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Exploring the Interplay of Moral Injury Outcomes and Intimate Relationship Functioning among Combat Veterans with Trauma-Related Problems

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List of Abbreviations

Abbreviations

CAPS-5 ..... Clinician-Administered PTSD Scale for DSM-5

DoD ..... Department of Defense

DSM ..... Diagnostic and Statistical Manual for Mental Disorders

EMIS ..... Expressions of Moral Injury Scale

IPF ..... Inventory Of Psychosocial Functioning

IPV ..... Intimate Partner Violence

MI ..... Moral Injury

PCL-5 ..... PTSD Checklist for DSM-5

PMIE ..... Potentially Morally Injurious Events

PTSD ..... Posttraumatic Stress Disorder

SM/V ..... Service Members and Veterans

VHA ..... Veterans Health Administration

Abstract

Paola Fernandez, M. S., University of South Alabama, August 2022. Exploring the Interplay of Moral Injury Outcomes and Intimate Relationship Functioning among Combat Veterans with Trauma-Related Problems. Chair of Committee: Joseph M. Currier, Ph.D.

Moral injury (MI) can be conceptualized as a social construct with implications for the individual as seen through symptoms of shame and isolation, and self-harming behaviors such as increase in substance abuse and risk-taking activities (Litz et al. 2009). Despite the probable impact on social relationships, research has not yet looked at the impact of MI outcomes on close social relationships in US service members and veterans (SM/V). Using a sample of 65 combat veterans, a multiple regression analysis was conducted to determine whether scores on the Expressions of Moral Injury Scale (EMIS-M) (Currier et al., 2017) uniquely predicted scores on the Romantic Subscale of the Inventory of Psychosocial Functioning (IPF) Scale (Bovin et al., 2018) when holding symptoms of PTSD constant. Bivariate analyses revealed that veterans who scored higher on the PTSD Checklist for DSM-5 (PCL-5) reported worse MI outcomes, $r=.58$, $p<.05$, and more difficulties in relationship functioning, $r=.33$, $p<.05$. Increase in MI outcomes were also correlated with increase in intimate partner dysfunction, $r=.49$, $p<.05$. A multivariate analysis generated a statistically significant model, $F(2, 62) = 9.841$, $p < .001$. Results indicate that assessing for MI outcomes within intimate relationships can give providers a different perspective on how to treat mental health symptoms rather than only focusing on PTSD. Providers can potentially focus interventions on strengthening the relationship to reduce divorce rates or other adverse relationship outcomes among SM/V.

Keywords: military service members, veterans, posttraumatic stress, moral injury, relationship functioning

Exploring the Interplay of Moral Injury Outcomes and Intimate Relationship Functioning among Combat Veterans with Trauma-Related Problems

Chapter 1

Introduction

United States service members and veterans (SM/V) continue to be disproportionally affected by suicide rates. A 2021 Suicide Prevention Annual Report found that although 399 less Veterans died from suicide in 2019 than in 2018, 6,261 veterans died by suicide that year. The rate of suicide between veterans and non-veterans decreased from a rate of 66.3% in 2017 to a rate of 52.3% higher than non-veterans in 2019 (U.S. Department of Veterans Affairs, 2021). Research at the National Center for Veteran Studies identified risks among SM/V that revealed that interaction of posttraumatic stress disorder (PTSD) and moral injury was associated with increased risk for suicide ideation and attempts (Bryan et al., 2018). Not all veterans are eligible for services through the Veterans Health Administration (VHA), but among veterans who died by suicide in 2018, 63 percent (4,057 of 6,435) did not have an encounter with VHA in the year of their death or the year prior. However, veterans do seek care in the community and rates show that as many as 83 percent of those who die by suicide have a health care visit in the year before their death (Ahmedani et al., 2014). These rates show that there is opportunity to identify other avenues to support SM/V who are at risk for suicide including their social relationships. Studies have found that decreased post-deployment support increases risk for suicide and researchers have proposed that thwarted belongingness may play a role between moral injury and post deployment social support (Houtsma et al., 2017). It is understood that mental health impacts from combat and other stressors related to military service extend

beyond the SM/V and influence romantic and social relationships. This is a key concern given that relationship support can be a protective factor for SM/V returning from deployment and/or transitioning out of the military. However, questions remain in understanding how social relationships can provide support to SM/V who experience PTSD and moral injury symptoms. Therefore, the primary aim of the present study was to explore the association between moral injury outcomes and intimate relationship functioning in a sample of combat veterans.

Understanding Moral Injury

Moral injury (MI) is a multifaceted construct that entails three components: (1) exposure to potentially morally injurious events (PMIEs); (2) appraisal of PMIEs; and (3) resulting consequences or symptoms of the event(s). Prior to Dr. Jonathon Shay's introduction of moral injury in a mental health field in the 1990s, the construct had been discussed in diverse fields such as philosophy, theology, and literature for many years. Originally, Shay (1995) noted that moral injury emerged from exposure to PMIEs that could be characterized as 'betrayal of what is right by someone who holds legitimate authority in a high stakes situation. In 2009, Litz et al. defined PMIEs as 'perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations.' Most recently, Farnsworth et al. (2017) proposed functional definitions in efforts to clarify the overlap between moral injury and other mental health conditions, such as posttraumatic stress disorder (PTSD). This section will discuss each of the three components of moral injury.

Exposure to potentially morally injurious events. Military SM/V are often faced with morally or ethically ambiguous decisions that may not have a clear right or wrong

response. These ethically ambiguous situations can come in varying degrees. Litz and Kerig (2019) proposed a heuristic continuum model that delineates the varying types of moral conflicts that people might encounter in life: moral challenges, moral stressors, and potentially morally injurious events (PMIEs). This model illustrates how the type of moral conflict one experiences shapes the impact of the consequence. First, moral challenges include experiences that may be ongoing and that have no immediate consequence on the self. Examples of these challenges can include climate change, world hunger, injustice or violence and can lead to normal and expected exasperation. These experiences are seen with the most frequency in everyday life and often result in moral frustration. Second, an individual can experience moral stressors which result in a greater degree of moral distress and occur less frequently. Moral stressors can occur when one is directly responsible or directly impacted by the moral violations of others. Examples of moral stressors can include infidelity toward a spouse, hurting a loved one or violating the trust of a friend or colleague. Moral stressors can be difficult to process causing temporary loss of sleep, appetite loss, or intrusive thoughts, but the consequences are not paralyzing and not defining of character. Lastly, PMIEs occur with the least frequency and could possibly result in moral injury (Litz & Kerig, 2009). PMIEs are experiences that are higher stakes and likely to include grave threat to personal integrity (e.g., sexual abuse) or threat to life (e.g., vehicle accident or combat). Nash and colleagues (2013) developed a scale to evaluate different types of stressful events that may be traumatic because they violate deeply held moral beliefs and values. This measure is called the Moral Injury Events Scale (MIES), and throughout validation, three subscales were identified including transgressions by self, transgressions by others, and betrayal (Bryan

et al., 2016; Nash et al., 2013). Wisco et al. (2017) evaluated the prevalence of these three types of PMIEs in a national sample of U.S. combat veterans; they found that approximately 25.5% of combat veterans endorsed at least one transgression by others, 25.5% endorsed at least one betrayal item, and 10.8% endorsed at least one transgression by self. Overall, 41.8% of combat veterans in this sample endorsed at least one item on one of the scales. PMIEs were associated with higher likelihood of mental health disorders and current suicidal ideation, independent of sociodemographic variables, severity of combat, other trauma exposure or lifetime mental disorders (Wisco et al., 2017). Additional analysis indicated that transgressions by self were the least frequently endorsed but uniquely linked to worse mental health outcomes and suicidal ideation; betrayal items were uniquely linked to suicidal attempts. In summary, PMIEs are events that include acts of perpetration, failing to prevent, or bearing witness to acts that transgress deeply held beliefs or morals that may or may not lead to long term negative emotional, physical, behavioral, spiritual, and social consequences (Litz et al., 2009). However, experiencing a PMIE alone does not equate with a moral injury. A person must recognize the experience as a profound transgression of their moral code for a moral injury to occur.

Appraisal of PMIEs. Appraisal of an PMIE as an act of moral wrongdoing involves deeming a situation as a transgression to one's moral belief and values. This is an individual judgment and differences in culture, beliefs, and values can play a role. Using the social functional model of moral emotions to further understand such judgments, people behave in ways to maintain group membership. Moral emotions function to let people know when they do something that goes against the community's

moral standards or expectations; for instance, guilt functions to signal a violation of someone's boundary and encourages behavior to repair trust (Drescher & Farnsworth, 2021). Additionally, someone can attribute an act of omission or commission as a negative enduring depiction of their character or of the other person who they feel is responsible (Farnsworth et al., 2017). Farnsworth et al. proposed the term moral pain as a response following an "experience of dysphoric moral emotions and cognitions (e.g., self-condemnation)." Actions that are contrary to one's beliefs and values can be labeled as moral violations, and the emotional experience of moral pain can include shame, guilt, anger, or moral stress, culpability or judgment or dissonance between these emotions. However, moral pain resulting from a moral violation does not indicate moral injury per se. Instead, moral emotions, rules, and values serve to maintain social groups and connections. These guidelines help individuals navigate social relationships and group membership to discourage egocentrism, encourage prosocial behavior, and maintain the social connection for group survival (Drescher & Farnsworth, 2021). When a transgression results from either personal betrayal or betrayal by other trusted persons, trust between the group members may be fractured (Litz & Kerig, 2019). However, not every transgression to one's moral code will result in moral injury, much like not all people who experience a potentially traumatic event go on to experience PTSD (Farnsworth et al., 2017; Litz & Kerig, 2019). In some situations, feelings of guilt following the negative evaluation of an action that is connected to distress, regret, and remorse can generate pro-social behaviors to motivate actions of restoration (Tangney et al., 2007). Feelings of shame differ from guilt in that shame is a negative evaluation of self and may not lead to prosocial behavior as often (e.g., amends making). Shame may

motivate behaviors such as withdrawal, isolation, and reduction of empathy because of the preoccupation with self-discomfort (Tangney et al., 2007). Additional negative social consequences following a moral violation can include shame, guilt, social isolation, other self-handicapping behaviors (Litz et al., 2009), ruptured social bonds (Nash & Litz, 2013), and religious and spiritual struggles (Currier et al., 2021). To date, research has not examined how symptoms of moral injury can negatively impact marital relationship functioning. Importantly, emotions following a moral violation are inherently subjective and people can experience varying degrees of distress. For example, a person may feel guilty and attempt to make amends in cases when they feel responsible and may feel pervasive shame that defines their identity. This is healthy resolution following wrongdoing. When an individual experiences a moral violation, a healthy response can lead to making amends or health-promoting behaviors such as community involvement and connection. In instances when someone else has harmed them or someone else, the individual may experience other-directed moral stress which results in feelings of irritation and anger. The person may still be able to function, but the anger may dominate in periods of rage. The meaning that an individual makes of the transgression guides the consequences of moral frustration, distress, or injury. When the individual begins to adopt unhealthy coping strategies to alleviate the moral pain, such as increase in alcohol use, isolation, or self-harming behaviors, then the individual may begin to experience a moral injury. Litz et al. (2009) indicated the individual must become aware of how the transgression was incongruent to his or her own beliefs or morals and the experience needs to create dissonance or inner conflict for it to then present as a moral injury.

Development of moral injury as an outcome. Depending on the magnitude of the event and factors related to the individual and their sociocultural environment, perceived violation of moral beliefs and values after a PMIE may result in behavioral, cognitive, or emotional conflict that overlaps with but transcends symptoms of PTSD (Litz et al. 2009). Expressions of moral injury include painful recall of the moral violation that create self-condemnation which leads to SM/V distancing themselves from others. Litz et al. (2009) also discussed self-harming behaviors (e.g., alcohol and drug use and parasuicidal behavior), self-handicapping behaviors (e.g., withdrawing from good feelings) and demoralization (e.g., self-loathing) as key outcomes of moral injury. However, researchers and clinicians have been mindful and have expressed concern in considering moral injury as a mental health condition that would pathologize an otherwise normal response to a moral transgression (Farnsworth et al., 2017; Litz & Kerig, 2019). The present study focused on the outcomes of MI measured by the Expression of Moral Injury Scale (EMIS; Currier et al., 2017). MI outcomes are the symptoms following the perceived violation to one's moral beliefs and values in which a person recognizes that this injury has happened and is engaging in efforts to reconcile with themselves and/or prevent others from being 'contaminated'. The EMIS was developed to capture cognitive, emotional, and behavioral consequences of MI. Validation of the EMIS demonstrated that outcomes can be further distinguished between 'self-directed MI' and 'other-directed MI.' Self-directed MI refers to moral injury resulting from one's own actions such as being the person to pull the trigger in combat consequently killing someone. In contrast, other-directed MI refers to issues stemming

from someone else's actions such as witnessing a peer violate one's morals (Currier et al. 2017).

Distinguishing Moral Injury and PTSD

During their military service, personnel may experience several stressors that result in physical injuries and enduring changes in cognition, emotion, and behavior. Since the first edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM) in 1980, the criteria for a PTSD diagnosis has evolved and currently includes the following: (a) an event or stressor (related to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence), (b) intrusion symptoms, (c) avoidance, (d) negative alterations in cognitions and mood, (e) alterations in arousal and reactivity, and the duration of the symptoms for at least three months. However, within these criteria, there has historically been little room for an individual to experience psychological distress over the burden of being responsible for the damage done onto another (perpetrator) or being responsible for not doing something to prevent the injury. Yet, many SM/V faced these types of events that cause moral pain and distress during their time in service. A Mental Health Advisory Council report from 2008, showed that Soldiers who screened positive for mental health problems of depression, anxiety or acute stress were significantly more likely to report engaging in unethical behaviors. This is important given the high comorbidity of mental health problems in SM/V; for example, the Institute of Medicine (2013) reported that 77% of active-duty service members hospitalized for PTSD had a comorbid mental health diagnosis such as depression, suicidal ideation, or substance abuse/dependence (Institute of Medicine, 2013). The

following section will discuss the overlap between PTSD and moral injury in relation to the precipitating event and functions of posttraumatic symptoms.

Precipitating event. The first criterion for a PTSD diagnosis in the DSM-5 includes a precipitating event which can include exposure to actual or threatened death, serious injury, or sexual violence, either by directly experiencing, witnessing in person as it occurs to others, learning that it occurred to a close friend or family member (in cases of actual or threatened death to a family member, the events must have been violent or accidental), or experiencing repeated or extreme exposure to aversive details of traumatic events such as those for first responders collecting human remains, police officers exposed to child abuse, firefighters, or military service members exposed to combat. In contrast, a PMIE can include events that may lead to PTSD while also including a situation in a high-stakes environment where an individual perceives a moral violation by their own actions or actions of others (Farnsworth et al. 2017). For example, the DSM-5 PTSD criteria does not account for the possibility of the perpetrator to be the one to experience the distress. However, SM/V experience this type of distress, and it is captured when asked about self-directed moral injury such as having to make a decision that affects the survival of others such as when a medic fails to perform a lifesaving task or when a service member falls asleep on patrol. Other-directed moral injury captures perceived betrayals from others and can include failure of leadership or other trusted peers in combat (Currier et al., 2017).

Criterion A events usually involve a threat to life, whereas PMIEs necessitate a violation of a moral belief or value and could include a betrayal by a peer, a leader or other trusted individual (Currier et al. 2017). Although there is overlap in the types of

events of that can lead to a moral injury or PTSD, many PMIEs are not explicitly addressed within the DSM-5. In a nationally representative sample, about one in ten combat veterans endorsed transgressions by self which can include situations where the service member may be responsible for killing enemy combatants or noncombatants, witnessing atrocities, and participating in atrocities (Wisco et al., 2017). In another sample, SM/V who were seeking PTSD treatment were asked to report their traumatic event; those who endorsed self-directed moral injury experienced higher levels of reexperiencing, guilt, and self-blame symptoms in contrast to those who reported exposure to the threat of death or serious injury (Litz et al. 2018). SM/V can also experience betrayal, which can include leaders making wrong decisions, or other trusted service members involved in sexual assault or harassment. In addition, Criterion A events are characterized by a threat to life or physical integrity whereas PMIEs involve a perceived violation of morals or values that lead the person to appraise their experience as "wrong." An example of events that can lead to a moral injury but not PTSD includes betrayals by trusted peers or leadership that results in death or harm to civilians, other peers, or destruction of civilian property or housing (Currier et al., 2017).

Functions of posttraumatic symptoms. Although PTSD and moral injury may present with similar symptoms, Farnsworth et al. (2017) suggest the functions might serve different purposes. Both moral injury outcomes and PTSD symptoms may include avoidance of memories of the trauma, maladaptive beliefs about the trauma, self-blame, and self-harming behaviors to cope such as substance abuse, and thoughts of suicide (Currier et al., 2017). However, in moral injury, the function of guilt may be to maintain group cohesion by encouraging restorative action, while isolation may be used to

maintain the group safe from the individual because they believe they might disrupt cohesion. In contrast, PTSD symptoms such as shame, guilt, and isolation have historically been viewed as a fear response in the body to keep the individual safe from potential physical harm. For example, after making a mistake that can cause problems within a unit, a service member may experience guilt and thus initiate corrective action to make amends. While a service member who experiences PTSD may be more on guard with relationships and social settings and isolates to prevent potential harm in those situations.

Exaggerated or distorted beliefs. Furthermore, PTSD's Criterion D requires that the negative trauma-related beliefs and cognitions be "exaggerated" or "distorted" as the individual makes sense of the trauma (American Psychiatric Association, 2013). Farnsworth (2019) discussed that falsifiability was assumed in these diagnostic criteria, since it requires that the individual have distorted cognitions about the cause or the consequence for the traumatic event so that they can see that to some degree their cognition is inaccurate. However, moral injury outcomes are a consequence of the individual's moral beliefs and values related to perceptions of right and wrong. Given the subjective nature of moral beliefs and values, cognitions regarding moral injury outcomes may be adaptive reactions and necessary to maintain community structure (Farnsworth et al., 2017). Further, Farnsworth (2019) suggested there is no way to objectively test the accuracy of moral judgments, and that evaluating them as exaggerated or distorted would require an objective standard to compare them to – something that is beyond the purview of psychology or other mental health professions.

While there are differences between PTSD and moral injury outcomes, there are similarities that justify the use of existing measures to further tease apart the overlap. Previous research suggests that attempts to control moral pain overlaps with symptoms of PTSD, depression, substance abuse, and other mental health conditions (Litz et al., 2019; Farnsworth et al., 2017). Additionally, both PTSD and moral injury outcomes result in damaged relationships due to isolation and separation from social communities. Using the Inventory of Psychosocial Functioning (IPF) Scale, which was created to examine the relationship quality between service members and veterans diagnosed with PTSD, research can examine the social impact of moral injury outcomes on intimate relationship functioning.

Military Trauma and Intimate Relationship Functioning

To date, research has not examined the role of moral injury in intimate relationship functioning. Moral injury outcomes could potentially create problems within a marital relationship due to internalized behaviors such as avoidance, externalized behaviors such as anger, and their partner's behavioral response to symptoms. Intimate relationship functioning entails broad and specific characteristics that include relationship satisfaction and distress, and degree of communication, perceived alliance, and mutual trust (Campbell & Renshaw, 2018). Symptoms of PTSD are often associated with depression, substance abuse, poor work performance, as well as issues in romantic relationships and disengagement from social connections (American Psychiatric Association, 2013). To date, research has not examined the role of moral injury in intimate relationship functioning. As such, this section will examine the association between PTSD symptoms and intimate relationship functioning through internal

behaviors (emotional numbing and avoidance), externalized behaviors (physical aggression and IPV), and partner behaviors towards the impacted individual (partners' behavioral accommodation and trauma disclosure).

Internalized behaviors. The first facet includes internalized behaviors such as emotional numbing and avoidance. Emotional numbing and avoidance of trauma-related stimuli have been correlated with problems in psychosocial functioning that are often linked with withdrawal from a spouse and difficulty expressing emotions (Campbell & Renshaw, 2013; Allen et al., 2018). A study of 50 Army couples found that higher levels of PTSD symptoms were associated with lower relationship quality for both the service member and their partner. Symptoms of PTSD seemed to depreciate service members' own view of the relationship as well as their partners (Monk & Nelson Goff, 2014). Additionally, disclosure of traumatic events can have a negative impact if the partner is demanding disclosure or has a negative perception of the event (Campbell & Renshaw, 2013). These findings support research that indicates that trauma survivors may be hesitant to disclose information to "shield" others, prevent burdening others from hearing distressing events (Hall, 2008), or perhaps because they believe that others will experience a negative reaction to them (Leibowitz et al., 2008). These beliefs parallel the mechanisms for which PMIEs might create isolation among service members and veterans. An individual may believe they are capable of contaminating others, so they isolate and withdraw from close relationships and may not share details about the traumatic events.

Externalized behaviors. The second facet, externalizing behaviors, includes physical and psychological aggression. Research has shown that service members and

veterans with PTSD experience increased risk of intimate partner violence (IPV), marital conflict, and higher rates of divorce compared to civilian samples (Birkley et al., 2016; Campbell & Renshaw, 2016; Taft et al., 2011). Further, other work indicates that veterans with PTSD more often reengage in romantic relationships that involve high levels of verbal and physical abuse (Monk & Nelson Goff, 2014). Of the different symptom clusters in DSM-5, hyperarousal symptoms have been the most strongly associated with aggression in veterans and can include outbursts of irritability or anger and place the individual at risk for perpetrating IPV (Taft et al., 2011). A meta-analytic review of 23 studies exploring the link between PTSD and IPV also found that emotional numbing was moderately associated with IPV (Birkley et al., 2016). These findings align with previous research from DeWall et al. (2007) and it may be due to depletion of cognitive resources increasing interpersonal aggression.

Reciprocal behaviors. The last facet includes partner's behaviors and cognitions. Partners' behaviors can directly and unintentionally aggravate the relationship problems due to accommodation behaviors (Campbell & Renshaw, 2016). Behavioral accommodations, defined as a modified response to the partner's PTSD symptoms to prevent relationship distress, might create more dissatisfaction among veterans and their partners (Campbell & Renshaw, 2019). Examples of accommodation include "tiptoeing" around the partner who is living with PTSD to not provoke anger or perhaps refraining from communicating thoughts or feelings to prevent upsetting them (Campbell & Renshaw, 2016). In a two-week daily diary study, veterans and their partners were asked about accommodating behaviors performed in the day and their levels of intimacy; results showed that accommodation was negatively associated with feelings of intimacy with

stronger effects for partners (Campbell & Renshaw, 2019). Campbell and Renshaw proposed that partners' accommodation may cause resentment or detract from ability to connect. This may be further damaging when a service member or veteran is experiencing moral injury outcomes such as shame and guilt and is already feeling distant from their partner. Internalized emotions, externalized behaviors, and reciprocal partner reactions are areas wherein moral injury outcomes can have potential negative outcomes within a relationship. In particular, the problems related to unresolved trauma in an intimate relationship could be potentially comparable to experiences where a service member or veteran experiences moral injury. Given the prevalence of PMIEs and associated mental health consequences, examining the link between moral injury outcomes and relationship functioning may provide a new lens into understanding the mechanisms that cause distress for service members, veterans, and their partners. Moral injury might provide a helpful perspective for how service members and veterans may distance themselves from their spouse when they are in a committed relationship following a PMIE. Moral beliefs and values help communities build relationships among diverse individuals by learning to coexist and make amends when someone acts against the established norms. Following a moral violation, SM/V's may believe they will contaminate their partner or family and in efforts to protect their family, they choose to distance themselves. Additionally, they may experience anger and shame and not know how to make amends. The fear of judgment may prevent SM/V from being fully present, forthcoming, and engaged in their relationship. Previous research has demonstrated how moral injury outcomes capture feelings of shame, beliefs about being unlovable and incapable of decision making, and moral disgust (Currier et al., 2017). This study sought

to address the gap in literature regarding the impact of moral injury outcomes on intimate relationship functioning.

Study Aims and Hypotheses

Further research was needed to determine how moral injury outcomes relate to intimate relationship functioning in SM/V. From a social-functionalist perspective, systems of personal morality promote group survival and reinforce collaboration and cohesion among its members (Farnsworth et al. 2017). While research points to bivariate associations between PTSD and marital outcomes (Campbell & Renshaw, 2019), further research was needed to determine the impact of moral injury outcomes on intimate relationship functioning. The primary purpose of this study was to examine the relationship between moral injury outcomes and intimate relationship functioning. Using a multivariate regression model, I hypothesized the following:

1. In the presence of MI outcomes, PTSD symptoms would be uniquely positively correlated with lower relationship functioning among combat veterans.
2. In the presence of PTSD, MI outcomes would be uniquely positively correlated with lower relationship functioning among combat veterans.

Chapter 2

Methods

Participants and Procedures

Data for this study were gathered as part of a program evaluation project with Heroes to Heroes between October 2018 and October 2019. Founded in 2011, Heroes to Heroes is a non-profit organization that offers retreat- and peer-based program to promote spiritual healing and social connections in combat veterans of all conflicts and faiths who are on a path to possible suicide and self-destruction due to moral injury and PTSD. While on a 10-day journey to Israel, they visit sacred sites and have opportunities to connect with veterans from the U.S. and Israel. The organization has served over 300 veterans and continues to work with veterans to promote spiritual healing and social connections. The University of South Alabama Review Board approved a mixed method approach to obtain data on quantitative assessments and qualitative interviews to evaluate the efficacy of the program.

This study used baseline data obtained through self-report surveys that were administered one month before going on the trip. The total number of veterans in the baseline dataset was N=111 and 58.5% (N=65) of the sample was included in this study. Inclusion criteria for this study involved veterans that were in an intimate partnership and endorsed items on the Expressions of Moral Injury Scale- Military Version (EMIS-M) and the PTSD Checklist for DSM-5 (PCL-5). The sample included 65 combat veterans who provided data for the analysis. Most of the sample included male veterans (n = 60) and the average age was 45.98 (SD = 10.65). Veterans were largely from Caucasian (66.2%), and Hispanic/Latino (21.5%) backgrounds. In terms of relationship status, this

sample included 75.4% married veterans, 20% divorced veterans, 7.7% reported being single, and one veteran reported living with their partner. More detailed demographic data is included in Table 1.

Measures

The Expressions of Moral Injury Scale- Military Version (EMIS-M) is a validated measure used to assess moral injury outcomes related to events from military service (Currier et al., 2017). SM/V are asked about their military service and prominent emotions, beliefs/attitudes and behaviors that were affected based on their military experiences. Veterans are asked to consider their feelings, beliefs, and behaviors of the things they did or saw in service and indicate how much they agree or disagree with each statement on a 5-point scale. The items range from 1 = Strongly disagree to 5 = Strongly agree. Examples of items that reflect self-directed moral injury include: "I am ashamed of myself because of things that I did/saw during my military service"; "In order to punish myself for things that I did/saw in the military, I often neglect my health and safety" and items assessing other-directed moral injury include: "No matter how much time passes, I resent people who betrayed my trust during my military service"; "My military experiences have taught me that it is only a matter of time before people will betray my trust." The items produce two subscales, self-directed MI and other-directed MI, each of which generated strong internal consistency and temporal stability over a 6-month period in the validation study (Currier et al., 2017). Self-directed MI items encompass feelings of shame, guilt, and beliefs about being unlovable, unforgivable, and incapable of moral decision making. Other-directed MI items include feelings of anger, moral disgust and beliefs related to mistrust of others. Cronbach's alpha values ranged from .90 to .95 for

the subscales (Currier et al., 2017). This project examined the subscales separately and the total score in the analyses.

The relationship functioning scale of the Inventory of Psychosocial Functioning (IPF) Scale was used in this study (Bovin et al., 2018). The full scale includes 80 items that measure seven domains of psychosocial functioning that are commonly associated with PTSD: romantic relationship with a spouse or partner, family relationships, work, friendships and socializing, parenting, education, and self-care. Items are scored on a 7-point scale that range from 0 = Never to 6 = Always. Participants are asked to answer items based on the past 30 days and to skip domains that are not relevant to them. Only the scale that focuses on relationship functioning with spouse or intimate partners was included in the parent project. The subscale includes 11 items and is scored by summing the items (and correcting for reverse scored items), dividing the total by the maximum possible domain scale score for the items scored, and multiplying by 100. Each scale produces a score ranging from 0-100 with higher scores indicating greater impairment. Example items include: "I shared household chores or duties with my spouse or partner," "I had trouble sharing thought or feelings with my spouse or partner," "I had trouble settling arguments or disagreements with my spouse or partner," "I had trouble giving emotional support to my spouse or partner, and I was affectionate with my spouse or partner." The overall IPF score demonstrated stronger correlations with measures of mental health-related impairment (all $rs > |.39|$; all $ps<.05$) and weaker correlation with measures of physical health-related impairment (all $rs< |.29|$; all $ps <.05$). The IPF also indicated strong test–retest reliability ($r =.77$; $p < .05$) and Cronbach's alpha ($\alpha =.78$) among the individual romantic subscale (Bovin et al., 2018).

The PTSD Checklist for DSM-5 (PCL-5) is a 20-item self-report measure that assesses the DSM-5 symptoms of PTSD in the past month. The self-report rating scale is 0-4 for each symptom, with the descriptors of "Not at all," "A little bit," Moderately," "Quite a bit," and "Extremely." A total symptom severity score (range 0-80) can be obtained by summing the scores for each of the 20 items. Higher scores indicate more distress; scores of 33 or greater indicate probable basis for PTSD. Participants are asked to answer the items based on the most stressful life event in their lifetime (Weathers et al., 2013). PCL-5 scores have exhibited strong internal consistency ($\alpha = .94$), test-retest reliability ($r = .82$), and convergent (rs = .74 to .85) and discriminant (rs = .31 to .60) validity in previous work (Blevins et al., 2015).

Proposed Data Analysis

To examine the relationship between moral injury outcomes and relationship functioning, a multiple regression analysis was conducted using IBM SPSS Version 27. Based on previous literature (Bovin et al., 2018), I anticipated that both moral injury and PTSD symptoms would be positively correlated with relationship functioning in bivariate analyses. In addition, I predicted that both moral injury and PTSD symptoms would be uniquely associated with intimate relationship functioning in the presence of one another. To test the hypothesis, the following steps were taken:

1. Performed preliminary analyses that included descriptive statistics and careful check of the data for missing responses.
2. Calculated bivariate correlations between the variables of interest and reported the percentage of sample that exceed the clinical threshold for PTSD on the PCL-5.

3. Performed a multivariate regression analysis in which moral injury and PTSD symptoms simultaneously predict relational functioning.

The figure below shows the model that was tested. Previous literature has demonstrated a correlation magnitude between PTSD symptoms and relationship functioning to be r = .49 (Bovin et al., 2018), whereas the link between PTSD symptoms and moral injury has ranged from r = .69 to .73 (Currier et al., 2017). The proposed analysis investigated the correlation between moral injury outcomes and intimate relationship functioning in the presence of PTSD symptom severity.

Power analysis was determined using G-Power (Faul et al., 2007). G-Power is an unrestricted software available to calculate the power needed to use a variety of statistical tests and to compute the effect size. Drawing on these estimates of effect sizes highlighted above, the partial R^2 was calculated to be 0.24. G-Power indicated that a total sample of 53 participants was needed to detect a moderate effect size of f^2=.32 with a 95% power using a multiple linear regression model for the probable link between moral injury and intimate partner function with PTSD symptom severity included as a covariate.

Chapter 3

Results

Preliminary Analyses

Prior to beginning analysis, the data were tested to ensure the assumption of homoscedasticity was met and data did not show multicollinearity. In addition, there were no high influential outliers, and the residual errors were approximately normally distributed. Descriptive statistics for demographic background characteristics are presented in Table 1 and inter-correlations between PTSD symptoms, moral injury outcomes, and intimate relationship functioning are presented in Table 2.

In total, 69.2% scored above the clinical cutoff for probable PTSD cutoff of 32 on the PCL-5. Bivariate analyses revealed that veterans who scored higher on the PCL-5 reported worse MI outcomes, r = .58, $p < .001$, and more difficulties in intimate relationship functioning, r = .33, $p = .003$. Higher MI outcomes were also positively correlated with intimate partner dysfunction, r = .49, $p < .001$.

Primary Analysis

A multivariate regression analyses was conducted next to understand the contribution of MI outcomes on intimate relationship functioning in the presence of PTSD symptomatology. In combination, MI outcomes and PTSD symptomatology generated a statistically significant model, F (2, 62) = 9.841, $p < .001$, explaining 24% of the variance. In terms of individual variables, only MI outcomes were uniquely related to intimate relationship functioning in this model, $B = 0.300$, $SE\ B = 0.092$, $\beta = .443$, $p = .002$.

Chapter 4

Discussion

Traumatic consequences of serving in war can extend beyond the individual service member/veteran (SM/V) to negatively impact intimate and marital relationships. Currently, about 50 percent of military personnel are married (U.S. DoD, 2017) and 70 percent of veterans are married (U.S. Department of Veterans Affairs, 2010), such that these relational issues have widespread importance. Previous research has established the adverse impacts of PTSD symptoms on intimate relationship functioning (Bovin et al. 2018). However, with recent attention on the distinction between moral injury (MI) and PTSD (Currier et al., 2019; Litz and Kerig, 2019; Bryan et al., 2018; Farnsworth et al., 2017), further analysis of the impacts of MI on relationship functioning is warranted. Currently, research has not investigated the role of MI outcomes in intimate relationships of SM/Vs. As such, the purpose of this study was to explore the role of MI outcomes in intimate relationship functioning among a group of combat veterans with MI who were seeking a peer-based program that promotes spiritual healing and social connections. It was hypothesized that MI outcomes and PTSD symptomatology would each be uniquely correlated with lower relationship functioning in this sample.

Results of preliminary analyses revealed important features of the sample. In total, seven in ten of the veterans scored above the clinical cutoff for probable PTSD on the PCL for DSM-5. Additionally, descriptive statistics revealed better relationship functioning among this sample of veterans with PTSD than in previous use of the Inventory of Psychosocial Functioning (IPF) Scale (Bovin et al., 2018). Lastly, the

average total score of MI outcomes demonstrated this sample had higher distress than previous samples (Currier et al., 2017). As anticipated, initial bivariate analyses revealed that MI outcomes, PTSD symptoms, and intimate relationship functioning were inter-correlated with one another at moderate to strong levels. Namely, PTSD symptoms were associated with worse outcomes of MI and more relationship dysfunction. MI outcomes were also correlated with more intimate relationship issues in these analyses. Overall, these results align with previous research in that veterans with PTSD symptoms experience functional impairment within their intimate relationships (Bovin et al., 2018). Comparable to previous research (Currier et al., 2017), PTSD symptoms in this sample correlated with MI outcomes such that more PTSD symptoms were associated with more MI outcomes, and PTSD symptoms were also correlated with more relationship difficulties (Bovin et al., 2018).

The two hypotheses were partially supported in the multivariate analysis. In support of the first hypothesis, MI outcomes were uniquely linked with worse relationship functioning in the presence of veterans' levels of PTSD symptomatology. The second hypothesis was not supported in this same manner. Namely, when accounting for MI outcomes, PTSD symptom severity was not uniquely associated with veterans' functioning in their marriages and intimate romantic partnerships. MI considers how a PMIE negatively impacts a person's social context, moral beliefs/values, and negative outcomes and coping strategies. When a person feels they have violated their moral beliefs/values, they may withdraw from their partner to protect them from potential contamination in ways that create prospective ruptures in close relationships (Drescher and Farnsworth, 2021). Consequently, these findings may support a functional definition

of the outcomes of MI (Farnsworth et al., 2017). In addition to individual consequences on a SM/V's mental health, MI outcomes might also impact the intimate relationship of a SM/V and ultimately create emotional distance from their partner. MI outcomes may be a stronger predictor than PTSD symptoms in relationship functioning because MI captures an interpersonal component of symptoms in shame, guilt, self-worth, trust, and betrayal while PTSD symptoms focus on the person's individual experience. Although the individual subscales of self and other were correlated with relationship functioning, they were not statistically significant in the primary model analysis. These results highlight that MI appears to capture a distinct construct from PTSD symptoms although they are highly correlated. Additionally, MI is capturing the possibility that a person perpetrated a transgression towards others whereas the current PTSD diagnosis does not (American Psychiatric Association, 2013).

These findings also raise several implications for clinical practice. First, clinicians could benefit from asking SM/Vs about their intimate relationship and consider addressing issues that may involve guilt, shame, thoughts of suicidal ideation, self-harm, or substance abuse. Given the social implications of MI, SM/Vs may be at higher risk for isolation following deployment or reintegration back into civilian communities. MI outcomes may also play a role in hindering a SM/V's ability to meet intimacy demands in their romantic partnerships and consequently worsen mental health outcomes. Second, isolation may also increase risk for suicide and increase barriers to seeking help or recovering from mental health needs. Clinicians can intervene by referring clients to seek individual or marital counseling. Lastly, given the high rates of marriage and divorce rates among SM/Vs (Blue Star Families, 2021; U.S. DoD, 2017), clinicians can take steps

to educate SM/V on MI outcomes and how to get involved with mental health providers or peer support specialists to promote social connection and obtain additional resources for support.

Several limitations for this study should be considered. First, data for analyses were collected via a single self-report assessment based on the veteran's perspective. Although this was a highly distressed sample, the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) represents the gold-standard method for identifying PTSD. Additionally, given the data was collected at one time point, temporal inferences or causal conclusions about the role of MI in relationship functioning cannot be drawn. Additionally, longitudinal research is needed to parse out the role of PTSD symptoms on relationship functioning separate from MI outcomes' role within those relationships. Another limitation is that this is mostly a male sample, which is a common limitation among research with SM/Vs. However, this issue limits the generalizability of the findings to female veterans. Finally, due to the small sample size, more statistical analyses were not be performed. In the future, it would be helpful to obtain a larger sample including both the SM/V and the spouse's perspective on relationship functioning, as well as obtaining their shared perspectives at more than one time point to examine, if changes in MI outcomes also influence relationship functioning across time.

Notwithstanding these limitations, this was the first study to test the association between MI outcomes and relationship functioning in the presence of PTSD symptoms. Using a sample of combat veterans who were seeking care in a peer-based program for MI, this study examined links between symptoms of PTSD, MI outcomes, and intimate

relationship functioning. Results indicated a significant model with MI uniquely predicting intimate relationship functioning in the presence of PTSD symptomatology. This study demonstrates a need for further research on the role of MI in intimate relationship functioning. Future research will ideally explore the connection between MI outcomes and relationship functioning in a longitudinal research design to better assess and make conclusions from the data. Ultimately, understanding if a SM/V is experiencing MI outcomes can alert clinicians to obtain additional information about a SM/V's intimate relationships to address relationship dysfunction. Morally injured veterans may benefit from assessment around these topics and interventions aimed specifically to address these issues to prevent further isolation and worsening of other mental health outcomes.

References

Ahmedani, Brian K., Gregory E. Simon, Christine Stewart, Arne Beck, Beth E. Waitzfelder, Rebecca Rossom, Frances Lynch, Ashli Owen-Smith, Enid M. Hunkeler, Ursula Whiteside, Belinda H. Operskalski, M. Justin Coffey, and Leif I. Solberg, "Health care contacts in the year before suicide death," *Journal of General Internal Medicine*, Vol. 29, No. 6, June 2014, pp. 870–877.

Allen, E., Knopp, K., Rhoades, G., Stanley, S., & Markman, H. (2018). Between- and within-subject associations of PTSD symptom clusters and marital functioning in military couples. *Journal of Family Psychology*, *32*(1), 134–144. https://doi.org/10.1037/fam0000363

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

Birkley, E. L., Eckhardt, C. I., & Dykstra, R. E. (2016). Posttraumatic stress disorder symptoms, intimate partner violence, and relationship functioning: A meta-analytic review. *Journal of Traumatic Stress,* 29, 397-405. https://doi.org/10.1002/jts.22129

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress*, *28*(6), 489–498. https://doi.org/10.1002/jts.22059

Blue Star Families. 2021. https://bluestarfam.org/wp-content/uploads/2022/03/BSF_Comp_Infographic_MFLS2021_03_10.pdf

Bovin, M. J., Black, S. K., Rodriguez, P., Lunney, C. A., Kleiman, S. E., Weathers, F. W., Schnurr, P. P., Spira, J., Keane, T. M., & Marx, B. P. (2018). Development and validation of a measure of PTSD-related psychosocial functional impairment: The inventory of psychosocial functioning. *Psychological Services*, 15(2), 216–229. https://doi.org/10.1037/ser0000220

Bryan, C. J., Bryan, A. O., Anestis, M. D., Anestis, J. C., Green, B. A., Etienne, N., Ray-Sannerud, B. (2016). Measuring moral injury psychometric properties of the moral injury events scale in two military samples. *Assessment*, 23, 557–570. Retrieved from http://dx.doi.org/10.1177/1073191115590855

Bryan, C. J., Bryan, A. O., Roberge, E., Leifker, F. R., & Rozek, D. C. (2018). Moral injury, posttraumatic stress disorder, and suicidal behavior among National Guard personnel. *Psychological Trauma: Theory, Research, Practice, and Policy*, *10*(1), 36–45. https://doi.org/10.1037/tra0000290

Campbell, S. B., & Renshaw, K. D. (2013). PTSD symptoms, disclosure, and relationship distress: Explorations of mediation and associations over time. *Journal of Anxiety Disorders*, *27*(5), 494–502. https://doi.org/10.1016/j.janxdis.2013.06.007

Campbell, S. B., & Renshaw, K. D. (2016). Military couples and posttraumatic stress: Interpersonally based behaviors and cognitions as mechanisms of individual and couple distress. MacDermid Wadsworth & D. Riggs (Eds.), *War and Family Life* (pp. 55–75). Cham, Switzerland: Springer. https://doi.org/10.1007/978-3-319-21488-7

Campbell, S. B., & Renshaw, K. D. (2018). Posttraumatic stress disorder and relationship functioning: A comprehensive review and organizational framework. *Clinical Psychology Review*, *65*, 152–162. https://doi.org/10.1016/j.cpr.2018.08.003

Campbell, S. B., & Renshaw, K. D. (2019). Daily posttraumatic stress disorder symptom accommodation and relationship functioning in military couples. *Family Process*, *58*(4), 908–919. https://doi.org/10.1111/famp.12393

Currier, J. M., Carroll, T. D., & Wortmann, J. H. (2021). Religious and spiritual issues in moral injury. In J. M. Currier, K. D. Drescher, & J. Nieuwsma (Eds.), *Addressing moral injury in clinical practice.* (pp. 53–70). American Psychological Association. https://doi.org/10.1037/0000204-004

Currier, J. M., Farnsworth, J. K., Drescher, K. D., McDermott, R. C., Sims, B. M., & Albright, D. L. (2017). Development and evaluation of the expressions of moral injury scale-military version. *Clinical Psychology & Psychotherapy*, 25(3), 474–488. https://doi.org/10.1002/cpp.2170

Currier, J. M., McDermott, R. C., Farnsworth, J. K., & Borges, L. M. (2019). Temporal associations between moral injury and posttraumatic stress disorder symptom clusters in military veterans. *Journal of Traumatic Stress*, *32*(3), 382–392. https://doi.org/10.1002/jts.22367

DeWall, C. N., Baumeister, R. F., Stillman, T. F., & Gailliot, M. T. (2007). Violence restrained: Effects of self-regulation and its depletion on aggression. *Journal of Experimental Social Psychology*, 43(1), 62–76. http://dx.doi.org/10.1016/j.jesp.2005.12.005

Drescher, K. D., & Farnsworth, J. K. (2021). A social–functional perspective on morality and moral injury. *Addressing Moral Injury in Clinical Practice.*, 35–52. https://doi.org/10.1037/0000204-003

Farnsworth, J. K. (2019). Is and ought: Descriptive and prescriptive cognitions in military-related moral injury. *Journal of Traumatic Stress*, *32*(3), 373–381. https://doi.org/10.1002/jts.22356

Farnsworth, J. K., Drescher, K. D., Evans, W., & Walser, R. D. (2017). A functional approach to understanding and treating military-related moral injury. *Journal of Contextual Behavioral Science*, *6*(4), 391–397. https://doi.org/10.1016/j.jcbs.2017.07.003

Faul, F., Erdfelder, E., Lang, AG., *et al.* (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods* 39, 175–191. https://doi.org/10.3758/BF03193146

Hall, L. K. (2008). *Counseling military families: What mental health professionals need to know.* New York, NY: Routledge.

Houtsma, C., Khazem, L. R., Green, B. A., & Anestis, M. D. (2017). Isolating effects of moral injury and low post-deployment support within the U.S. military. *Psychiatry Research*, *247*, 194–199. https://doi.org/10.1016/j.psychres.2016.11.031

https://armymedicine.health.mil/Reports - appendix C, combat experiences (Unadjusted percentages)

Institute of Medicine. (2013). *Returning home from Iraq and Afghanistan: Assessment of readjustment needs of veterans, service members, and their families.* Washington, D.C.: National Academies Press.

Leibowitz, R. Q., Jeffreys, M. D., Copeland, L. A., & Noel, P. H. (2008). Veterans' disclosure of trauma to healthcare providers. *General Hospital Psychiatry*, 30, 100–103. doi:10.1016/j.genhosppsych.2007.11.004

Litz, B. T., Contractor, A. A., Rhodes, C., Dondanville, K. A., Jordan, A. H., Resick, P. A., Foa, E. B., Young-McCaughan, S., Mintz, J., Yarvis, J. S., Peterson, A. L., & for the STRONG STAR Consortium. (2018). Distinct trauma types in military service members seeking treatment for posttraumatic stress disorder: trauma types in treatment-seeking service members. *Journal of Traumatic Stress*, *31*(2), 286–295. https://doi.org/10.1002/jts.22276

Litz, B. T., & Kerig, P. K. (2019). Introduction to the special issue on moral injury: Conceptual challenges, methodological Issues, and clinical applications. *Journal of Traumatic Stress, 32*(3), 341-349. doi:10.1002/jts.22405

Litz, B. T., Stein, N., Delaney, E., Lebowitz, L., Nash, W. P., Silva, C., & Maguen, S. (2009). Moral injury and moral repair in war veterans: A preliminary model and intervention strategy. *Clinical Psychology Review*, 29(8), 695–706. https://doi.org/10.1016/j.cpr.2009.07.003

Nash, W. P., Marino Carper, T. L., Mills, M. A., Au, T., Goldsmith, A., & Litz, B. T. (2013). Psychometric Evaluation of the Moral Injury Events Scale. *Military Medicine*, *178*(6), 646–652. https://doi.org/10.7205/MILMED-D-13-00017

Monk, J. K., & Nelson Goff, B. S. (2014). Military couples' trauma disclosure: Moderating between trauma symptoms and relationship quality. *Psychological Trauma: Theory, Research, Practice, and Policy*, *6*(5), 537–545. https://doi.org/10.1037/a0036788

Shay, J. (1995). Achilles in Vietnam: Combat trauma and the undoing of character. New York, NY: Touchstone.

Taft, C. T., Watkins, L. E., Stafford, J., Street, A. E., & Monson, C. M. (2011). Posttraumatic stress disorder and intimate relationship problems: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 79, 22–33. doi:10.1037/a0022196

Tangney, J. P., Stuewig, J., & Mashek, D. J. (2007). Moral emotions and moral behavior. *Annual Review of Psychology*, 58, 345–372.

U.S. Department of Defense (DoD). 2017 Demographics: Profile of the Military Community. Washington, DC. Retrieved from http://download.militaryonesource.mil/12038/MOS/Reports/2017-demographics-report.pdf.

Department of Veterans Affairs. (2010). National survey of veterans, active duty, service members, demobilized national guard and reserve members, family members, and surviving spouses. Washington, DC. Retrieved from https://www.va.gov/vetdata/docs/SurveysAndStudies/NVSSurveyFinalWeightedReport.pdf.

U.S. Department of Veterans Affairs, 2021. 2021 National veteran suicide prevention annual report. (2021). Washington D.C.

Weathers, F.W., Litz, B.T., Keane, T.M., Palmieri, P.A., Marx, B.P., & Schnurr, P.P. (2013). The PTSD Checklist for *DSM-5* (PCL-5). Scale available from the National Center for PTSD at www.ptsd.va.gov.

Wisco, B. E., Marx, B. P., May, C. L., Martini, B., Krystal, J. H., Southwick, S. M., & Pietrzak, R. H. (2017). Moral injury in U.S. combat veterans: Results from the national health and resilience in veterans study. *Depression and Anxiety*, *34*(4), 340–347. https://doi.org/10.1002/da.22614

Appendices

Appendix A: Tables

Table 1

Demographic Variables of Participants

	N	Percent	*M*	*SD*
Age	65	-	45.98	10.65
21-30	4			
31-40	21			
41-50	22			
50 and above	18			
Ethnicity				
African American	5	7.7%	-	-
Caucasian	43	66.2%	-	-
Hispanic/Latino	14	21.5%	-	-
Native American	1	1.5%	-	-
Pacific Islander	1	1.5%	-	-
Multi-Racial	3	4.6%	-	-
Other Race	1	1.5%	-	-
Gender				
Male	60	92.3%	-	-
Female	5	7.7%	-	-
Marital Status				
Single	5	7.7%		
Married	49	75.4%		
Divorced	13	20%		
Living with Partner	1	1.5%		
Military Branch				
Army	42	64.6%		
Marine Corps	15	23.1%		
Navy	5	7.7%		
Air Force	7	10.8%		
Capacity of service				
Active Duty	57	87.7%		
Reserves	13	20%		
National Guard	14	21.5%		
Military era				
Vietnam Conflict	6	9.2%		
Desert Storm	18	27.7%		
Desert Shield	17	26.2%		
Global War on Terror	47	72.3%		

Operation Iraqi Freedom	49	75.45
Operation Enduring Freedom	34	52.3%

Table 1 Continued

Number of war-zone deployments		
One	24	36.9%
Two	23	35.4%
Three or more	18	27.7%

Note: This table contains details for the demographic variables in the sample.

Table 2

Bivariate Correlations Between Moral Injury Outcomes, Relationship Functioning, and PTSD Symptoms

	PTSD Symptoms	Relationship Functioning	MI Total Scores	MI Self-Directed	MI Other-Directed
PTSD Symptoms	-	.332*	.579*	.549*	.513*
Relationship Functioning	-.332*	-	.487*	.472*	.421*
MI Total	-.579*	.487*	-	-	-
MI Self-Directed	.549*	.472*	-	-	.682*
MI Other-Directed	.513*	.421*	-	.682*	-
Mean (SD)	41.1 (18.4)	34.5 (9.1)	49.5(13.5)	24.83 (7.44)	24.71(7.28)

* Indicates significance, $p<.05$

Table 3

Coefficients of the Multivariate Regression

	Unstandardized Coefficients				
	B	Std. Error	t	Significance	95% CI
Constant	18.126	3.840	4.721	<.001	10.45 - 25.80
PTSD Symptoms	0.038	0.067	0.557	0.579	-.10 - .17
MI Outcomes	0.300	0.092	3.267	0.002	.12 - .48

Dependent Variable: Relationship functioning

Appendix B: Figure

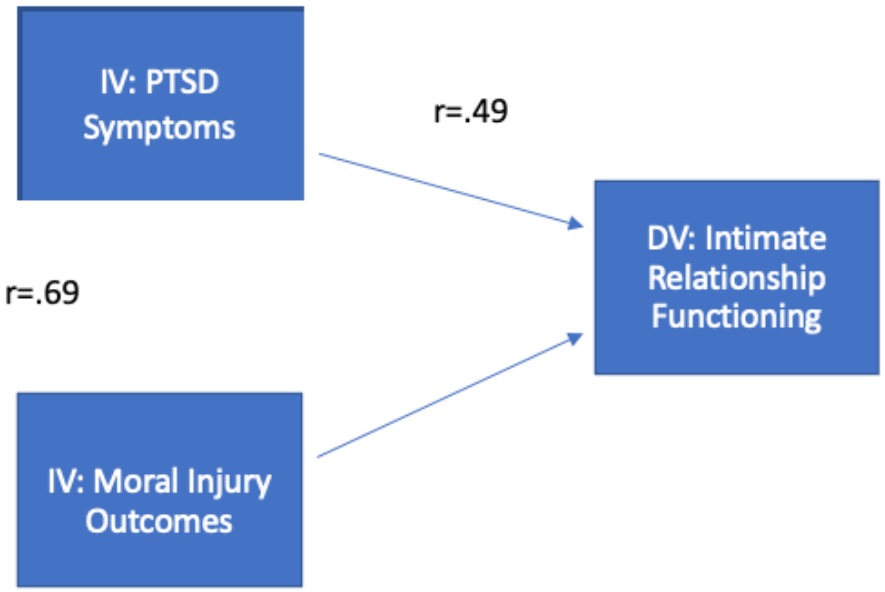

Figure 1. This figure demonstrates the multivariate regression model that was tested. The proposed analysis investigated the correlation between moral injury outcomes and intimate relationship functioning in the presence of PTSD symptoms.

Biographical Sketch

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