

Moral Injury and Posttraumatic Growth Among Combat Soldiers

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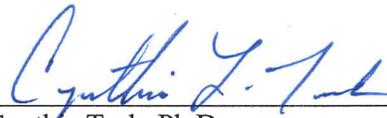
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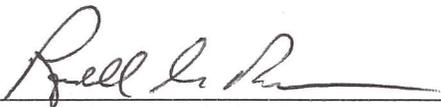
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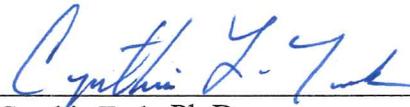
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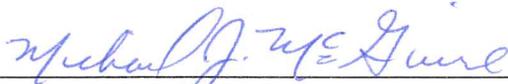


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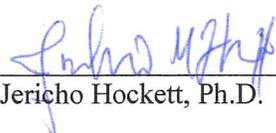
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Moral Injury and Posttraumatic Growth Among Combat Soldiers

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### Abstract

Traditional treatments for psychopathology following combat have focused on PTSD and fear based responses. Moral injury theory extends beyond fear by addressing the negative consequences of moral challenges faced in the combat theatre, including acts of transgressions and feelings of betrayal. However, positive psychologists posit that combat experience may also result in concurrent posttraumatic growth occurring in the domains of Appreciation of Life, Personal Strength, Relationships with Others, New Possibilities and Spiritual Change. The purpose of the current study was to examine the relationship between moral injury and posttraumatic growth among combat survivors. Specifically, we expected betrayal to be experienced as victimization, resulting in greater posttraumatic growth compared to transgressions. Transgressions, in contrast, were predicted to lead to less growth due to internalization of guilt and shame. Transgressions were also predicted to moderate the relationship between deployment length and posttraumatic growth. Participants were 218 veterans and soldiers who had served in combat and responded to a survey posted to military relevant online groups. One hundred and four participants met criteria to be included in the final analyses. Consistent with predictions, both moral injury (80%) and posttraumatic growth (83.7%) were highly prevalent in this sample. Feelings of betrayal were positively correlated with all domains of posttraumatic growth with the exception of Spiritual Change. Contrary to predictions, transgressions were found to be unrelated to posttraumatic growth with the exception of a trend towards a small negative relationship with Personal Strength. Transgressions were not found to influence the relationship between deployment length and posttraumatic growth. Clinical implications and directions for future research are discussed.

### Moral Injury and Posttraumatic Growth Among Combat Soldiers

Over the past few decades, posttraumatic stress disorder (PTSD) related to combat duty has been conceptualized as an anxiety disorder characterized by fear, helplessness, and horror resulting from being victimized during war (Friedman et al., 2011). Although recent diagnostic changes have expanded these sequelae to include negative alterations in cognitions and mood (American Psychological Association [APA], 2013), recent theoretical work suggests the traditional conceptualization of PTSD may be limited by its focus on victimization and its neglect of the sequela that can be caused by moral and ethical violations during war (Litz et al., 2009; Shay, 2014). Specifically, recent theoretical work has introduced the construct of moral injury to describe how witnessing and perpetrating harm during war may lead to negative psychological consequences (Nash et al., 2013). Moral injury may occur from the individual's attempt to reconcile behaviors committed during combat that are inconsistent with personal and societal morals and subsequent feelings of betrayal post deployment (Drescher et al., 2011; Litz et al., 2009; Nash et al., 2013).

Existing research suggests a number of adverse psychological consequences related to both victimization and moral injury result from combat trauma. However, a growing number of studies are attempting to capture and understand positive life changes which also occur as a result of serving in combat, called posttraumatic growth (Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Maguen, Vogt, King, King, & Litz, 2006; Pietrzak et al., 2010; Solomon & Dekel, 2007). In fact, the combat literature indicates that psychopathology and posttraumatic growth coexist, and distress may be an integral factor in experiencing growth following combat trauma (Calhoun & Tedeschi, 1998). However, studies and treatments have focused on growth related to victimization and have yet to consider how moral injury resulting from combat service might

relate to posttraumatic growth. Studying the relationship between posttraumatic growth and moral injury is necessary to gain an understanding of psychological outcomes post deployment in order to develop effective treatment models (Nash et al., 2013).

### **Combat Trauma**

Veterans and active duty soldiers who have served in the combat theater have witnessed and experienced atrocities rarely encountered by civilians. Soldiers who serve in combat experience or risk battle injuries and survive repeated life and death circumstances. Serving as a soldier involves training for, observing, and participating in property destruction and may include witnessing or causing the death and injury of insurgents, civilians, and fellow service members (Larner & Blow, 2011; Maguen et al., 2007; Maguen et al., 2010; Snyder 2014). Unlike individuals who experience other traumatic events such as a natural disaster or rape, soldiers volunteer, willingly prepare for, and are highly trained to encounter traumatic situations known to occur in the combat theater (Larner & Blow, 2011). Furthermore, serving in combat is not simply a single traumatic event; rather, a soldier may experience many different traumatic events occurring over an extended time period during deployment (Larner & Blow, 2011).

Although military training focuses on readiness and resilience to war trauma, some individuals return from war and struggle with the transition from the combat theater to life as they understood it, pre-deployment. Many enduring psychological and social consequences have been found to be associated with combat including posttraumatic stress disorder (PTSD) and major depressive disorder (MDD) (Hoge, Auchterlonie, & Miliken, 2006; Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004), alcohol use disorder (Eisen et al., 2012; Jakupcak et al., 2010; Pietrzak et al., 2010; Schumm & Chard, 2012), violent behavior (Collins & Bailey, 1990), risk taking propensity (Killgore et al., 2008), job loss, unemployment, divorce, and

partner/spousal abuse (Prigerson, Maciejewski, & Rosenheck, 2002). Suicide rates for veterans and active duty members in the United States Armed Forces have doubled since the wars in Iraq and Afghanistan and are now twice the rate of suicide in the civilian population. Twenty-two veterans and one active duty service member complete suicide each day (Luxton et al., 2012).

Not surprisingly, the negative consequences of combat exposure have received a great deal of attention from researchers. Researchers approaching the issue of combat exposure from the perspective of positive psychology (e.g., Peterson, 2006) do not discount the pain and suffering arising from combat experiences. However, positive psychologists argue that good outcomes cannot be fully understood or elicited by research that only attempts to understand or correct negative outcomes (Tedeschi & Calhoun, 1996). Indeed, some studies are providing evidence that military service during wartime may also lead to positive psychological outcomes including self-improvement (Fontana & Rosenheck, 1998), leadership skills (Mehlum, 1995), lower suicidal ideation (Gallaway, Millikan & Bell, 2011), better relationships (Benetato, 2011), a greater appreciation of life (Dohrenwend et al., 2004; Feder et al., 2008; Maguen, Vogt, King, King, & Litz, 2006), changing priorities in life, and a greater ability to handle problems (Pietrzak et al., 2010).

### **Posttraumatic Growth**

Positive psychological changes in response to trauma have been characterized as various constructs in the literature, such as posttraumatic growth, stress-related growth, benefit finding, perceived benefits, and altruism born of suffering (Calhoun & Tedeschi, 1998; Helgeson, Reynolds & Tomich, 2006; Joseph & Linley, 2008; Staub & Vollhardt, 2008; Tedeschi & Calhoun, 2004). Posttraumatic growth is the most commonly utilized construct to describe positive changes experienced in response to traumatic events (Tedeschi & Calhoun, 2004).

Posttraumatic growth is believed to result from survivors' attempts to redefine life with a changed perspective gained by the struggle to make sense of a new reality (Calhoun & Tedeschi, 1998). Growth does not occur because of the traumatic experience itself. Rather, the individual's experience of distressing emotions, dissonance, rumination, and cognitive processing change assumptions about life (Tedeschi & Calhoun, 2004). Posttraumatic growth may be a consequence of the cognitive reappraisal process involved in transforming and rebuilding one's perception of the world (Calhoun & Tedeschi, 2006). In fact, cognitive changes have been found to be a crucial part of growth resulting from traumatic experiences. The greater the individual's need to examine what has happened and to search for meaning, the greater the likelihood of growth (Cann et al., 2010). The existential struggle survivors experience helps to make sense out of what seems unimaginable and to find meaning from traumatic events that creates dissonance with the belief the world is good (Westphal & Bonano, 2007). Distress and growth coexist during the process of restructuring beliefs. Posttraumatic growth results from more than experiencing trauma and healing; in fact, distress has been found a crucial part of developing growth (Calhoun & Tedeschi, 1998).

Posttraumatic growth has been found to coexist with psychopathology including posttraumatic stress disorder (PTSD) among combat veterans. For example, higher reports of PTSD symptoms were positively correlated with posttraumatic growth in samples of ex-prisoners of war (Solomon & Dekel, 2007). More fear and victimization through repeated torture, solitary confinement, deprivation, and other tactics were related to greater meaning and growth. More positive than negative changes were reported in a group of Vietnam and Israeli ex-prisoners of war and veterans (Feder et al., 2008; Sledge, Boydstun, & Rabe, 1980; Solomon, Waysman, & Neria, 1999). In fact, in one study of Vietnam veterans, 71% reported the

experience of serving in Vietnam was positive after controlling for factors related to denial (Dohrenwend et al., 2004). A similar study found 72% of veterans who served in Iraq or Afghanistan experienced posttraumatic growth as a result of serving in combat (Pietrzak et al., 2010).

Longer deployments have been related to greater posttraumatic growth (Aldwin, Levenson, & Spiro, 1994; Dohrenwend et al., 2004; Gallaway, Millikan, & Bell, 2011; Schnurr & Spiro, 1999). However, a study by Fontana and Rosenheck (1998) found a curvilinear relationship: specifically, when the “dose” of trauma exposure becomes too great, individuals’ growth may be limited. Moderate combat exposure was found to be related to more growth which declined with longer exposure. Nevertheless, the majority of the combat trauma literature supports Tedeschi and Calhoun’s (1996) hypothesis that individuals who suffer the most extreme stress will report more positive changes when compared to individuals who have not experienced trauma.

Five studies (Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Maguen, Vogt, King, King, & Litz, 2006; Pietrzak et al., 2010; Solomon & Dekel, 2007) examined the relationship between combat trauma and posttraumatic growth by utilizing the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). The PTGI is a measure assessing growth in five domains: Appreciation for Life, Personal Strength, Relating to Others, New Possibilities, and Spiritual Change. Individuals may not experience growth in all areas simultaneously, and the literature suggests growth is more likely in some areas relative to others among soldiers who have served in combat (Maguen, Vogt, King, King, & Litz, 2006).

All five studies found that Appreciation for Life was related to combat service (Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Maguen, Vogt, King, King, & Litz, 2006; Pietrzak

et al., 2010, Solomon & Dekel, 2007). Calhoun and Tedeschi (2006) describe Appreciation for Life as a change in values regarding small elements of daily life (e.g., gratitude to be alive each day or finding enhanced beauty in nature), which are believed to previously have been taken for granted and subsequently acknowledged to a greater extent following combat trauma. A greater appreciation of life may be gained by the vulnerability experienced during times of war, where the individual is unable to predict or control events related to life and death (Calhoun & Tedeschi, 2001). As a result of surviving the atrocities of war, a shift can occur, making life become more valued and appreciated (Lindstrom, Cann, Calhoun, & Tedeschi, 2013).

Personal Strength was also found in all five studies to be related to serving in the combat theater (Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Maguen, Vogt, King, King, & Litz, 2006; Pietrzak et al., 2010, Solomon & Dekel, 2007). Tedeschi and Calhoun (1996) describe Personal Strength as change related to surviving events one had never imagined prior to the traumatic event. As a result of surviving trauma, the individual perceives a greater capability to handle difficulties occurring in the future. Experiences previously believed to be difficult may appear easier when compared to the atrocities of war. The belief one has greater strength may be related to cognitive changes and mental resilience in which individuals view themselves as more capable, possessing greater adaptability, and having better coping skills compared to pre-deployment (Lindstrom, Cann, Calhoun, & Tedeschi, 2013). Greater strength may be a result of reconstructing beliefs about the self after the vulnerability and unpredictability of war (Tedeschi & Calhoun, 2004). As a result of surviving, individuals may feel much stronger than they could have previously imagined.

Relating to Others was related to combat service in two of the five studies (Maguen et al., 2006; Solomon & Dekel, 2007). Three of the five studies did not find growth in the domain of

Relating to Others (Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Pietrzak et al., 2010).

Tedeschi & Calhoun (1996) describe Relating to Others as valuing a greater emotional connection to others, including the development of compassion towards others who suffer.

Individuals who grow in relationships with others may seek the support of family and social networks during the process of reintegration to society after combat service (Tedeschi & Calhoun, 1996). In the process of disclosing personal negative experiences and receiving support from others, greater intimacy and closeness may be gained (Tedeschi & Calhoun, 1996, 2004). By reaching out to others for help and helping others, individuals may begin to value existing social support systems, form new meaningful relationships, and even end unsupportive relationships (Tedeschi & Calhoun, 2004). However, Relating to Others was only found to be related to posttraumatic growth in two of the five studies, which may be an indication some soldiers are not seeking social support.

Similarly, two of the studies found that the factor New Possibilities was related to combat service (Maguen et al., 2006; Solomon & Dekel, 2007). The New Possibilities factor was not related to combat in the remaining three studies (Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Pietrzak et al., 2010). Tedeschi & Calhoun (1996) define New Possibilities as finding new interests, participating in new activities, and changing the trajectory of life planned before serving in combat. Maguen (2006) and her colleagues indicate New Possibilities is related to minority status for service members. The military may offer education and job training previously unavailable to minorities prior to their combat service, suggesting some soldiers may have discovered new options in life as a result. However, this type of growth related to finding new life possibilities may be less common for non-minorities or for individuals whose education, military skills, and training do not translate into civilian opportunities post deployment.

Finally, only one study found a relationship between combat trauma and Spiritual Change (Solomon & Dekel, 2007). Four of the five studies did not find Spiritual Change following combat service (Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Maguen, Vogt, King, King, & Litz, 2006; Pietrzak et al., 2010). Tedeschi and Calhoun (1996) describe Spiritual Change as an existential experience related to perceiving a greater connection to religious beliefs and/or spiritual growth through confronting and questioning the meaning and purpose of life and seeking forgiveness. The coping mechanism of finding meaning in religion may be inhibited by feelings of anger, injustice, betrayal, abandonment, and mistrust of a higher religious power for the seemingly unexplainable atrocities encountered in war (Pargament, Desai, & McConnell, 2006).

Additional studies using instruments other than the PTGI captured similar factors following combat service. A construct similar to Appreciation for Life was found in the reporting of broader perspectives on life by United States World War II and Korean War veterans (Aldwin, Levenson, & Spiro, 1994; Elder & Clipp, 1989; Schnurr & Spiro, 1999). Constructs similar to Personal Strength were reported in studies finding better coping skills, resilience to stress, self-confidence, increased self-discipline, and self-reliance (Aldwin, Levenson, & Spiro, 1994; Elder & Clipp, 1989; Mehlum, 1995; Schnurr & Spiro, 1999). Furthermore, some veterans reported changes similar to the construct of Relating to Others; including making life-long bonds with fellow soldiers, being able to cooperate with others better, feeling more tolerant, less prejudiced, experiencing greater empathy, and feeling closer to others (Aldwin, Levenson, & Spiro, 1994; Elder & Clipp, 1989; Mehlum, 1995; Schnurr & Spiro, 1999). No additional literature indicated New Possibilities or Spiritual Change resulted from serving in combat.

In summary, positive outcomes have been reported in a variety of studies measuring growth following combat service. The literature supports growth occurring more frequently in the areas of Appreciation for life, Personal Strength, and Relating to Others. Less support exists for New Possibilities and Spiritual Change occurring following combat. Moreover, posttraumatic growth seems to be common, with upwards of 70 percent of soldiers reporting posttraumatic growth (Dohrenwend et al., 2004; Pietrzak et al., 2010).

### **Moral Injury**

Despite the rates of posttraumatic growth, around 30 percent of soldiers did not report growing in a positive manner due to combat service. Researchers and clinicians are trying to understand why some combat soldiers do not experience posttraumatic growth. One possibility is that moral injury may interfere with posttraumatic growth.

The theoretical construct of moral injury addresses the emotional, spiritual, and psychological wounds occurring as a result of moral and ethical challenges encountered during war (Gilligan, 2014; Litz et al., 2009; Shay, 2014; Snyder, 2014). Moral injury is theorized to occur when individuals experience psychological conflict due to being unable to reconcile their involvement in acts violating their moral and ethical standards (Dombo, Gray, & Early, 2013; Drescher et al., 2011; Litz et al., 2009; Loeffler, 2013; Maguen & Litz, 2012; Shay, 2014; Snyder, 2014; Vargas, Hanson, Kraus, Drescher, & Foy, 2013). Litz and his colleagues, (2009) define moral injury as:

“Perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations. Moral injury requires an act of transgression that severely and abruptly contradicts an individual’s personal or shared expectation

about the rules or the code of conduct, either during the event or at some point afterward” (p. 697).

Nash et al. (2013) describe moral injury occurring in one of three ways: 1) by acts of commission (e.g., killing or injuring the enemy or an innocent civilian, pushing another soldier in front of incoming gunfire), 2) witnessing transgressions of others (e.g., witnessing a rape and not reporting it, watching a sniper shoot a baby being used as a shield), and 3) experiencing betrayal (e.g., being ordered to conceal a death by friendly fire, feeling betrayed by politicians and leadership dictating the course of war). Nash et al., (2013) developed the Moral Injury Event Scale (MIES) to capture these three facets of moral injury. Factor analysis of the MIES yielded two factors: 1) Perceived Transgressions, which include witnessing or perpetrating morally injurious acts and acts of omission, and 2) Perceived Betrayal, which include feelings of betrayal by the military or the civilian sector.

One study indicated that length of deployment may be related to experiences of unethical behavior during combat, which, in turn, results in moral injury. A study of soldiers who had served in Iraq (Mental Health Advisory Team -V, 2008) found deployment length over a period of 15 months was related to reports of engaging in unethical behavior. More specifically, engaging in unethical behavior increased incrementally during the first 10 months of combat duty before decreasing. Unethical behaviors included in the analysis were insulting/cursing at non-combatants, damaging property unnecessarily, and physically assaulting non-combatants. This military study supports the hypothesis that longer deployments lead to greater instances of unethical behavior, which may result in moral injury.

Traditionally, theory regarding combat related trauma has focused on posttraumatic stress disorder and growth related to victimization utilizing the *Diagnostic and Statistical Manual of*

*Mental Disorders* (4th ed.; *DSM-IV-Text Revision*; American Psychiatric Association [APA], 2000). Shay (2014) proposed that both moral injury and PTSD may coexist following war and are not redundant concepts. Shay (2014) argued that the previous diagnostic criteria for PTSD (4th ed., text rev.; *DSM-IV-TR*; APA, 2000) did not accurately address the impact of transgressions and the resulting emotional, spiritual, and psychological wounds existing due to moral injury. Furthermore, Shay (2014) suggested moral injury exists as a separate and unique construct which may overlap with symptoms of PTSD, yet represents an important and overlooked area depicting the consequences of inflicting, witnessing, or acts of omission resulting in trauma. Changes to the DSM-5 (APA, 2013) diagnostic criteria no longer require fear based responses and include constructs related to moral injury (e.g., exposure to atrocities, witnessing death, and guilt following combat duty). As current treatment models for veterans tend to address issues related to PTSD using DSM-IV-TR (American Psychiatric Association, 2000) criteria, there is a need for research addressing moral injury and the impact on soldier's mental health (Litz et al., 2009; Nash et al., 2013).

The construct of moral injury appears to overlap and capture important factors not represented by current conceptualizations of combat-related PTSD (Loeffler, 2013). Litz et al. (2009) contrasted the similarities and differences between subjective responses to both moral injury and PTSD for individuals who have served in combat. Differences include the emotional responses associated with moral injury being related to witnessing or participating in an act which violates deeply held moral values, whereas PTSD results from experiencing or witnessing events which could lead to death or serious injury. The predominant painful emotions related to PTSD are fear, helplessness and horror; for moral injury, the predominant painful emotions are guilt and shame. Both PTSD and moral injury include symptoms related to re-experiencing (e.g.,

flashbacks), avoidance (e.g., isolating from situations triggering a fear response), and numbing (e.g., using drugs and alcohol). Arousal symptoms related to the fear response of PTSD (e.g., exaggerated startle response) are believed to be unrelated to moral injury by Litz and his colleagues (2009). In contrast, Shay (2014) argued fear, helplessness, and horror and, therefore, physiological arousal symptoms (e.g., irritable behavior and angry outbursts), may exist related to moral injury. More specifically, PTSD arousal symptoms may develop following betrayal by higher ranking leaders (e.g., a higher ranking official orders a soldier to leave behind a wounded comrade or sexually assaults a subordinate). Shay (2014) contends betrayal is encoded in the same manner as a physical attack, where the individual is posed to react, yet does not.

Beyond overlapping and coexisting with PTSD symptoms, additional negative consequences related to moral injury have been reported. In fact, moral injury has been linked to anger problems (Worthen & Ahern, 2014), interpersonal violence (Shay, 2014), and suicidality in military populations (Bryan, Bryan, Morrow, Etienne, & Ray-Sannerud, 2014). Drescher and colleagues (2011) summarized the psychological consequences of moral injury as including:

- (a) Negative changes in ethical attitudes and behavior (Mental Health Advisory Team, 2006);
  - (b) change in, or loss of spirituality (Drescher & Foy, 1995; Fontana, & Rosenheck, (2004);
  - (c) guilt, shame and forgiveness problems (Kubany, Abueg, Kilauano, Manke, & Kaplan,1997; Witvliet, Phipps, Feldman, & Beckham, 2004);
  - (d) anhedonia and dysphoria (Kashdan, Elhai, & Frueh, 2006, 2007);
  - (e) reduced trust in others and in social cultural contracts (Kubany, Gino, Denny, & Torigoe, 1994);
  - (f) aggressive behaviors (Begić, & Jokić-Begić, 2001);
  - (g) poor self-care (Schnurr, Spiro & Avron, 1999) or self-harm (Braš et al., 2007; Lyons, 1991, Pitman, 1990; Sher, 2009)
- (p.9).

Litz et al. (2009) addressed the military abiding by a strict moral and ethical code during times of war. Soldiers are trained for violence and killing, which are considered normal and expected during combat. Despite preparation, many unanticipated events challenge moral and ethical codes and may have a long-lasting impact on individuals after returning to civilian life. Outside the combat theater, soldiers may attempt to reconcile war time actions against civilian moral and ethical standards. Consequently, many individuals experience guilt and shame as a result of having violated their own assumptions and principles about morality regarding acts perpetrated, witnessed, or failed to prevent (Litz et al., 2009).

Transgressions committed during combat are believed to cause more negative psychological consequences when compared to witnessing or failing to prevent war time atrocities (Breslau & Davis, 1987, Fontana, Rosenheck, and Brett, 1992; Hiley-Young et al., 1995, Laufer, Gallops, and Frey-Wouters, 1984); therefore, acts of perpetration may be related to greater shame and guilt. An extensive empirical literature addresses guilt and shame experienced by individuals who have served in combat. Kim, Thibodeau, and Jorgensen (2011) differentiate between guilt and shame. Guilt encompasses the experience of remorse related to a specific action or behavior, within the context of relationships to others (i.e., bad feelings related to acts of transgressions against another person). Shame involves feelings of embarrassment or inferiority resulting from negative self-evaluation (i.e., feeling bad about who you are as a person). The cognitive struggle of attempting to reconcile dissonance and experiencing shame and guilt can deplete psychological and emotional reserves (Kubany, & Watson, 2012; Lee, Scragg, & Turner, 2001; McCann & Pearlman, 1990). Individuals may attempt to hide immoral behaviors and not disclose combat experiences to others. Shame and guilt may lead to fear of rejection, being shunned, or misunderstood (Litz et al., 2009). In fact, the guilt and shame

experienced as a result of moral injury may eventually lead soldiers to withdraw and conceal themselves from others, which becomes a barrier to reparative experiences of self-empathy and healing (Litz et al., 2009; Sherman, 2014).

The literature on guilt and shame indicates that retrospective appraisals of war time behavior illicit a multitude of negative feelings and cognitions (Kubany & Watson, 2012). Appraisals resulting in self-blame are related to guilt and shame, which hinder the individual's ability to believe the self is worthy and good (Kubany & Watson, 2012), to trust others (McCann & Pearlman, 1990; Shay, 2014), to seek social support (Kubany, Gino, Denny, and Torigoe, 1994), to have religious faith (Fontana & Rosenheck, 2004; Witvliet, Phipps, Feldman, and Beckham, 2004), to establish meaning in life, and see the world as good and benevolent (Epstein, 2003; Janoff-Bulman, 1985). The literature on combat related guilt and shame indicates psychological consequences which appear to be in direct opposition to the constructs related to posttraumatic growth.

In summary, moral injury occurs when an individual experiences psychological conflict due to the struggle with reconciling involvement in acts violating moral and ethical standards (Dombo, Gray, & Early, 2013; Drescher et al., 2011; Litz et al., 2009; Loeffler, 2013; Maguen & Litz, 2012; Shay, 2014; Snyder, 2014; Vargas, Hanson, Kraus, Drescher, & Foy, 2013). Numerous examples in the literature describe the ethical dilemmas combat soldiers experience during war time (Shay, 2014; Snyder, 2014). Moral injury is a relatively new construct which is thus far dominated by theoretical articles (Dombo, Gray, & Early, 2013; Drescher et al., 2011; Gilligan, 2014; Litz et al., 2009; Loeffler, 2013). A few qualitative studies have been conducted and have been useful in defining and forming constructs related to moral injury (Drescher et al., 2011; Shay, 2014; Vargas, Hanson, Kraus, Drescher, & Foy, 2013; Snyder, 2014). The few

qualitative studies addressing moral injury and the literature on guilt and shame seem to indicate moral injury may interfere with posttraumatic growth. In conclusion, moral injury may explain why some soldiers do not experience growth following combat.

### **The Relationship Between Moral Injury and Posttraumatic Growth**

The current study examined the relationship between moral injury and posttraumatic growth. Moral injury was operationalized using the MIES (Nash et al., 2013), which has two factors: 1) Perceived Transgressions, which include witnessing or perpetrating morally injurious acts, and 2) Perceived Betrayal, which include feelings of betrayal after being ordered to commit morally injurious acts or feeling betrayed by others unrelated to the military. Nash and colleagues' (2013) operationalization of moral injury is viewed as less than ideal, because the Perceived Transgressions subscale includes two items involving witnessing moral transgressions rather than perpetrating them. As previously stated, acts of perpetration may have a greater impact on the self, guilt, and shame relative to witnessing atrocities (Breslau & Davis, 1987, Fontana, Rosenheck, & Brett, 1992; Hiley-Young et al., 1995; Laufer, Gallops, & Frey-Wouters, 1984). Moreover, four of the six items on the subscale deal with perpetration. Nevertheless, perpetration (as measured by the Perceived Transgressions subscale of the MIES) was hypothesized to be a negative predictor of posttraumatic growth.

In contrast, Perceived Betrayal was hypothesized to be a positive predictor of posttraumatic growth. Betrayal is believed to be related to victimization and the cognitive struggle to externalize blame for immoral acts. Soldiers who blame others (e.g., commanding officer) for acts perceived as immoral may perceive themselves as victims in the traumatic event (Shay, 2014). The literature looking at victimization and posttraumatic growth suggests a positive relationship (Tedeschi & Calhoun, 1996).

Given that posttraumatic growth is not necessarily consistent across domains of growth, it was also important to examine the relationship between moral injury and the subscales of the PTGI. Perceived Transgressions were hypothesized to be a negative predictor and Perceived Betrayal a positive predictor of Appreciation for Life, Personal Strength, Relationships with Others, New Possibilities, and Spiritual Change.

Deployment length is related to both posttraumatic growth (Aldwin, Levenson, & Spiro, 1994; Dohrenwend et al., 2004; Gallaway, Millikan, & Bell, 2011; Schnurr, Spiro & Avron, 1999) and exposure to a greater number of potential morally injurious events (Mental Health Advisory Team -V, 2008). The relationship between deployment length and posttraumatic growth was predicted to be moderated by the factor of Perceived Transgressions. More specifically, more posttraumatic growth was expected under the conditions of low Perceived Transgressions and longer deployment; in contrast, less posttraumatic growth was expected under conditions of high Perceived Transgressions and longer deployment.

## **Method**

### **Participants**

A total of 218 individuals responded to a survey posted to Facebook groups and email lists targeting individuals who served in a branch of the United States Armed Forces for at least one combat deployment or peacekeeping mission in Vietnam, Bosnia, Kosovo, Iraq, Afghanistan or Africa. Thirty-two respondents were disqualified for reporting not having served in combat. An additional 69 respondents did not complete the survey. Thirteen respondents were disqualified by inaccurately answering the two added questions indicating random responding on the MIES (# 7. Mark number 5 for this item) and the PTGI (#19. Please select 1 for this item). After these exclusions, 104 respondents were included in all subsequent analyses.

The majority of respondents were male (83.7%) and Caucasian (83.7%). Other ethnicities reported included Hispanic (7.7%), African American (5.8%), Asian (1%), Native American (1%), and Bi-racial (1%). Ages of participants ranged from 22-82 years ( $M = 41.28$ ,  $SD = 13.78$ ). The number of combat deployments ranged from 1-6 ( $M = 2.4$ ,  $SD = 1.44$ ) and length of deployment was calculated by number of months which ranged from 3-120 months ( $M = 24.36$ ,  $SD = 18.0$ ). Demographics for each deployment including branch of service, rank at beginning of deployment, mean age at time of deployment, deployment location, and length of deployment are found in Table 1.

## Measures

**Demographics.** Demographic and military related variables were assessed using a drop down menu on Survey Monkey (Appendix A).

**Moral Injury Events Scale.** The Moral Injury Events Scale (MIES, Nash et al., 2013) measures the extent war veterans experience a sense of having violated their principles during combat duty through acts of transgression or betrayal. The MIES consists of 9 items representing two factors: Perceived Transgressions (e.g., “I acted in ways that violated my own moral code or values”) and Perceived Betrayal (e.g., “I feel betrayed by fellow service members who I once trusted”). Respondents make ratings using a six point bipolar Likert rating scale ranging from 1 (strongly disagree) to 6 (strongly agree). The total scores range from 9 to 54, with higher scores indicating greater moral injury. The subscale of Perceived Transgressions has a range of 6 to 36 and the subscale of Perceived Betrayal has a range of 3 to 18.

The MIES (Nash et al., 2013) has shown strong internal consistency for the total scale ( $\alpha = .90$ ), for Perceived Transgressions ( $\alpha = .89$ ), and for Perceived Betrayal ( $\alpha = .82$ ). Item-total correlations ranged from .52 to .78 for the total scale, .57 to .78 for Perceived Transgressions,

and .55 to .68 for Perceived Betrayal. The scale has shown good test- retest reliability over a three-month period; paired t-tests were not significant for total scores, Perceived Transgressions, or Perceived Betrayal (Nash et al., 2013). Based on the hypothesis that moral injury would not be dependent on combat exposure alone, discriminant validity was supported by the low correlation of the MIES with the Combat Exposure Scale ( $r = .08, p < .05$ ; Lund, Foy, Sippelle, & Strachan, 1984). Convergent validity was supported with the MIES being positively correlated with the Revised Beck Depression Inventory ( $r = .40, p < .05$ ; Beck & Steer, 1984), the Beck Anxiety Inventory ( $r = .28, p < .05$ ; Beck, Epstein, Brown, & Steer, 1988), negative affectivity ( $r = .29, p < .05$ ; Watson, Clark, & Tellegen, 1988), and the PTSD Checklist ( $r = .28, p < .05$ ; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). An additional question (i.e., #7: Mark number 5 [moderately agree] for this item) was added in the current study to disqualify random responders (Appendix B).

**Posttraumatic Growth Inventory.** The Posttraumatic Growth Inventory (PTGI, Tedeschi & Calhoun, 1996) measures the extent individuals perceive experiencing positive personal development as a result of enduring a traumatic event. The PTGI consists of 21 items, which address five factors including: Appreciation for Life (e.g., “I have changed my priorities about what is important in life”), Personal Strength (e.g., “I have a greater feeling of self-reliance”), Relating to Others (e.g., “I have more compassion for others”), New Possibilities (e.g., “I established a new path for my life), and Spiritual Change (e.g., “I have a stronger religious faith”). Participants rate each item on a six point Likert scale ranging from 0 (“I did not experience this change as a result of my crisis”) to 5 (“I experienced this change to a very great degree as a result of my crisis”). The five domains of posttraumatic growth are measured as subscales with the following ranges of possible scores: Appreciation for Life, 0 to 15; Personal

Strength, 0 to 20; Relating to Others, 0 to 35; New Possibilities, 0 to 25; and Spiritual Change, 0 to 10. The total scores range from 0 to 105, with higher scores indicating more posttraumatic growth.

The PTGI has shown strong internal consistency ( $\alpha = .90$ ; Tedeschi & Calhoun, 1996). The inventory also shows adequate test-retest reliability over a two-month period ( $r = .71$ ; Tedeschi & Calhoun, 1996). Convergent validity was measured by comparing positive growth reported by those who experienced trauma with the reports of growth by others close to the survivor ( $r = .69$ ). Discriminant and concurrent validity were tested by correlating the PTGI scale with the NEO Personality Inventory (Costa & McCrae, 1992). Small positive correlations were found with four of the “Big 5” personality traits: Extraversion ( $r = .29$ ), Openness to Experience ( $r = .21$ ), Agreeableness ( $r = .18$ ), and Conscientiousness ( $r = .16$ ), and no correlation was found with Neuroticism. A small correlation was found with Optimism ( $r = .23$ ) on The Life Orientation Test (Scheier & Carver, 1985). The PTGI was found to be unrelated to social desirability ( $r = -.15$ ) when compared to the Social Desirability Scale (Crowne & Marlowe, 1960). In another study, the PTGI was reported as having acceptable internal consistency ( $\alpha = .90$ ) and test-retest reliability over a two-month period ( $r = .71$ ; Calhoun, Cann, Tedeschi & McMillan, 2000).

There has been debate in the literature whether the PTGI is best considered as a unidimensional or multidimensional measurement tool (Joseph & Linley, 2008; Shaefer & Moos, 1998; Tedeschi & Calhoun, 1996). A recent analysis of 926 adults from 14 different studies of various trauma populations utilized confirmatory factor analysis to study the PTGI. Results indicated that the PTGI is multidimensional and that the individual five factors are useful

individually in understanding the construct of posttraumatic growth (Taku, Cann, Calhoun & Tedeschi, 2008).

Relevant to the study of combat exposed United States soldiers, confirmatory factor analysis validated the factor structure of the PTGI with a sample of combat veterans with PTSD and found the five factor model is a robust tool for measuring posttraumatic growth (Confirmatory Fit Index  $\alpha$ 's = .63-.86, Root Mean Square Error of Approximation = .068; Palmer, Graca, & Occhietti, 2012). Lee, Luxton, Reger, and Gahm (2010) conducted two confirmatory factor analyses utilizing a sample of soldiers previously deployed in Iraq and Afghanistan. The first tested the five factors of the scale, and the second a single higher order factor model. Overall, the findings support the use of the PTGI to measure posttraumatic growth as both a one-dimensional construct as well as a five factor multidimensional construct. Internal consistency for the entire scale was high ( $\alpha = .94$ ) and each factor score demonstrated moderate to high internal consistency ( $\alpha$ s = .79-.87), suggesting that the PTGI is a valid and reliable tool for measuring posttraumatic growth among soldiers who have served in combat.

The current study utilized the PTGI as both a unidimensional scale and a multidimensional scale in analyses. Furthermore, the PTGI was modified to be applicable to the combat soldier population. Questions were altered to assess whether changes were experienced as a result of combat experience rather than a result of a crisis. Support for such a change in wording has been supported in recent research (Linley et al., 2007). An additional question (#19 Please mark item 0 for this item) was added to disqualify random responders (Appendix C).

### **Procedure**

The study was approved by the Institutional Review Board at a small Midwestern university. A web link to the study was created on Survey Monkey. Approval was obtained from

the administrators of military groups who forwarded the web link via email (e.g., Military Officers Association of America) and Facebook pages (e.g., Iraq and Afghanistan Veterans of America). Records were kept of the organizations to which the survey was distributed (see Appendix D). Due to the anonymity of the data collected, differences between the Facebook groups and email groups were not compared.

After receiving an email with the web link to the study or viewing a posting on Facebook requesting participation, respondents clicked on a link which brought them to the informed consent (Appendix E). After completing the informed consent, respondents provided demographic information. Next, the Moral Injury Events Scale (MIES) and the Posttraumatic Growth Inventory (PTGI) were administered, counterbalanced across participants. After completing the two surveys, respondents were debriefed by reading the purpose of the study and provided informational resources to seek help for problems experienced as a result of participating in the study or distress resulting from their combat trauma experiences (Appendix F). The approximate time to complete the survey was 8-10 minutes.

## **Results**

### **Descriptive Statistics**

The majority of respondents reported experiencing both posttraumatic growth and moral injury. Percentages were calculated utilizing the percentage of respondents who reported experiencing growth to a “great degree” or a “very great degree” on at least one item for the PTGI total score; similarly, respondents were considered to have grown within a PTGI domain (e.g., Personal Growth) if they endorsed experiencing growth to a “great degree” or “very great degree” on at least one item within the relevant subscale (Pietrzak et al., 2010). The percentage of respondents who reported agreeing “moderately” or “strongly” to experiencing moral injury

on at least one item on the MIES were categorized as having experienced moral injury.

Respondents were considered to have experienced moral injury within a particular domain (e.g., Perceived Betrayal) if they endorsed agreeing “moderately” or “strongly” on at least one item within that domain. Posttraumatic growth on at least one item of the PTGI was reported in 83.7% of the sample; 80% of the sample reported moral injury on at least one item. See Table 2 for results according to subscales.

### **Moral Injury as a predictor of Posttraumatic Growth**

Correlations among all predictor and criterion variables are found in Table 3. Overall, they hypothesized that perceptions of betrayal may be experienced as victimization was supported as betrayal was found to be positively related to posttraumatic growth. In contrast, the hypothesis that a negative relationship would exist between posttraumatic growth and transgressions and the internalization of guilt and shame was not supported; as perceptions of having committed moral transgressions were generally not related to posttraumatic growth.

A series of six multiple regressions were conducted to examine the prediction that betrayal would result in greater posttraumatic growth when compared to transgressions. The two factors of the MIES (Perceived Transgressions and Perceived Betrayal) were used to predict the PTGI total score and each of the five subscales of the PTGI. As hypothesized, Perceived Betrayal significantly predicted the PTGI total score,  $F(2, 101) = 10.75, p < .001$  and four of the five subscales of the PTGI: Appreciation of Life  $F(2, 101) = 7.58, p < .001$ ; Personal Strength  $F(2, 101) = 10.81, p < .001$ ; New Possibilities  $F(2, 101) = 21.17, p < .001$  and Relationships with Others,  $F(2, 101) = 5.14, p < .01$ . No relationship was found between Perceived Betrayal and Spiritual Change. The regression model predicting Spiritual Change was not significant,  $F(2, 101) = 2.71, p = .072, R^2 = .051$ . The regression equation predicted a significant amount of

variance in the PTGI total score ( $p < .001$ ;  $R^2 = .175$ ) and the other subscales (all  $p$ 's  $< .007$ ;  $R^2$ 's ranged from .09 to .19). See Table 4.

No significant relationship was found between Perceived Transgressions and any measure of posttraumatic growth. Nevertheless, a trend was observed such that, consistent with predictions, Perceived Transgressions was a negative predictor of Personal Strength (See Table 4).

### **Perceived Transgressions and Moderation between Deployment Length and Posttraumatic Growth**

Six moderation analyses were conducted on SPSS (IBM Corp., 2010) using PROCESS, a macro program used to conduct mediation, moderation, and conditional process regression analyses (Hayes, 2013) to test the hypothesis that transgressions would moderate the relationship between deployment length and posttraumatic growth. It was hypothesized that longer deployments with more transgressions committed may result in less posttraumatic growth and less transgressions during shorter deployment tours would result in greater amounts of posttraumatic growth. The moderating variable between length of deployment (in months) and posttraumatic growth was the Perceived Transgressions subscale of the MIES. Deployment length and Perceived Transgressions were centered and entered in the first step of the regression analysis. In the second step of the regression analysis, the interaction term between deployment length and Perceived Transgressions was entered. The dependent variables included the PTGI total score and each of the five subscales of the PTGI (Appreciation for Life, Personal Strength, Relating to Others, New Possibilities and Spiritual Change). See Table 5.

No evidence was found to support the contradictory previous findings that longer deployments are related to more posttraumatic growth (Aldwin, Levenson, & Spiro, 1994;

Dohrenwend et al., 2004; Gallaway, Millikan, & Bell, 2011; Schnurr & Spiro, 1999) and that greater moral injury may occur during longer deployments due to a higher exposure to potentially morally injurious events (Mental Health Advisory Team -V, 2008). For the hypothesis that deployment length and Perceived Transgressions would be evidenced by a negative relationship with posttraumatic growth, results did not account for a significant amount of variance in the PTGI total or any of the five PTGI subscales. The interaction term between deployment length and Perceived Transgressions from the MIES also did not account for a significant amount of variance on the PTGI or any of the 5 subscales. In conclusion, Perceived Transgressions was not found to moderate the relationship between deployment length and posttraumatic growth for the PTGI total or on any of the subscales. Furthermore, no conclusive evidence was found regarding the relationship between the length of combat tours, exposure to morally injurious events related to time, and posttraumatic growth.

### **Discussion**

The purpose of this study was to examine the relationship between posttraumatic growth and moral injury following combat duty. Betrayal was hypothesized to be related to victimization and positively predict posttraumatic growth while transgressions were believed to be related to guilt and shame and therefore be a negative predictor of posttraumatic growth. Furthermore, it was hypothesized that moral injury influences the relationship between deployment length and posttraumatic growth. More specifically, soldiers who served longer deployments and believed they had committed more transgressions were expected to indicate experiencing less posttraumatic growth, while soldiers who spent less time in combat and believed they had committed less transgressions were expected to report experiencing more posttraumatic growth. The prevalence rates of both posttraumatic growth and moral injury were also examined.

The results add to the literature supporting Tedeschi and Calhoun's (1996) hypothesis that positive changes can occur following surviving the atrocities of war. A high percentage of individuals reported experiencing posttraumatic growth (83%). Additionally, growth was observed for the majority of participants across all of the PTGI subscales except Spiritual Change. This pattern of results is consistent with and supports the current literature (Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Maguen, Vogt, King, King, & Litz, 2006; Pietrzak et al., 2010; Solomon & Dekel, 2007). Furthermore, all mean scores for posttraumatic growth in the current study were within one standard deviation of the mean scores reported in the five studies utilizing the PTGI.

Simultaneously, the majority of respondents also reported experiencing moral injury (80%). Overall growth and moral injury were positively correlated, but this relationship was driven by the Perceived Betrayal factor. Moreover, Perceived Transgressions were less related to posttraumatic growth when compared to the factor of Perceived Betrayal.

Interestingly, the Perceived Transgressions factor was unrelated to growth for four of the five factors on the PTGI, with one exception – it had a significant small positive bivariate correlation with Spiritual Change. The small positive association between Perceived Transgressions and Spiritual Change could be the function of soldiers questioning the meaning and purpose of life and seeking forgiveness for moral transgressions committed or witnessed during combat. However, the relationship between Spiritual Change and Perceived Transgressions was not significant in the final regression model that included both factors of moral injury in the equation. Therefore, this result, which was contrary to predictions, must be interpreted with caution. Spiritual Change was less commonly endorsed as an area of growth in this study and other studies (e.g., Feder et al., 2008; Gallaway, Millikan, & Bell, 2011; Maguen,

Vogt, King, King, & Litz, 2006; Pietrzak et al., 2010). However, future research may explore the possibility that, among those individuals who do experience growth in the spiritual domain, moral injury is more common and perhaps associated with a moral crisis that is resolved via spiritual growth in some cases.

The most important contribution of this study is the Perceived Betrayal factor was significantly positively related to the total PTGI scores and the majority of the five subscales (Spiritual Change was the exception). Therefore, the hypothesis that Perceived Betrayal would positively predict posttraumatic growth was partially supported. In this study, Perceived Betrayal was conceptualized as a form of victimization; as such, Perceived Betrayal would be expected to elicit a cognitive struggle to externalize blame for immoral acts. As suggested by Shay (2014), betrayal may be processed in a manner leading to feelings of victimization. Therefore, the existential struggle to find meaning in the betrayal by another individual, leadership, or society turns to blame and becomes the question “Why do bad things happen to good people?” Important to the theoretical conceptualization of moral injury, these data suggest that there are differences between transgressions, which were generally unrelated to posttraumatic growth, and betrayal. In the future, researchers may wish to examine whether blame is more closely related to betrayal and whether shame and guilt are more closely related to transgressions.

Perceived Transgressions on the MIES (Nash et al., 2013) was found to be unrelated to posttraumatic growth as a whole and for the five subscales in the final regression analyses. There was a trend, albeit insignificant, toward a small negative relationship with Personal Strength. In retrospect, the lack of support for the hypothesis that Perceived Transgressions would be a negative predictor of posttraumatic growth may reflect that, perhaps, Perceived Transgressions are only related to negative outcomes and are unrelated to positive outcomes of growth. That

said, some limited support was observed for this hypothesis. Perhaps Perceived Transgressions do not interfere with all aspects of growth. Specifically, for Personal Strength, the final regression model did reveal a trend such that higher levels of Perceived Transgressions were associated with lower perceptions of Personal Strength. Engaging in acts inconsistent with one's morals might be interpreted by soldiers as evidence of personal weakness rather than interpreted in other ways (e.g., as a function of difficult environmental circumstances) or interpreted as one behavior in a larger context that might suggest personal strength (e.g., ignoring acts of bravery or acts that were morally admirable and focusing instead on one or more transgressions). As a trend, this result needs to be replicated. However, the trend is consistent with the prediction that posttraumatic growth in the area of personal strength might be undermined by the perception of having committed or witnessed moral transgressions.

No support was found for the hypothesis that moral injury influences the relationship between deployment length and posttraumatic growth. Contrary to the previous literature (Aldwin, Levenson, & Spiro, 1994; Dohrenwend et al., 2004; Gallaway, Millikan, & Bell, 2011; Schnurr & Spiro, 1999), posttraumatic growth was not significantly related to deployment length. Furthermore, moral injury was also not found to be significantly related to deployment length. The Mental Health Advisory Team–V (2008) reported that deployment length was related to exposure to a greater number of potential morally injurious events. However, according to the results of the current study, increased exposure to a greater number of ethically challenging events over time may not necessarily lead to greater moral injury. One explanation could be that time is unrelated and combat severity or “dose” of morally challenging situations faced in theatre is more relevant for study (Gallaway, Millikan, & Bell, 2011). More research is

necessary to fully assess the relationship between time served in combat, moral injury, and posttraumatic growth.

The current study adds to the developing quantitative literature on moral injury. Most importantly, this study speaks to differences between betrayal and transgressions and their relationship to posttraumatic growth following combat service. More research is necessary to fully understand the relationship between these factors and both negative and positive psychological consequences post deployment.

### **Limitations, Strengths, and Directions for Future Study**

A number of limitations exist in this study. Due to the use of social media, it is not possible to estimate how many individuals received a link to the survey and chose not to participate in the study. Not uncommon in the use of a purposive sample, selection threat may have compromised the internal validity of the results as data were not collected from non-participants. For individuals that did click on the link to the study, there was a low response rate. Only 48% of respondents completed the survey. Self-selection bias may affect the validity of the results.

Furthermore, there were numerous contacts on Facebook and phone calls to the researchers where individuals expressed concern regarding the content of the survey. Interestingly, the majority of complaints were regarding being asked to report feeling betrayed by the military, the perceived anti-patriotic stance of the survey, doubts regarding anonymity on links from social media, and questions regarding the positive direction of the questions on the PTGI. Complaints to the Military Officers Association of America (MOAA) regarding the betrayal questions resulted in the removal of the study from the website and Facebook page. It appears the current research touched on a sensitive topic for some combat survivors and military

organizations. Future researchers may wish to more fully explain the content of the surveys and the benefits of participation prior to survey administration. A stronger emphasis on anonymity and beneficence may aid in developing trust, result in a higher response rate, and enhance validity of results.

One strength of the use of social media is ecological validity. A more inclusive sample of combat survivors was reached when compared to previous studies utilizing convenience samples of veterans with a PTSD diagnosis presenting for treatment. Results may therefore be more representative of the general population of combat survivors.

Strengths and weaknesses were both found in the demographic variables. The full range of number of combat deployments (1-6), diverse age range (22-82), and variety of combat locations were represented. However, the sample was mostly white males (82.7%) who had served in the Army (70.2%) in Iraq (42.3%) or Afghanistan (23.1 %) and therefore limited the ability to consider ethnic, gender, location, or branch of service differences. Studying the differences between ranks, number of deployments, duty status (active or retired) and age at time of deployment was beyond the scope of the current study. Furthermore, it may be useful to inquire if individuals have received treatment for combat related psychopathology. Future studies may wish to consider comparisons between demographic variables in analyses as individual differences may exist.

The findings of the relationship between moral injury and posttraumatic growth are correlational. Therefore, no inferences may be made regarding cause and effect of serving in combat, posttraumatic growth, and moral injury. Furthermore, the study was cross sectional and did not allow for comparisons to be made over time. The PTGI may be vulnerable to errors due to inaccuracies individuals possess in recalling past states or psychological attributes related to

posttraumatic growth (Frazier & Kaler, 2006). Therefore, it may be useful for future researchers to consider longitudinal studies that include pre-deployment measures and studies designed with control groups, as well as use collateral reports, behavioral measures that indicate growth, and ethically designed experimental studies in order to more comprehensively conceptualize the relationship between posttraumatic growth and moral injury.

Furthermore, the PTGI (Tedeschi & Calhoun, 1996) may have a positive response bias leading to acquiescent responses as it only allows the respondent to choose from either no growth or growth, disallowing the indication of change in a negative direction. Calhoun and Tedeschi (2008) addressed this issue by arguing against the use of bipolar ratings in measuring growth. They state forcing individuals to choose from one category or another limits the expression of the complex issues related to trauma where both negative and positive cognitions potentially coexist. Tomich and Hegelson, (2004) suggest if negative growth is to be measured, it be reported in separate items within the same specific areas of growth. As no empirically validated measure with bipolar ratings or measures of detrimental growth following trauma were known to exist at the time of the current study, future researchers may consider the development of such scales to be able to better capture the full range of the growth experience bi-directionally.

Furthermore, the PTGI (Tedeschi & Calhoun, 1996) does not provide information to respondents on the meaning of the 0 score of no change. It is unclear whether a 0 score addresses whether individuals already felt they possessed the qualities on the PTGI (Tedeschi & Calhoun, 1996) prior to the trauma. For example, an individual may have had a strong religious faith or sense of spirituality prior to serving in combat that remains unchanged post deployment and indicate a score of 0 on the PTGI (Tedeschi & Calhoun, 1996). This is problematic as a score of 0 may be interpreted as a lack of spirituality, when in fact the individual possesses great spiritual

faith. Furthermore, if an individual lost faith as a result of combat experiences, a 0 score will not be sensitive to the loss. Tomich and Helgeson (2004) suggest the problem be addressed by providing two possible choices including “*No change occurred because no change was needed*” and “*I simply did not change in this area.*” Perhaps a third item could be included “*I changed in a negative way in this area.*” More research in scale development may be useful in future studies to help better capture and operationalize posttraumatic growth.

Another potential limitation of the study is related to problems associated with the MIES. Nash and colleagues (2013) suggest that measurement of moral injury may be limited in analyzing transgressions, because the Perceived Transgressions subscale includes two items involving witnessing moral transgressions rather than perpetrating them. However, a more recent psychometric evaluation of the MIES (Nash et al., 2013) as a three factor model separated the Transgressions factor into two separate subscales of Transgressions-Self and Transgressions-Others (Bryan et al., 2013). Post hoc analyses in the current study utilizing the three factor model indicated no significant differences from the results utilizing the two factor model of the MIES (Nash et al., 2013). Furthermore, the MIES (Nash et al., 2013) is rather short with only 9 questions (6 for Perceived Transgressions and 3 for Perceived Betrayal). While convenient for brief surveys, the scale may not fully capture the theoretical conceptualization of moral injury related to combat service

Furthermore, betrayal is not included in moral injury theoretical models and four separate types of transgressions are included; perpetration, failing to prevent, witnessing, or learning about atrocities that occur during combat (Litz et al., 2009). The MIES (Nash et al., 2013) only includes perpetration and witnessing morally injurious events and are placed together within a single transgressions category. The items are broad and unspecific and may not

accurately capture the dimensionality related to the experience of moral injury. There may be vast differences between individuals who report “being troubled by acting in ways that violated my own morals or values” (item 4, MIES; Nash et al., 2013). For example, one individual may indicate this is the case after pushing or shoving a civilian, while another relates it to shooting a civilian. There may be a large difference between pushing and shoving and taking another’s life that result in different psychological consequences for combat soldiers. It is recommended that future researchers use experts as judges to develop a more comprehensive moral injury questionnaire that encompasses more specific examples or otherwise assesses severity of the moral behaviors, and continue to utilize factor analysis to validate the scale prior to developing a short form. A comprehensive scale created with a broad theoretical framework drawn from qualitative studies and based on empirical data to evaluate the phenomenology experienced by combat survivors’ reports of struggling with moral injury is essential (Drescher et al., 2011).

Moreover, more quantitative research is necessary to establish the validity of the MIES (Nash et al., 2013) as a research tool in the context of the unique challenges faced by combat soldiers, and researchers might consider expanding the current scale or creating a new one to address the problems presented earlier. In the future it would be valuable to use the scale for other populations who have experienced trauma across different contexts (e.g. women who have had abortions, criminal populations, individuals who accidentally caused fatal accidents) to assess the universality of moral injury.

### **Clinical Implications**

The results of the current study indicate both moral injury and posttraumatic growth are common for combat survivors. It is important, therefore, for clinicians to understand and assess for both moral injury and posttraumatic growth along with measures of psychopathology when

veterans or active duty soldiers present for treatment. Furthermore, it is necessary for effective treatment models to be implemented that address struggles related to feelings of violating one's morals or feeling betrayed (Litz et al., 2009) and to enhance wellness by focusing on the positive aspects of surviving the trauma of war (Tedeschi, 2011).

Posttraumatic growth is not proposed as a form of treatment on its own (Calhoun & Tedeschi, 2006). Rather, it is believed to be an application to be integrated into other empirically supported treatments. Measures of growth may be suitable for cognitive, exposure, narrative, and existential based treatments. Calhoun and Tedeschi (2006) propose assessing growth prior to treatment. Areas of naturally occurring growth can be incorporated into therapy while processing meaning of the distressing combat related experiences.

Specific to combat veterans, a treatment model was designed for the Comprehensive Soldier Fitness program to facilitate posttraumatic growth (Tedeschi, 2011). The therapist acts as an "expert companion" to help combat veterans become resilient. The treatment is suitable for use in individual or family therapy, psychoeducational programs, or as a self-help model (Tedeschi, 2011). Clinical trials are necessary to assess the efficacy and efficiency of the use posttraumatic growth supplemental techniques with other empirically supported treatments to better understand the mechanism of change.

Treatment for moral injury is currently in the developmental stages and appearing in various pilot studies. Shay (2014) states that successful treatment will follow the recognition that moral injury exists and veterans can be helped to heal once effective treatments are developed. It is important for clinicians to understand the existence of moral injury and pay specific attention to veterans' descriptions of combat related struggles with guilt, shame, and blame related to their experience (Vargas, Hanson, Kraus, Drescher, & Foy, 2013).

Proposed treatments include use of spirituality in facilitating forgiveness (Worthington & Langberg, 2012), Pastoral counseling (Fontana & Rosenheck, 2004), Narrative Therapy (Vargas, Hanson, Kraus, Drescher, & Foy, 2013), Adaptive Disclosure (Gray et al., 2012), and a forgiveness model including elements of exposure, cognitive integration, and a dialogue with a benevolent God-like moral authority (Litz, 2009). To our knowledge, only two empirically supported treatment models, Cognitive Processing Therapy Veteran/Military Version (Resick, Monson & Chard, 2006) and cognitive based Trauma Informed Guilt Reduction Therapy (TrIGR: Norman, Wilkins, Myers & Allard, 2014), are available that treat moral injury without including aspects related to spirituality. However, the majority of treatment models include a strong emphasis on healing by utilizing spiritual tools and guidance.

It is worth discussing that in the current study the subscale of Spiritual Growth on the PTGI (Tedeschi & Calhoun, 1996) had a weak relationship with moral injury. Only a small, positive bivariate correlation was found between Spiritual Growth and the two factors of moral injury. However, the final regression model including Perceived Transgressions and Betrayal was not significant for the prediction of Spiritual Growth. If individuals are not experiencing spiritual growth following combat, the question remains whether treatment models focusing on spiritual tools are the most efficient for facilitating healing.

Newly emerging clinical treatments for moral injury are being created and tested for efficacy with more empirical testing needed to understand their ability to help soldiers to heal following combat. In spite of being in the developmental stages, it is important that moral injury and posttraumatic growth are being recognized and included in comprehensive treatments for service members who suffer post deployment. Continuing with clinical trials and moving beyond

pilot studies will help to better operationalize and facilitate interventions related to positive change following the experience of moral injury.

### **Conclusion**

Results indicate there are unique differences between feeling betrayed and experiencing transgressions during war time in relation to the experience of posttraumatic growth. The current study found that soldiers and veterans reported very high amounts of both posttraumatic growth and moral injury following combat service. Furthermore, individuals who reported feeling betrayed experienced posttraumatic growth across all domains of the PTGI (Tedeschi & Calhoun, 1996) with the exception of Spiritual Growth. Perceived Transgressions were found to be unrelated to posttraumatic growth with the exception of a trend towards a small negative relationship with Personal Strength. Transgressions were not found to influence the relationship between deployment length and posttraumatic growth. More research is needed to fully operationalize, sufficiently measure, and understand the relationship between posttraumatic growth and moral injury. It is crucial to gain an understanding of constructs such as moral injury and posttraumatic growth to allow clinicians to help combat survivors who struggle with moral injury and to best utilize posttraumatic growth to facilitate wellness and healing for those who suffer after serving in combat.

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Table 1

*Demographic information by number of deployments*

	Branch of Service	%	Rank at beginning of deployment	%	Mean Age at time of deployment	Deployment Location	%	Length of Deployment in Months
Deployment 1 <i>n</i> = 104	Army	70.2	E1-E4	48.1	Range = 18-58 <i>M</i> = 27.1, <i>SD</i> = 8.4	Vietnam	9.6	Range 1-36 <i>M</i> = 9.6, <i>SD</i> = 5.03
	Navy	7.7	NCO	36.5		Bosnia	2.9	
	Air Force	9.6	Officer/WO	15.4		Kosovo	1.0	
	Marines	10.6				Iraq	42.3	
	National Guard	1.9				Afghanistan	23.1	
					Africa	1.0		
					Other	20.2		
Deployment 2 <i>n</i> = 71	Army	47.1	E1-E4	30.8	Range = 19-54 <i>M</i> = 27.54, <i>SD</i> = 8.1	Vietnam	5.8	Range = 1-36 <i>M</i> = 10, <i>SD</i> = 4.87
	Navy	5.8	NCO	28.8		Bosnia	2.9	
	Air Force	6.7	Officer/WO	8.7		Kosovo	1.0	
	Marines	7.7				Iraq	28.8	
	National Guard	1.0				Afghanistan	13.5	
					Africa	0		
					Other	16.3		
Deployment 3 <i>n</i> = 38	Army	22.1	E1-E4	8.7	Range = 20-41 <i>M</i> = 26.61, <i>SD</i> = 7.09	Vietnam	4.8	Range = 4-36 <i>M</i> = 11.05, <i>SD</i> = 6.06
	Navy	5.8	NCO	21.2		Bosnia	0	
	Air Force	2.9	Officer/WO	6.7		Kosovo	1.0	
	Marines	5.8				Iraq	16.3	
	National Guard	0				Afghanistan	4.8	
					Africa	0		
					Other	9.6		
Deployment 4 <i>n</i> = 19	Army	11.5	E1-E4	4.8	Range 18-53 <i>M</i> = 31.32, <i>SD</i> = 10.42	Vietnam	1.9	Range = 5-32 <i>M</i> = 11.05, <i>SD</i> = 6.06
	Navy	1.9	NCO	11.5		Bosnia	0	
	Air Force	1.9	Officer/WO	1.9		Kosovo	0	
	Marines	2.9				Iraq	9.6	
	National Guard	0				Afghanistan	2.9	
					Africa	1.0		
					Other	2.9		
Deployment 5 <i>n</i> = 11	Army	6.7	E1-E4	1.0	Range = 22-56 <i>M</i> = 38, <i>SD</i> = 8.8	Vietnam	4.8	Range = 4-15 <i>M</i> = 9.9, <i>SD</i> = 3.65
	Navy	1.0	NCO	6.7		Bosnia	0	
	Air Force	1.9	Officer/WO	2.9		Kosovo	0	
	Marines	1.0				Iraq	4.8	
	National Guard	0				Afghanistan	3.8	
					Africa	0		
					Other	1.9		
Deployment 6 <i>n</i> = 7	Army	3.8	E1-E4	1.0	Range = 20-59 <i>M</i> = 43, <i>SD</i> = 12.33	Vietnam	0	Range = 4-15 <i>M</i> = 9.29, <i>SD</i> = 4.07
	Navy	0	NCO	2.9		Bosnia	0	
	Air Force	1.9	Officer/WO	2.9		Kosovo	0	
	Marines	1.0				Iraq	4.8	
	National Guard	0				Afghanistan	1.0	
					Africa	1.0		
					Other	0		

Table 2

*Mean scores and percentages of posttraumatic growth and moral injury*

Scale	Possible Range	<i>M</i>	<i>SD</i>	% reporting posttraumatic growth or moral injury
Total PTGI	0-105	67.9	24.86	83.7
Appreciation of Life	0-15	11.96	4.11	76.9
Relationships with Others	0-35	18.38	8.99	51.9
New Possibilities	0-25	16.24	7.21	58.7
Personal Strength	0-20	15.64	5.98	72.1
Spiritual Change	0-10	5.68	3.48	34.6
MIES Total	9-54	27.88	12.73	80.0
Perceived Betrayal	3-18	10.4	5.0	64.4
Perceived Transgressions	6-36	17.48	9.65	56.7

*Note.* *N* = 104;

PTGI: Posttraumatic Growth Inventory (Tedeschi &amp; Calhoun, 1996)

MIES: Moral Injury Events Scale (Nash et al., 2013)

Table 3

*Bivariate Correlations Among MIES Total, MIES Subscale Totals, PTGI Total, and PTGI Subscale Totals*

	1	2	3	4	5	6	7	8	9
1. MIES Total	-	.936**	.737**	.252**	.203*	.224*	.237*	.162	.215*
2. Perceived Transgressions		-	.453**	.119	.085	.137	.091	.016	.178*
3. Perceived Betrayals			-	.412**	.351**	.304**	.426**	.381**	.204*
4. PTGI Total				-	.837**	.868**	.918**	.864**	.525**
5. Appreciation of Life					-	.621**	.757**	.714**	.394**
6. Relationships to Others						-	.707**	.594*	.398**
7. New Possibilities							-	.837**	.325**
8. Personal Strength								-	.337**
9. Spiritual Change									-

*Note.* \*  $p < .05$ ; \*\*  $p < .01$ .

MIES: Moral Injury Events Scale (Nash et al., 2013)

PTGI: Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996)

Table 4

*Final Models PTGI Total and Subscales*

Variable	B	SE B	$\beta$	Sig.
Final model predicting PTGI total				
Constant	48.48	5.62		
Perceived Transgressions	-.220	.261	-.085	.402
Perceived Betrayal	2.236	.503	.451	.000
Final model predicting Appreciation of Life				
Constant	9.297	.955		
Perceived Transgressions	-.40	.044	-.094	.369
Perceived Betrayal	.323	.085	.394	.000
Final model predicting Relationships to Others				
Constant	12.704	2.132		
Perceived Transgressions	-.001	.099	-.001	.995
Perceived Betrayal	.546	.191	.304	.005
Final model predicting New Possibilities				
Constant	10.665	1.612		
Perceived Transgressions	-.096	.075	-.128	.205
Perceived Betrayal	.697	.144	.484	.000
Final model predicting Personal Strength				
Constant	11.934	1.351		
Perceived Transgressions	-.122	.063	-.197	.055
Perceived Betrayal	.562	.121	.471	.000
Final model predicting Spiritual Change				
Constant	3.880	.845		
Perceived Transgressions	.039	.039	.107	.327
Perceived Betrayal	.108	.076	.156	.155

*Note.* When the three factor model proposed by Bryan et al., (2013) differentiating Transgressions of the self vs. Transgressions of Others was utilized, similar results were found

Table 5

*Final Moderation Models Testing Perceived Transgressions as a Moderator Between Deployment length and Posttraumatic Growth*

Variable	B	SE B	$\beta$	Sig
Final model predicting PTGI total				
Constant	67.950	2.414		
Perceived Transgressions	.2807	.2519	-.2049	.1978
Deployment Length	.0499	.1455	.0499	.7325
Interaction	.0264	.0143	.3047	.1982
Final model Predicting Appreciation for life				
Constant	11.9675	.4008		
Perceived Transgressions	.0323	.0418	-.0466	.0785
Deployment Length	-.0133	.0242	-.0133	.5825
Interaction	.0035	.0024	.0200	.6099
Final model predicting Relationships to Others				
Constant	18.388	.8759		
Perceived Transgressions	.1204	.0914	-.0722	.2107
Deployment Length	-.0011	.0528	-.0011	.9829
Interaction	.0074	.0052	.0700	.4144
Final model predicting New Possibilities				
Constant	16.254	.7025		
Perceived Transgressions	.0612	.0733	-.0318	.4907
Deployment Length	.0433	.0424	.0433	.3091
Interaction	.0078	.0042	.1184	.0868
Final model predicting Personal Strength				
Constant	15.655	.5865		
Perceived Transgressions	.0044	.0612	-.0339	.3789
Deployment Length	.0238	.0354	.0238	.5029
Interaction	.0060	.0035	.0815	.1570
Final model predicting Spiritual Change				
Constant	5.686	.3394		
Perceived Transgressions	.0623	.0354	-.0203	.3633
Deployment Length	-.0027	.0205	-.0027	.8944
Interaction	.0018	.0020	.0148	.6545

Appendix A  
Demographic Information

1. Gender

- Male
- Female

Other (please specify)

2. Age

Choose from a drop down menu 18-99

Other (please specify)

3. Ethnicity

- White/Caucasian
- Hispanic/Latino/a
- Black/African American
- Asian
- Native American
- Bi-racial

Other (please specify)

4. Total number of Combat Tours

Choose from a drop down menu 1-6

Other (please specify)

5.

	Branch of Service Drop Down Menu	Rank at beginning of deployment Drop Down Menu	Age at time of deployment Drop Down Menu	Deployment Location Drop Down Menu	Length of Deployment in Months Drop Down Menu
Deployment 1	Army Navy Air Force Marines National Guard Other	E1-E4 NCO Officer/WO Unknown	18-99	Vietnam Bosnia Kosovo Iraq Afghanistan Africa Other	1-48+ months
Deployment 2	Army Navy Air Force Marines National Guard Other	E1-E4 NCO Officer/WO Unknown	18-99	Vietnam Bosnia Kosovo Iraq Afghanistan Africa Other	1-48+ months
Deployment 3	Army Navy Air Force Marines National Guard Other	E1-E4 NCO Officer/WO Unknown	18-99	Vietnam Bosnia Kosovo Iraq Afghanistan Africa Other	1-48+ months
Deployment 4	Army Navy Air Force Marines National Guard Other	E1-E4 NCO Officer/WO Unknown	18-99	Vietnam Bosnia Kosovo Iraq Afghanistan Africa Other	1-48+ months
Deployment 5	Army Navy Air Force Marines National Guard Other	E1-E4 NCO Officer/WO Unknown	18-99	Vietnam Bosnia Kosovo Iraq Afghanistan Africa Other	1-48+ months
Deployment 6	Army Navy Air Force Marines National Guard Other	E1-E4 NCO Officer/WO Unknown	18-99	Vietnam Bosnia Kosovo Iraq Afghanistan Africa Other	1-48+ months

Appendix B  
Moral Injury Events Scale (MIES)

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
<b>Factor 1: Perceived Transgressions by Self or Others</b>						
(1) I saw things that were morally wrong.	1	2	3	4	5	6
(2) I am troubled by having witnessed others' immoral acts.	1	2	3	4	5	6
(3) I acted in ways that violated my own moral code or values.	1	2	3	4	5	6
(4) I am troubled by having acted in ways that violated my own morals or values	1	2	3	4	5	6
(5) I violated my own morals by failing to do something that I felt I should have done.	1	2	3	4	5	6
(6) I am troubled because I violated my morals by failing to do something that I felt I should have done.	1	2	3	4	5	6
<b>Factor 2: Perceived Betrayal by Others</b>						
*(7) Mark number 5 (moderately agree) for this item	1	2	3	4	5	6
(8) I feel betrayed by leaders who I once trusted.	1	2	3	4	5	6
(9) I feel betrayed by fellow service members who I once trusted.	1	2	3	4	5	6
(10) I feel betrayed by others outside the U.S. military who I once trusted.	1	2	3	4	5	6

\*Added to disqualify random responders

## Appendix C

## Posttraumatic Growth Inventory: Combat Service

PTGI Factors

Factor I: Relating to Others

Factor II: New Possibilities

Factor III: Personal Strength

Factor IV: Spiritual Change

Factor V: Appreciation of Life

Indicate for each of the statements below the degree to which this change occurred in your life as a result of serving in combat.

**1. I changed my priorities about what is important in life. (V)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
 \_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
 \_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
 \_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
 \_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
 \_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**2. I have a greater appreciation for the value of my own life. (V)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
 \_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
 \_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
 \_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
 \_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
 \_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**3. I developed new interests. (II)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
 \_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
 \_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
 \_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
 \_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
 \_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**4. I have a greater feeling of self-reliance. (III)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
 \_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
 \_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
 \_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
 \_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
 \_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**5. I have a better understanding of spiritual matters. (IV)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**6. I more clearly see that I can count on people in times of trouble. (I)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**7. I established a new path for my life. (II)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**8. I have a greater sense of closeness with others. (I)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**9. I am more willing to express my emotions. (I)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**10. I know better that I can handle difficulties. (III)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
\_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
\_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
\_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
\_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
\_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**11. I am able to do better things with my life. (II)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
\_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
\_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
\_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
\_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
\_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**12. I am better able to accept the way things work out. (III)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
\_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
\_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
\_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
\_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
\_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**13. I can better appreciate each day. (V)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
\_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
\_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
\_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
\_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
\_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**14. New opportunities are available which wouldn't have been otherwise. (II)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
\_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
\_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
\_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
\_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
\_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**15. I have more compassion for others. (I)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**16. I put more effort into my relationships. (I)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**17. I am more likely to try to change things which need changing. (II)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**18. I have a stronger religious faith. (IV)**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**\*19. Please mark item 0 for this item.**

- 0= I did not experience this change as a result of serving in combat.  
 1= I experienced this change to a very small degree as a result of serving in combat.  
 2= I experienced this change to a small degree as a result of serving in combat.  
 3= I experienced this change to a moderate degree as a result of serving in combat.  
 4= I experienced this change to a great degree as a result of serving in combat.  
 5= I experienced this change to a very great degree as a result serving in combat.

**20. I discovered that I'm stronger than I thought I was. (III)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
\_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
\_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
\_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
\_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
\_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**21. I learned a great deal about how wonderful people are. (I)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
\_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
\_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
\_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
\_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
\_\_\_5= I experienced this change to a very great degree as a result serving in combat.

**22. I better accept needing others. (I)**

- \_\_\_0= I did not experience this change as a result of serving in combat.  
\_\_\_1= I experienced this change to a very small degree as a result of serving in combat.  
\_\_\_2= I experienced this change to a small degree as a result of serving in combat.  
\_\_\_3= I experienced this change to a moderate degree as a result of serving in combat.  
\_\_\_4= I experienced this change to a great degree as a result of serving in combat.  
\_\_\_5= I experienced this change to a very great degree as a result serving in combat.

\*Added to disqualify random responders

## Appendix D

*Survey Postings*

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**E-mail groups**

Military Officers Association of America

Warrior Transition Battalion- Ft. Riley, Kansas

**Facebook Groups**

Institute for Veterans and Military Families

Iraq and Afghanistan Veterans of America

1<sup>st</sup> Infantry Division

The Soldiers Project

Military Minds, Inc.

Military Experience and the Arts

CBT for Active Duty Military

Stop Soldier Suicide

Living with PTSD and TBI

The Pathway Home

Warrior Chef

Growing Warriors

Farmer Veteran Coalition

TBI Caregivers and Supporters

USO

Real Warriors

Battling Bare

## Appendix E

## INFORMED CONSENT STATEMENT

The Department of Psychology supports the practice of protection for human subjects participating in research. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate you are free to withdraw at any time, without penalty.

**This survey will be asking about your prior military history and personal outcomes after experiencing combat. These personal outcomes include questions about any ways that you might have grown after experiencing combat and questions about whether you saw or engaged in actions contrary to your beliefs. The survey will take about 10 minutes to complete.**

**The survey will be completely anonymous and will not collect the IP address of your computer.**

**Helpful resources will be provided upon completion of the survey in case you find some of the questions distressing.**

Your participation is solicited, but strictly voluntary. Do not hesitate to ask any questions about the study. Be assured that your name will not be associated in any way with the research findings. We appreciate your cooperation.

Sincerely,

Shari LaGrange

(785) 770-5225

I agree to participate

## Appendix F

**Debriefing Resources**

This study is assessing the relationship between Moral Injury and Posttraumatic Growth for individuals who have served in combat.

**How was this tested?**

All respondents were asked to complete surveys providing information about their length and place of combat duty, personal growth and moral injury that may exist as a result of serving in combat.

**Hypothesis and main questions:**

We expect that individuals who experience greater moral injury related to perceiving transgressions by the self or others will experience less posttraumatic growth due to experiencing shame and guilt regarding perpetrating acts during combat.

We also believe that individuals who experience moral injury related to perceived betrayal by others would experience more posttraumatic growth due to the relationship of betrayal to victimization and externalization of blame onto others.

**Why is this important to study?**

Most current treatment models for veterans and active duty members who struggle post deployment are geared toward healing factors related to victimization and the fear, helplessness and horror that occur as a result of enemy perpetration. It is important to consider that acts witnessed or committed by the individual may contribute to assumptions they have about the world and to mental health issues. Treatment models that address shame and guilt related to what the individual has done or witnessed may help ease suffering.

**What if I feel bad after completing this survey?**

If after completing this survey if you feel you need help or would like to speak to someone about symptoms you are experiencing you may choose to consult one of the following resources:

**Veterans Crisis Line**

1-800-273-8255 PRESS 1

Or text 838255 for anonymous help now

**VET2VET Crisis Line**

1-877-838-2838 (VET2VET)

**Trauma and Resiliency Resources**

<http://traumaandresiliencyresources.org/resources/combat-veterans-resources.html>

If you would like to receive a summary of the findings for this study when it is completed, please contact the researcher [shari.lagrange-aulich@washburn.edu](mailto:shari.lagrange-aulich@washburn.edu). If you have concerns about your rights as a participant in this study please contact the Washburn University IRB Administrative Assistant at (785) 670-1564.