(91)90150-B)
- Sherman, N. (2005). *Stoic warriors: The ancient philosophy behind the military mind*. New York, NY: Oxford University Press.
- Smith, T.C., Ryan, M.A., Wingard, D.L., Slymen, D.J., Sallis, J.F., ...Kritz-Silverstein, D. (2008). New onset and persistent symptoms of post-traumatic stress disorder self reported after deployment and combat exposures: prospective population based US military cohort

- study. *British Journal of Psychiatry*, 336, 366–71.
- Solomon, P. (2004). Peer support/peer provided services underlying processes, benefits, and critical ingredients. *Psychiatric Rehabilitation Journal*, 27, 4, 392–401.
- Stevanovic, D. (2011). Quality of life enjoyment and satisfaction questionnaire – short form for quality of life assessments in clinical practice: A psychometric study. *Journal of Psychiatric Mental Health Nursing*, 18, 8, 744–750. doi: 10.1111/j.1365-2850.2011.01735.x
- Stouffer, S.A., Lumsdaine, A.A., Harper, Lumsdaine, M., Williams, R.M., Smith, M.B., & Janis, I.L. (1949). *The American soldier: Combat and its aftermath*. Princeton, NJ: Princeton University Press.
- Sundin, J., Fear, N.T., Iversen, A., Rona, R.J. & Wessely, S. (2010). PTSD after deployment to Iraq: conflicting rates, conflicting claims. *Psychological Medicine*, 40, 3, 367- 382.
- Vogt, D. S., Proctor, S. P., King, D.W., King, L.A., & Vasterling, J.J. (2008). Validation of scales from the Deployment Risk and Resilience Inventory in a sample of Operation Iraqi Freedom veterans. *Assessment*, 15, 4,391-403. doi:10.1177/1073191108316030
- Vogt, D.S., Smith, B.N., King, L.A., King, D.W., Knight, J., & Vasterling, J.J. (2013). Deployment risk and resilience inventory-2 (DRRI-2): an updated tool for assessing psychosocial risk and resilience factors among service members and veterans. *Journal of Traumatic Stress*, 26, 6, 710-717.
- Veterans Health Administration (2014). *Suicide Rates in VHA Patients through 2011 with Comparisons with Other Americans and other Veterans through 2010*. Retrieved from http://www.mentalhealth.va.gov/docs/suicide_data_report_update_january_2014.pdf
- Wands, L.M. (2013). No one gets through it OK: The health challenge of coming home from war. *Advances in Nursing Science*, 36, 3, 186–199. doi: 0.1097/ANS.0b013e31829edcbe
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993). *The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility*. Paper presented at the 9th Annual Conference of the ISTSS, San Antonio, TX.
- Weissman, M. M. (1999). *SAS-SR: Social adjustment scale by self-report*. Toronto, Ontario: MHS, Inc.
- West, C., Bernard, B., Mueller, C., Kitt, M. (2008). Mental health outcomes in police personnel after Hurricane Katrina. *Journal of Occupational and Environmental Medicine*, 50, 689-695.
- Wright, K.M., Cabrera, O.A., Bliese, P.D., Adler, A.B., & Castro, C.A. (2009). Stigma and barriers to care in soldiers postcombat. *Psychological Services*, 6, 108-116.

Yammarino, F., Mumford, M., Connelly, M., & Dionne, S. (2010). Leadership and team dynamics for dangerous military contexts. *Military Psychology*, 22, S15 – S41. p. S19.