EXPERIENTIAL AVOIDANCE AND DISGUST IN THE CONTEXT OF MORAL INJURY: IMPLICATIONS FOR PSYCHOLOGICAL ADJUSTMENT AMONG VETERANS

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ABSTRACT

EXPERIENTIAL AVOIDANCE AND DISGUST IN THE CONTEXT OF MORAL INJURY: IMPLICATIONS FOR PSYCHOLOGICAL ADUSTMENT AMONG VETERANS

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Posttraumatic Stress Disorder (PTSD) and depression are pervasive mental health concerns among veteran populations. One factor that has been implicated in the development and maintenance of PTSD and depression is experiential avoidance (EA). Similarly, disgust, a strong aversive moral emotion has also been implicated in the development and maintenance of PTSD and depression. However, EA and disgust have not been explored in relationship to an emerging construct called moral injury. Morally injurious experiences (MIEs) entail perpetrating, failing to prevent, witnessing, or learning about acts that violate deeply held moral beliefs and expectations. Moral injury manifests as psychological, social, behavioral and spiritual problems and reflects an internal struggle for reconciling MIEs with personally held interpretations of right and wrong. Thus, the present study sought to elucidate the impact of EA and disgust in the relationship between moral injury and mental health outcomes among male veterans. Results were based on data from a sample of 62 male veterans who completed surveys on their military background, moral injury, EA, disgust, PTSD-related symptomatology, and depressive symptomatology. Results supported our hypothesis that EA was associated with moral injury such that non-acceptance of unpleasant thoughts, emotions, or bodily sensations was associated

with several core components of moral injury (i.e., more guilt, shame, betrayal, loss of trust, difficulty forgiving, and self-condemnation). Similarly, results suggested that disgust was associated with moral injury, such that the more likely a veteran reports experiencing disgust reactions and being emotionally bothered by disgust, the more symptoms of moral injury they report. Further analyses revealed that EA and disgust did not seem to independently mediate the association between moral injury and PTSD-related symptomatology and depressive symptomatology, respectively. These findings demonstrate a need to better clarify specific moral emotions that may be elicited in response to moral injury, as well as how veterans cope with those emotions, although these relationships should be replicated utilizing a larger sample size. Additional clinical implications, limitations, and suggestions for future research will be discussed.

CHAPTER ONE: INTRODUCTION

Combat exposure has been demonstrated to put military veterans at risk for physical and psychological harm (Godfrey et al., 2015; Hoge & Castro, 2006). For example, combat exposure among veterans has been implicated in an increased risk for developing Posttraumatic Stress Disorder (PTSD; Solomon & Mikulincer, 2006; Solomon, Shklar, & Mikulincer, 2005). While the risk for developing PTSD is particularly high within a short window of time following combat, evidence suggests that the disorder can also return 15 to 20 years later (Solomon & Mikulincer, 2006). In addition to PTSD, research further shows an association between combat exposure and mood and anxiety disorders (Fiedler et al., 2006). In particular, depression is the disorder that most often is co-occurring with PTSD among veterans (Reisman, 2016).

In addition to physical and psychological injuries, the impact of war on veterans' morals and spirituality is well-documented. These adverse outcomes may arise from veterans' experience of 'perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations' (Litz et al., 2009, p. 700), and can result in significant distress. For instance, potentially morally injurious experiences (MIEs) encountered during warfare include shooting and killing an enemy combatant, seeing and handling of dead bodies or human remains, witnessing wounded women and children without being able to provide aid and mistreating civilians (Hoge et al., 2004b). Moreover, exposure to threats and losses, guerilla warfare, and insurgency as seen in recent conflicts can serve as the impetuous for service members to engage in morally incongruent acts and potentially violate rules of engagement (Drescher et al., 2011). In turn, a significant proportion of veterans will develop moral injury as a result of exposure to MIEs, however, prevalence rates may vary depending on the specific sample and measurement of the MIE construct.

Frequently reported signs and symptoms among veterans with moral injury include interpersonal and problems, loss of trust, spiritual/existential issues, psychological symptoms, and self-condemnation (Drescher et al., 2011). More specifically, moral injury has been shown to contribute to negative self-attributions, negative emotions including disgust and anger, as well as high levels of guilt and shame (Frankfurt & Frazier, 2016; Litz et al., 2009). Over time, secondary symptoms such as PTSD, depression, and substance use problems may emerge from moral injury (Braitman et al., 2018; Currier, Holland, & Malott, 2015; Drescher et al., 2011; Held, Klassen, Brennan, & Zalta, 2018; Jinkerson, 2016; Maguen & Litz, 2012). However, the mechanisms by which moral injury results in the aforementioned mental health outcomes (i.e., PTSD and depression) remains unclear. Thus, the present study sought to examine the associations between moral injury and disgust, a moral emotion that may be elicited in response to transgressive acts, but that has not been the focus of any research to date. Second, the present study sought to explore the association between moral injury and experiential avoidance (i.e., attempts to suppress unwanted negative emotions, thoughts, or bodily sensations; Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011), which has been implicated previously in the development of PTSD and depression. Finally, the present study aimed to examine the indirect impact of disgust and experiential avoidance on the association between moral and mental health outcomes (i.e., PTSD-related symptomatology and depressive symptomatology) among male veterans.

CHAPTER 2: LITERATURE REVIEW

First, the review of the existing literature covers the construct of moral injury, including definitions, prevalence rates, and symptoms associated with moral injury. Next, two specific moral emotions - disgust and anger -, in relation to moral injury and military-related symptoms of PTSD and depression, will be reviewed. Similarly, the relevant literature pertaining to experiential avoidance as a risk factor for military-related PTSD and depression, as well as implications for moral injury, will be discussed. Finally, we will discuss the gaps in the literature and the ways in which the current study aims to address these gaps, and expand our understanding of moral injury and associated constructs in veterans.

Defining Moral Injury

Despite widespread interest in the construct over the past decade, a consensus has not been reached regarding how to operationally define moral injury (Griffin et al., 2019). Shay (1994) first introduced and later conceptualized moral injury as a character wound that originates from a betrayal of what's deemed as right by someone who holds authority in a high-stress situation. Then, in 2009, Litz and colleagues launched the scientific study of moral injury by operationalizing morally injurious events as those that entail "perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations" (p. 700). Both of these definitions are intended to encompass objective and subjective appraisals concerning one's role in a morally ambiguous situation (Harris, Park, Currier, Usset, & Voecks, 2015). Overall, moral injury is comprised of an experience of a morally ambiguous situation resulting in a moral dissonance/conflict, which engenders negative emotions, maladaptive behaviors, and psychological symptoms (Jinkerson, 2016).

Potentially Morally Injurious Experiences (PMIEs)

Examples of potentially morally injurious experiences (PMIEs) encountered during warfare include shooting and killing an enemy combatant, seeing and handling of dead bodies or human remains, witnessing wounded women and children without being able to provide aid (Hoge et al., 2004a), and mistreating civilians (Mental Health Advisory Team, 2006). Additionally, among a sample of Iraq and Afghanistan veterans, four circumstances emerged which elucidated how MIEs occur, including psychological circumstances (e.g., anger), organizational circumstances (e.g., ambiguously defined rules of engagement; Currier, McCormick, & Drescher, 2015), cultural and relational circumstances (e.g., apprehensive alliances with villagers), and environmental circumstances (e.g., struggles to distinguish between real threat and enemies).

Furthermore, in the trauma literature, there is a clear demarcation between trauma exposure and enduring symptoms, such as PTSD (Dunmore, Clark, & Ehlers, 2001; Frankfurt & Frazier, 2016; Monson et al., 2006). Comparably, it is imperative to conceptually separate exposure to PMIEs from moral injury, which is characterized by a long-lasting cognitive, behavioral, emotional, and potential spiritual suffering that may develop in response to the events that violate veterans moral beliefs and/or values (Currier, McDermott, Farnsworth, & Borges, 2019). Of note, in the extant literature, a debate exists whether or not these signs of moral injury should be characterized as symptoms of an underlying disorder or medical syndrome (Currier et al., 2019). Primarily, there is concern that characterizing these symptoms could pathologize healthy, expected, and prosocial responses to PMIEs; however, proponents concurrently affirm that such expressions of suffering might indeed become highly problematic to the extent they impair veterans' psychosocial functioning (Currier et al., 2019).

Prevalence of Moral Injury in Veterans

As stated, evidence of moral injury has been documented among many war-era veterans. For instance, WWII veterans reported guilt over surviving when close comrades did not, or guilt from fire-bombing cities (Grinker & Spiegel, 1945). Moreover, Post-Vietnam Syndrome posited that anger emerged from perceived betrayals by society and the government, and guilt emerged from killing civilian women and children (Friedman, 1981; Hendin & Pollinger Haas, 1984). Similarly, due to the social and political climate surrounding the United States (U.S.) role in Vietnam, veterans from this era have frequently reported a loss of trust and spiritual/existential problems (Drescher et al., 2011; Flipse Vargas, Hanson, Kraus, Drescher, & Foy, 2013). In fact, among Vietnam era veterans, approximately one third (Laufer, Gallops, & Frey-Wouters, 1984) to over 90 percent of treatment-seeking samples (Beckham, Feldman, & Kirby, 1998; Hiley-Young, Blake, Abueg, Rozynko, & Gusman, 1995; Unger, Gould, & Babich, 1998) directly engaged in or witnessed acts of abusive violence (e.g., mistreating civilians, torturing prisoners, mutilating bodies, or using chemicals such as napalm and bombs on villages). Of significance, the National Vietnam Veterans' Readjustment Study (NVVRS) collected data 11 to 24 years after the men served, and still found the presence of moral injury which underscores enduring nature of signs and symptoms associated with moral injury (Flipse Vargas et al., 2013).

As noted previously, difficult moral decisions have always been a part of war (Grossman, 2009). However, the guerrilla and terror tactics of insurgent forces (e.g., unmarked enemies, civilian threats, improvised explosive devices [IEDs]) from more recent conflicts (Litz, 2007) may be contributing to the occurrence of morally troubling events faced by this era of service members. Research suggests that the rise in these tactics may account for the high prevalence of mental health problems documented in Iraq and Afghanistan veterans (e.g., Hoge et al., 2004;

Hoge, Auchterlonie, & Milliken, 2006; Milliken, Auchterlonie, & Hoge, 2007; Smith et al., 2008; Thomas et al., 2010; Vasterling et al., 2010; Wells et al., 2010). For instance, estimates from a survey of U.S. Soldiers and Marines at the start of the Iraq war revealed that 28 percent reported being responsible for the death of a civilian and 60 percent saw ill or wounded women and children who they were unable to provide aid (Hoge et al., 2004a). Similarly, a survey of 1,767 Army soldiers and Marines deployed at the onset of the war in Iraq indicated that over a quarter of both groups had encountered ethical situations which produced uncertainty regarding how to respond (Mental Health Advisory Team, 2008). Some evidence suggests that these increasingly common guerilla tactics involve contexts whereby encountered threats may be ambiguous, and consequently blur the appropriate decision to make following the rules of engagement (Stein et al., 2012). Moreover, the rise in service members being deployed multiple times and for longer duration may, in turn, impact ethical decision making particularly when a loss of unit members is experienced (Stein et al., 2012).

Symptomatology and Outcomes of Moral Injury

Moral injury manifests as psychological, social, behavioral, and spiritual problems (Drescher et al., 2011) and reflects an internal struggle for reconciling PMIEs with personally held interpretations of right and wrong (Litz et al., 2009). The core symptoms of moral injury include shame, guilt, a loss of trust in self, others, and/or transcendental/ultimate beings, and spiritual/existential conflict including a loss of meaning in life, loss of spirituality or weakened religious faith, questioning personal morality, negative attributions toward God or higher power, lack of forgiveness, crisis in meaning (Carey & Hodgson, 2018; Drescher et al., 2011; Farnsworth, Drescher, Nieuwsma, Walser, & Currier, 2014). These core symptoms are posited to influence the development of secondary symptoms (Carey & Hodgson, 2018).

For example, secondary psychological consequences of PMIEs include PTSD, depression, anxiety, worthlessness, meaninglessness, anger, and self-handicapping (i.e., shunning positive experiences, such as success or positive emotions) (Drescher et al., 2011; Farnsworth et al., 2014; Flipse Vargas et al., 2013; Koenig et al., 2018; Litz et al., 2009). Further, exposure to PMIEs has been associated with increased risk of mental disorders and suicidal ideation and attempts, even after controlling for sociodemographic characteristics, trauma history, and prior psychiatric diagnosis, in a large national sample of U.S. veterans of the Iraq and Afghanistan wars (Wisco et al., 2017).

In addition, secondary behavioral consequences of PMIEs may include self-injurious behaviors including substance abuse, risk-taking, and suicidality (Litz et al., 2009). Lastly, secondary social or interpersonal consequences of PMIEs include isolation, avoiding intimacy, anger and aggression, reduced trust and lack of confidence in other people and cultural contracts, and difficulty forgiving (Drescher et al., 2011; Farnsworth et al., 2014; Koenig et al., 2018). Overall, veterans exposed to PMIEs and who are involved in acts of abusive violence (e.g., Currier, Holland, Jones, & Sheu, 2014) appear to be at an increased risk of developing psychiatric symptoms (e.g., PTSD, depression, and suicidal ideation and/or behaviors) than veterans not exposed (Griffin et al., 2019).

Role of Moral Emotions in Moral Injury

Although manifestations of the moral injury symptoms listed previously will have idiographic presentations, it has been posited that all presentations are likely pervaded by emotional distress or affliction (Farnsworth et al., 2014). More specifically, moral emotions, distinguished by the interests or welfare of society (Haidt, 2003), may be of particular importance in elucidating people's behavioral adherence (or lack of adherence) to their moral

standards (Tangney, Stuewig, & Mashek, 2007). In other words, moral emotions are proposed to yield the desire to do good and to avoid doing wrong (Kroll & Egan, 2004). Notably, moral emotions are experienced and regulated within a context of social connection (Rimé, 2009), with a predominant emphasis on protecting social relationships (Haidt, 2003).

Within the context of the military, the military culture and socialization process aims to cultivate various moral emotions that stimulate allegiance and cohesiveness, which ultimately increase the individual and group's likelihood of surviving within the context of combat (Farnsworth et al., 2014). Thus, in the aftermath of violating personal and societal moral standards, strong moral emotions such as anger may be evoked and ultimately pose a threat to the cohesiveness (Farnsworth et al., 2014). Appraisals of participation in transgressive acts are believed to create a discrepancy in one's pre- and post-combat schemas (Kopacz et al., 2016), which can then lead to negative moral emotions and finally to adverse psychiatric outcomes (Farnsworth et al., 2014). However, while nascent research has begun to explore theoretical models that address how various emotions are elicited and entrenched in the experience of moral injury (Farnsworth et al., 2014), more research is needed.

Preliminary research has revealed differential patterns of painful moral emotions as a result of self-directed as opposed to other-directed moral injury (Currier et al., 2018). Self-directed emotions such as shame and guilt have been posited to be evoked in response to self-directed moral injury (Currier et al., 2018), and have received a bulk of the attention in the literature. For instance, combat-related guilt has been implicated in contributing to reduced psychological functioning, as well as increasing the risk for PTSD among military populations (e.g., Henning & Frueh, 1997). Similarly, in a large sample of Vietnam veterans, guilt mediated the relationship between participation in abusive violence and both PTSD and depressive

symptomatology (Marx et al., 2010). Additionally, research demonstrates that killing in combat and guilt were associated with service member suicidal ideation (Bryan, Ray-Sannerud, Morrow, & Etienne, 2013a; Maguen et al., 2012).

In contrast to guilt which emphasizes external behaviors, shame which emphasizes core negative beliefs about the self has also received attention in its impact on moral injury. Specifically, several studies have demonstrated that shame is associated with increased risk for suicide in service members (Bryan, Ray-Sannerud, Morrow, & Etienne, 2013b), even when controlling for comorbid PTSD and depressive symptomatology (Bryan, Morrow, Etienne, & Ray-Sannerud, 2013). Importantly, research indicates that attempts to reconcile with emotions such as shame and guilt can lead to a global sense of being a bad person, creating obstacles to self-forgiveness (Fisher & Exline, 2010).

Also, other-directed emotions such as anger and moral disgust have been proposed to be evoked in response to other-directed moral injury (Currier et al., 2018). Given that the extant literature has emphasized the need for examining additional mechanisms of moral injury such as disgust, anger, and rage (Jordan, Eisen, Bolton, Nash, & Litz, 2017), the present study examined disgust and anger. These emotions believed to function primarily as a means of discouraging others' selfish conduct or actions that might threaten the cohesiveness of the social group (Haidt, 2003; Hutcherson & Gross, 2011), have received less attention in the moral injury literature. The next section, therefore, summarizes the moral emotions of disgust and anger, and reviews available findings regarding military-related PTSD, depression, and moral injury.

Disgust. Disgust has historically been conceptualized as a fundamental evolutionary emotion characterized by repulsion and avoidance, which serves to protect oneself from potential contaminants (Olatunji & Sawchuk, 2005); Rozin, Haidt, & McCauley, 2008). Disgust is elicited

when others violate norms or expectations, which may lead to outcomes of aggression, punishment, disbanding of groups, and social reorganization (Haidt, 2003; Moll et al., 2005). More recently, research has emphasized the role of morality in disgust. For instance, evidence suggests that immoral behavior, such as acts of lying, stealing, and fraud (Tybur, Lieberman, & Griskevicius, 2009) can generate disgust reactions (Jones & Fitness, 2008).

Moral disgust is characterized as a universal human emotion that arises when one's integrity, sanctity or purity is perceived as tainted and are positively associated with the severity of moral judgments (Chapman & Anderson, 2013; Graham, Haidt, & Nosek, 2009; Haidt, Rozin, McCauley, & Imada, 1997). For instance, participants presented with vignettes that elicited feelings of disgust and anger revealed that violations of purity evoked more feelings of disgust, as opposed to anger, implying that the emotion of disgust is associated with violations of purity (Horberg, Oveis, Keltner, & Cohen, 2009). Thus, the function of moral disgust is to detect moral, physical, and sexual violations of purity, which then serves a motivator for avoiding situations that might cause death, disease, or immorality (Tybur et al., 2009), as well as to prevent self-polluting, carnal, or ungodly action (e.g., Rozin, Haidt, & McCauley, 2000; Rozin, Lowery, Haidt, & Imada, 1999). Importantly, research suggests that moral disgust reactions tend to be highly resistant to change (e.g., Haidt et al., 1997; Hutcherson & Gross, 2011).

In relation to PTSD, evidence suggests that on average, individuals with Posttraumatic Stress Symptoms (PTSS) report experiencing disgust more frequently than healthy individuals (Finucane, Dima, Ferreira, & Halvorsen, 2012). Specifically, disgust experienced during the trauma is related to later PTSD symptoms (Engelhard, Olatunji, & de Jong, 2011), and often leads to increased posttraumatic disgust reactivity (Badour, Feldner, Blumenthal, & Knapp, 2013). Importantly, it has been proposed that the relationship between disgust and PTSS is

unique from relations with fear and/or anxiety (Badour & Feldner, 2018). Despite these known associations, less is known about the role of moral disgust in posttraumatic functioning among military populations. For instance bodily disgust evoked in the context of military-related trauma has been proposed to increase moral disgust related to service members' negative attributions regarding these events (Schnall, Haidt, Clore, & Jordan, 2008), whereas lower levels of reported disgust have been suggested as a buffer against the development of PTSD in military samples (Olatunji, Armstrong, Fan, & Zhao, 2014).

As with PTSD, disgust is also associated with the development and maintenance of depression (Green, Moll, Deakin, Hulleman, & Zahn, 2013; Neacsiu, Rompogren, Eberle, & McMahon, 2018). Similarly, self-blaming moral emotions like disgust have been shown to be exaggerated in mood disorders (Zahn, de Oliveira-Souza Moll, 2012) and are associated with a propensity towards feeling self-disgust as opposed to disgust towards others which is consistent with the learned helplessness model (Green et al., 2012; Zahn et al., 2015).

The social cognition dimension of moral purity (i.e., feeling morally good or pure rather than disgusting) may, therefore, be relevant among veterans who have experienced violations of deeply held moral beliefs, as is the case with moral injury. Various researchers have highlighted the need for research to examine potential mechanisms of moral injury such as anger, rage, and disgust (Frankfurt et al., 2018). To date, self-disgust, or disgust directed towards the self, has been shown to serve as a mediator between PMIEs and PTSS among a sample of Israeli combat veterans (Zerach & Levi-Belz, 2018). However, no research has examined the impact of trait disgust with its association to moral injury. More specifically, no research has examined the impact of disgust propensity (e.g., how frequently someone experiences disgust) or disgust

sensitivity (e.g., how emotionally bothered someone is by experiencing disgust) (Olatunji & Sawchuk, 2005) in relation to moral injury.

There is reason to believe that these two factors of disgust may be involved in moral injury among veterans. The extant literature has found support for the relationship between disgust sensitivity and moral judgments (Jones & Fitness, 2008). Likewise, some research posits that disgust sensitivity may be connected with the process of dehumanization (Harris & Fiske, 2006; Hodson & Costello, 2007). Thus, the function of disgust within these contexts is to neutralize the threats posed by moral violators via social distancing or via recruiting punishment from other people (Molho, Tybur, Güler, Balliet, & Hofmann, 2017). Despite these findings, there is a need to better describe the relationship between certain kinds of transgressions that are connected to disgust sensitivity (Chapman & Anderson, 2013), such as transgressions within the context of moral injury.

Anger. Anger, the most extensively researched moral emotion among military populations, is comprised of a proclivity to approach others aggressively to avert acts that are viewed as threats to the self or one's coveted goals (Hutcherson & Gross, 2011). Anger can be generated when a violation of one's rights and freedoms were perceived (Rozin et al., 1999; Russell & Giner-Sorolla, 2011). Estimates suggest that approximately half of all returning service members encounter problems with anger (Taft, Creech, & Kachadourian, 2012). Significantly, among a sample 18,305 soldiers, 3 and 12 months after combat in Iraq, approximately 40% reported physical eruptions of anger reactions, more than 15% got into a physical altercation, and more than 30% threatened someone with physical violence (Thomas et al., 2010). Moreover, anger has been demonstrated to significantly increase from pre-to post-deployment (Koffel, Polusny, Arbisi, & Erbes, 2012).

In relation to PTSD, anger and combat-related PTSD are strongly associated (Orth & Wieland, 2006). Specifically, veterans with PTSD, as opposed to veterans without PTSD, report greater anger in response to trauma-related scripts (Pitman et al., 1990) and experience anger more intensely, quickly, and with stronger physiological arousal to relived anger experience (Beckham et al., 2002). While anger and social alienation are included in the diagnostic criteria for PTSD, research demonstrates that the number of combat events was positively correlated with anger and social alienation at four months post-deployment, over and above the contributions of PTSD symptoms (Adler, Britt, Castro, McGurk, & Bliese, 2011).

As with PTSD, anger is also associated with depressive symptomatology. While anger is not among MDD symptoms, it commonly accompanies MDD (e.g., Fava & Rosenbaum, 1998; (Novaco, 2010; Pasquini, Picardi, Biondi, Gaetano, & Morosini, 2004). For instance, higher levels of anger are reported among military samples with depression as opposed to individuals without depression (Hull et al., 2003; Owens, Chard, & Cox, 2008). Moreover, evidence suggests that MDD and dysphoria partially mediated the relationship between PTSD and anger (Raab, Mackintosh, Gros, & Morland, 2013). To this same end, research demonstrates that veterans with concurrent PTSD an MDD had significantly higher levels of anger and self-rated risk of harm (Gonzalez, Novaco, Reger, & Gahm, 2016).

Frequently reported sources of anger among Iraq and Afghanistan veterans, include a dearth of post-deployment structure, PTSD, and morally injurious experience (Gonzalez et al., 2016). Notably, anger stemming from PTSD and moral injury has been shown to persist for years after returning from deployment (Worthen & Ahern, 2014). Thus, cumulative anger and exasperation regarding losses, sacrifices, and tribulations may govern ethical decision making

among service members (Litz et al., 2009). For example, increased unethical behavior on the battlefield has been associated with deployment length (MHAT-V, 2008).

Among a sample of combat-deployed Marines, direct associations have been observed between betrayal and anger and an indirect association with PTSD via anger was revealed (Jordan et al., 2017). On the contrary, self-directed transgressions are associated with higher levels of anger and depression in military samples (Bryan et al., 2016; Fontana, Rosenheck, & Brett, 1992). Further, a wealth of evidence suggests that killing in war is a significant predictor of post-deployment anger (Maguen et al., 2010). Particularly, service members who reported killing while angry or killing noncombatants have been identified as being particularly symptomatic (Maguen et al., 2013). Overall, research demonstrates strong correlations with anger, alcohol use, suicidal ideation and attempts, interpersonal problems, and overall psychological distress (Fontana & Rosenheck, 2004; Fontana et al., 1992; Hendin & Haas, 1991; Maguen & Litz, 2012). Understandably, both the experiences themselves and the subsequent negative affect may call for the individual to cope. One such approach that has been implicated in the aftermath of trauma is experiential avoidance. This construct will be discussed next.

Experiential Avoidance

Defining Experiential Avoidance. In the face of moral injury or other stressors, an individual may rely on a variety of strategies to cope or manage their emotions. One strategy that is considered important in the development of PTSD and other stress-related negative outcomes (i.e., anxiety, depression) is experiential avoidance. Experiential Avoidance (EA) is defined as the process of employing cognitive, emotional, behavioral or physiological strategies to alter or evade unpleasant thoughts, memories, or internal sensations (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Studies find that EA is a functional response to trauma exposure in that distress

may be reduced via utilizing EA strategies such as suppressing thoughts, feelings, and memories associated with the traumatic events, and via hypervigilance to diminish occasions of their recurrence and associated emotional arousal (Hayes, Strosahl, & Wilson, 2011). While engaging in avoidance may initially alleviate the discomfort associated with negative emotions, utilizing these strategies over prolonged periods of time may actually exacerbate symptoms (Kumpula, Orcutt, Bardeen, & Varkovitzky, 2011) by paradoxically increasing the frequency or intensity of distress associated with the underlying adverse internal experiences (Follette, Palm, & Pearson, 2006; Plumb, Orsillo, & Luterek, 2004).

Whereas the ability to adapt flexibly to changing environmental contexts contributes to healthy emotion functioning (Aldao & Nolen-Hoeksema, 2012; Kashdan & Rottenberg, 2010), EA reduces the ability to adapt flexibly, which, in turn, impacts an individual's ability to engage in meaningful, values-driven behaviors (Hayes, Villatte, Levin, & Hildebrandt, 2011). Ultimately, life becomes about evading distress resulting in a pronounced reduction in positive and meaningful life activities (Thompson & Waltz, 2010; Walser & Westrup, 2007).

Experiential Avoidance and Psychopathology. It is well documented that higher rates of EA correlate with poorer psychological functioning (Walser & Westrup, 2007). Utilization of EA to elude negative, unpleasant emotions predicts depression and PTSD (Marx & Sloan, 2005; Shallcross, Troy, Boland, & Mauss, 2010). Specifically, evidence supports the role of EA in the development and maintenance of PTSD symptoms (Kashdan, Morina, & Priebe, 2009; Walser & Westrup, 2007). Moreover, among a sample of trauma-exposed OIF/OEF veterans, EA emerged as a reliable and substantive predictor of PTSD symptoms, even after controlling for peri-traumatic dissociation and negative emotionality (Meyer, Morissette, Kimbrel, Kruse, &

Gulliver, 2013). It should be noted that despite conceptual overlap between PTSD and EA, there is evidence for their distinctiveness (Kashdan, Breen, & Julian, 2010).

As with PTSD, EA has been demonstrated to dampen positive emotional reactivity, exacerbate negative emotional (Kashdan, Barrios, Forsyth, & Steger, 2006; Machell, Goodman, & Kashdan, 2015), and increase the risk for depressive episodes (Spinhoven, Drost, de Rooij, van Hemert, & Penninx, 2014). Research further indicates that avoidance and non-acceptance of negative emotions are associated with anxiety and depressive psychopathology (Berman, Wheaton, McGrath, & Abramowitz, 2010; Tull & Gratz, 2008). Given these findings, EA appears to influence ones' psychological functioning after trauma exposure and is likely an essential objective to target in treatment (Bluett, Homan, Morrison, Levin, & Twohig, 2014).

Implications of Experiential Avoidance in Moral Injury. Acceptance-based interventions target EA to promote willingness to experience negative or undesirable thoughts, feelings, and/or emotions. Ultimately, acceptance permits an individual to engage amidst the severity of their internal experiences. Given the marked avoidance and shattered sense of self often experienced by veterans with PTSD, one such model, Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999; Thompson & Waltz, 2010) has been suggested to have utility in treating trauma associated with morally injurious events (Bluett, 2017). The ACT model will only be briefly mentioned here, as the present study did not specifically focus on treatment.

First, ACT is among several of the third-wave cognitive behavioral therapies that seek to change an individual's relationship with their thoughts, rather than the content of the thoughts themselves (Hayes, Strosahl, & Wilson, 1999). Moreover, ACT aims to foster psychological flexibility, which is the non-evaluative process being fully present in the moment while living by

one's values (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Psychological flexibility is achieved through ACT's six core processes, one of which is acceptance, which directly opposes EA (Hayes et al., 2006). To date, there are no ACT studies that specifically target moral injury (Nieuwsma et al., 2015). However, issues related to moral injury have been explored. For example, ACT has been demonstrated to reduce shame and substance use among substance abusers (Luoma, Kohlenberg, Hayes, & Fletcher, 2012). Thus, given that shame is among the most frequently reported experiences among veterans with moral injury, and also, shame can be a barrier to treatment seeking, ACT may be feasible in reducing these undesirable thoughts and feelings (Nieuwsma et al., 2015).

A recent review by Nieuwsma and colleagues (2015) suggests that ACT, as an evidence-based and transdiagnostic psychotherapy, may have a unique potential to address multiple aspects of moral injury (Nieuwsma et al., 2015). Specifically, ACT could aid in understanding human suffering as normal, predictable, and potentially meaningful; fostering forgiveness in a way that acknowledges guilt as a marker for underlying values; and engaging with morally injurious experiences in a way that respects current suffering (Nieuwsma et al., 2015). Thus, the present study's focus on the role of experiential avoidance in the association between moral injury and psychological adjustment among veterans.

Statement of the Problem

As stated previously above, military service can entail exposure to PMIEs that increase the risk for PTSD and depression (Fontana & Rosenheck, 2004). For example, transgressive acts have been linked to negative affect, lower social support, and symptoms of PTSD and depression (Currier et al., 2019). Moral injury is a separate syndrome that often accompanies military-related PTSD, and if not addressed, may interfere with treatment and result in poorer outcomes

in those with PTSD (Koenig, 2018). However, although frequently co-morbid and exhibiting similar symptoms, it remains unclear how to conceptualize the relationship between moral injury and PTSD symptoms. Therefore, the present study aimed to expand on the existing literature by exploring moral injury and its outcomes in the context of disgust propensity, disgust sensitivity, and experiential avoidance among Veterans. First, the present study sought to elucidate the role of two factors of disgust in contributing to PTSD-related symptomatology and depressive symptomatology among Veterans with varying levels of moral injury. Second, the present study sought to elucidate the role of experiential avoidance in contributing to PTSD-related symptomatology and depressive symptomatology in the context of moral injury. Lastly, the present study examined the utility of a recently developed Minnesota Multiphasic Personality Inventory – 2 – Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008/2011) linked behavioral health screen in measuring the core symptoms of depression. Given the low interrater reliability and low construct validity for several existing measures of depression, the new measure reflects the paradigm shift in psychopathology from categorical to dimensional. More specifically, the present study examined overall depressive symptomatology using three core factors of internalizing dysfunction (e.g., anhedonia, demoralization, and anxiety) in association to constructs mentioned above using the Minnesota Behavioral Health Screen (MBHS; McCord, Haugh, & Hutchinson, 2017). Based on the aforementioned literature, the following hypotheses were derived.

Hypotheses

Hypothesis 1. Previous research has identified moral injury to be associated with greater PTSD-related symptomatology and depressive symptomology (Currier, Holland, Drescher, et al., 2015). It is hypothesized that veterans with higher Moral Injury Symptom Scale scores will have

higher scores on the Trauma Screening Questionnaire and higher scores on the Minnesota Behavioral Health Screen.

Hypothesis 2. While no research to date has tested the association between experiential avoidance and moral injury, previous research demonstrates that experiential avoidance is positively correlated with shame (Luoma et al., 2007), which is a core feature of moral injury. Thus, it is hypothesized that veterans with higher Moral Injury Symptom Scale scores will have higher scores on the Acceptance and Action-II Questionnaire.

Hypothesis 3. Third, greater experiential avoidance will be associated with greater PTSD-related symptomatology (Kelly et al., 2018) and depressive symptomology (Cribb, Moulds, & Carter, 2006), respectively. It is hypothesized that veterans with higher scores on the Acceptance and Action-II Questionnaire will have higher scores on the Trauma Screening Questionnaire and higher scores on the Minnesota Behavioral Health Screen.

Hypothesis 4. Previous research has demonstrated that moral injury is positively correlated with disgust (Zerach & Levi-Belz, 2018). It is therefore hypothesized that veterans with higher Moral Injury Symptom Scale scores will have higher scores on the Disgust Propensity and Sensitivity Scale-Revised scale.

Hypothesis 5. Research demonstrates that disgust is positively correlated with symptoms of PTSD (Badour & Feldner, 2018) and depression (Sandín et al., 2013). Therefore, it is hypothesized that higher disgust scores on the Disgust Propensity and Sensitivity Scale-Revised will be associated with higher scores on the Trauma Screening Questionnaire and higher scores on the Minnesota Behavioral Health Screen.

Hypothesis 6. The sixth hypothesis will examine experiential avoidance and disgust as mediators in the association between moral injury and negative psychological outcomes (i.e., PTSD-related symptomatology and depressive symptomatology, respectively).

CHAPTER 3: METHODOLOGY

Participants

Participants for the present study consisted of 62 male veterans. Veterans ranged in age from 18 to 84-years (SD = 1.864). The sample was predominantly Caucasian (85.5%). The next largest ethnic group was Native American (8.1%), followed by African American (4.8%). Furthermore, a majority of the sample was educated with some college or technical school (50.0%), a bachelor's degree (16.1%), a master's degree (9.7%), and a doctoral degree (11.3%). Moreover, 52.6 percent of the final sample was recruited from the Charles George Veterans Affairs Medical Center (CG VAMC) in Asheville, NC, whereas 48.4 percent of the sample was recruited utilizing online social media sources. (See Table 1 for additional demographic variables). Within the sample, the majority were veterans of the United States Army (54.8%), followed by the Marines (16.1%), Navy (16.1%), and Air Force (7.0%). The number of years in service also varied, with 4.8 percent serving less than 2 years, a majority of veterans serving between 2 and 5 years (45.2%), 25.8 percent serving between 6 and 10 years, and 22.6 percent serving 10 years or more. Of the veterans enrolled in the study, a majority served one deployment (43.5%), while 24.2 percent served two deployments, and 22.6 percent served three or more deployments. A summary of participant's military characteristics can be also be found in Table 1.

Table 1

Demographic Characteristics of Final Sample (N=62)

Variables	N (%)
Recruitment Source	
VA- Moral Injury Group	4 (6.5%)
VA- Moral Recovery Group	10 (16.1%)
VA- PTSD Group	6 (9.7%)
VA- CPT for combat and the Skills Training in Affective and Interpersonal Regulation for PTSD groups	10 (16.1%)
WCU- Military Student Services	15 (24.2%)
Online social media (e.g., Facebook, Reddit, etc.)	15 (24.2%)
Age	
18-24	1 (1.6%)
25-34	16 (25.8%)
35-44	8 (12.9%)
45-54	5 (8.1%)
55-64	5 (8.1%)
65-74	22 (35.5%)
75-84	5 (8.1%)
Sexual Orientation	
Straight/Heterosexual	62 (100%)
Education	
High school or GED	8 (12.9%)
Some college or technical school	31 (50.0%)
Bachelor's degree	10 (16.1%)
Master's degree	6 (9.7%)
Doctoral degree	7 (11.3%)
Ethnicity	
African American	3 (4.8%)
Caucasian	53 (85.5%)
Native American	7 (8.1%)
Other	1 (1.6%)
Marital Status	
Single	3 (3.8%)
Married	48 (77.4%)
Divorced	5 (8.1%)
Widowed	5 (8.1%)
Other	1 (1.6%)
Branch	
Army	34 (54.8%)
Navy	10 (16.1%)
Air Force	7 (11.3%)

Marines	10 (16.1%)
Service Length	
Less than 2 years	3 (4.8%)
2-5 years	28 (45.2%)
6-10 years	16 (25.8%)
10+ years	14 (22.6%)
Deployment Era	
Vietnam War	27 (43.5%)
Persian Gulf War	5 (8.1%)
Operation Enduring Freedom	8 (12.9%)
Operation Iraqi Freedom	13 (21.0%)
Other	6 (9.7%)
None of the above	1 (1.6%)
War-zone Experience	
Yes	51 (82.3%)
No	10 (16.1%)
Times Deployed Overseas	
Never	5 (8.1%)
Once	27 (43.5%)
Twice	15 (24.2%)
More than three times	14 (22.6%)
Deployed to a Combat Zone	
Yes	49 (79.0%)
No	11 (17.7%)
Never deployed	1 (1.6%)
Current Therapy	
Yes	35 (56.5%)
No	26 (41.9%)
Type of Therapy	
Support group/group therapy	27 (43.5%)
Individual therapy	9 (14.5%)
Months in Therapy	
0-2 months	1 (1.6%)
3-5 months	2 (3.2%)
9-12 months	8 (12.9%)
More than 12 months	24 (38.7%)
Current Medication for Mental Health	
Yes	26 (41.9%)
No	34 (54.8%)

Procedure

Participants were recruited in several ways. First, with the partnership of the Charles George Veterans Affairs Medical Center (CG VAMC) in Asheville, NC, a clinical sample of

treatment-seeking veterans was recruited. Approval from the Institutional Review Board at Western Carolina University and the CG VAMC was granted prior to data collection. Veterans identified as having PTSD and/or endorsing symptoms of moral injury, as determined by a clinical interview conducted by a mental health clinician, were eligible for the study. Veterans were recruited from several groups at the CG VAMC, including: the Moral Injury group, the Moral Recovery group, the PTSD group, the Cognitive Processing Therapy for combat group, the Skills Training in Affective and Interpersonal Regulation for PTSD group, and Veteran X. All groups were held in the Mental Health Clinic at the CG VAMC. Veterans were approached by the co-PI, Hannah Hinkel, during the last 15 minutes of their respective group therapy session. During this time, the co-PI provided a verbal announcement regarding the aims of the study and answered any questions or concerns posed by the potential participants. All interested veterans were provided an informational study letter which outlined the details of the study, including risk and benefits of participation, confidentiality, and data collection. Prior to data collection, all remaining questions were answered, and study personnel clearly stated that participation in the research study was voluntary. Assessment measures were administered in paper and pencil format. No identifying data were attached to the self-report measures, thereby allowing the participants to retain anonymity. Veterans were also able to complete questionnaire packets at home, and return it to their clinician at their next group session.

Second, over 800 student and faculty-affiliated veterans from Western Carolina University received an email from Military Student Services with a brief explanation of the study as well as a link to the Qualtrics survey. Third, a link to the Qualtrics survey was posted to various online social media websites, including Facebook and Reddit. After opening the online survey, participants were given a notification statement informing them of their rights as

participants and contact information of the researchers. Participants were informed in the notification statement that they could skip questions with no penalties.

Of those who received the email, 50 veterans began the online survey; 17 veterans were removed, as they did not complete a substantial amount of the survey, leaving a total of 33 veterans who completed the survey online. Participation was voluntary and completely anonymous. The questionnaire took approximately 20 minutes to complete. After the completion of the survey, veterans were provided with information on crisis hotlines. The data from the present study was compiled and analyzed using SPSS and excel.

Measures

Moral Injury. The Moral Injury Symptom Scale– Military version (MISS-M; Koenig et al., 2018) is a 45-item multi-dimensional measure or moral injury symptoms that can be used as a primary outcome measure in intervention studies that target moral injury among veterans and active duty military personnel with PTSD. The MISS-M is comprised of 10 theoretically grounded subscales assessing guilt, shame, moral concerns, religious struggles, loss of religious faith/hope, loss of meaning/purpose, difficulty forgiving, loss of trust, and self-condemnation. Response options for the 45 items were scaled from 1 to 10 signifying agreement/truth or disagreement/falsehood. The possible score range is 45 to 450, with higher scores indicating more severe moral injury. A sample item reads, "I am troubled by having acted in ways that violated my own morals or values." The MISS-M displays excellent internal consistency reliability (α= .92; Koenig et al., 2018), has high test-retest reliability (.91; Koenig et al., 2018), and a factor structure that can be replicated (Koenig, 2018). It should be noted that for purposes of the present study, 2 subscales (i.e., loss of religious faith/hope, and the spiritual/religious struggles) were excluded to preserve power, given that moral injury can incur as a result of

shattered moral and ethical expectations that are rooted in culture-based, organizational, and group-based rules about fairness, the value of life, and so forth. Thus, veterans do not need to be affiliated with religion or spirituality to incur a moral injury. For the present study, Cronbach's alphas for the subscales used ranged from .51 to .90, while .90 was the alpha for the total scale score.

Disgust. The Disgust Propensity and Sensitivity Scale-Revised (DPSS-R; Van Overveld et al., 2006) is a 12-item measure that assesses the frequency of two distinguishable factors contributing to disgust reactions, Disgust Propensity (i.e., how easily one is disgusted) and Disgust Sensitivity (i.e., how bothered one is by their disgust) irrespective of disgust elicitors. Respondents rate their agreement with each item on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). The possible score range is 12-60, with higher scores indicating higher disgust propensity and sensitivity. A sample item reads, "When I experience disgust, it is an intense feeling." The DPSS-R has demonstrated adequate internal consistency for the Disgust Propensity subscale (α= .78) and the Disgust Sensitivity subscale (α= .77; van Overveld, Jong, & Peters, 2010). In the present study, Cronbach's alphas for the two factors of disgust were .79 for Disgust Propensity and .84 for Disgust Sensitivity.

Anger. The Dimensions of Anger Reactions (DAR; Forbes et al., 2004) is a 7-item scale that assesses anger disposition directed towards other. Responses are rated on an 9-point Likert scale, with items ranging from 0 (*not at all*) to 8 (*absolutely*). Items are weighted equally and scale scoring is by summation. The possible score range is 0-56, with higher scores reflecting higher levels of anger. A sample item reads, "I often find myself getting angry at people or situations." The DAR has been found to be unidimensional, reliable, and sensitive to change over time and has strong convergent validity (Forbes et al., 2004). Likewise, The DAR score (α= .92)

has demonstrated strong concurrent validity, discriminant validity against anxiety and depression measures, and construct validity with multiple measures of psychosocial functioning and of harm to self and others (Novaco, Swanson, Gonzalez, Gahm, & Reger, 2012). For the present study, Cronbach's alpha was .93 for the scale.

Note: The DAR was included in data collection, but was not used in the current analyses.

Experiential Avoidance. The Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011) is the most frequently used measure of experiential avoidance/psychological inflexibility. The AAQ-II is comprised of 7-items, and responses are rated on a 7-point Likert scale ranging from 1 (*never true*) to 7 (*always true*), in which higher scores indicate greater experiential avoidance. A sample item reads, "My painful experiences and memories make it difficult for me to live a life that I would value." The AAQ-II displays good internal consistency reliability (α= .77-.88) and exhibits appropriate discriminant validity (Bond et al., 2011). In the present study, Cronbach's alpha was .93 for the scale.

PTSD-related Symptomatology. PTSD-related symptomatology was measured using the Trauma Screening Questionnaire (TSQ; Brewin et al., 2002). The TSQ is a 10-item scale that was designed for use with survivors of all types of traumatic stress. The scale is comprised of five re-experiencing items and five arousal items. The possible score range is 0-10. Responses are rated by selecting 'yes' (symptom is present two times a week or more) or 'no' (symptom is not present or present less than twice a week). A sample item reads, "Bodily reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event." The TSQ has demonstrated good internal consistency (α= .85; Dekkers, Olff, & Näring, 2010). For the present study, Cronbach's alpha was .92 for the scale.

Depressive Symptomatology. Depressive symptomatology was measured using the Minnesota Behavioral Health Screen (MBHS; McCord, Haugh, & Hutchinson, 2017). The MBHS is currently being developed to assess for psychopathology constructs and is intended for universal use in the primary medical care setting. The MBHS is comprised of 27 items that target key constructs of somatization, demoralization, anhedonia, anxiety, suicidal tendencies, activation, cognitive complaints, disconstraint, and substance misuse. The present study considered 3 constructs which represent a global internalizing dysfunction score, including demoralization, anhedonia, and anxiety subscales. Responses are rated on a 4-point Likert scale, ranging from 0 (*definitely false*) to 3 (*definitely true*). The possible score range is 0-9 per subscale, with higher with scores indicating higher levels of depressive symptomatology. A sample item reads, "There is little joy in my life." The MBHS has demonstrated appropriate internal reliability (α= 0.79, .67. and .77) in a large sample of college students (McCord et al., 2017). Validity data are based on correlations between the screening scales and target scales on the Minnesota Multiphasic Personality Inventory – 2 – Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008/2011) in this same college student sample. Specifically, correlations between the MBHS scales for demoralization, anhedonia, and anxiety and the target MMPI-2-RF sales were .71, .57, and .66, respectively (McCord et al., 2017). In the present study, Cronbach's alpha was .917 for the scale.

CHAPTER 4: RESULTS

First, means and standard deviations were calculated for all study variables (see Table 2).

Table 2

Means and Standard Deviation for Study Variables

Study Measure	Minimum Score	Maximum Score	Mean (*SD*)
MISS-M	39	274	159.60 (54.32)
DPSS-R (DP)	6	26	14.96 (4.52)
DPSS-R (DS)	6	24	12.44 (4.95)
AAQ-II	7	47	23.03 (10.87)
TSQ	0	10	6.39 (3.60)
MBHS	0	25	10.89 (6.85)

Next, Pearson correlations were computed to examine the bivariate associations between moral injury, experiential avoidance, disgust propensity, disgust sensitivity, anger, and the primary outcome variables of interest including PTSD-related symptomatology and depressive symptomatology, respectively. The results for these correlations are shown in Table 3.

Table 3

Correlations Between Study Variables

	1.	2.	3.	4.	5.	6.	7.
1. MISS-M	-						
2. AAQ-II	.837**	-					
3. DPSS-R (DP)	.567**	.633**	-				
4. DPSS-R (DS)	.591**	.664**	.697**	-			
5. DAR	.748**	.699**	.607**	.564**	-		
6. TSQ	.642**	.676**	.467**	.437**	.672**	-	
7. MBHS	.808**	.724**	.572**	.651**	.643**	.513**	-

Note. **p<.01

For hypotheses 1-5, bivariate associations among study constructs were examined via a correlation matrix. These correlations can be found in Table 2.

For hypothesis 1, significant positive correlations between moral injury, and the measures of PTSD-related symptomatology and depressive symptomatology were expected. Results indicated that moral injury was indeed positively correlated with PTSD-related symptomatology (r = .642, N = 49, p < .01) and with depressive symptomatology (r = .808, N = 45, p < .01).

Next, we hypothesized that there would be a significant positive correlation between moral injury and experiential avoidance (Hypothesis 2), and, indeed, results indicated that moral injury was positively correlated with experiential avoidance (r = .837, N = 49, p < .01).

For hypothesis 3, we hypothesized that there would be significant positive correlations between experiential avoidance, and symptoms of PTSD and depression, respectively. This hypothesis was also supported, such that experiential avoidance was positively correlated with PTSD-related symptomatology (r = .676, N = 60, p < .01) and with depressive symptomatology (r = .724, N = 55, p < .01).

For hypothesis 4, a significant positive correlation between moral injury and two factors of disgust (i.e., disgust propensity and disgust sensitivity) were expected. This hypothesis was also supported, as moral injury was positively correlated with disgust propensity (r = .567, N = 45, p < .01), and with disgust sensitivity (r = .591, N = 49, p < .01).

For hypothesis 5, significant positive correlations between disgust, and symptoms of PTSD and depression were expected. For this hypothesis, results indicated that disgust propensity was positively correlated with PTSD-related symptomatology (r = .467, N = 55, p < .01) and with depressive symptomatology (r = .572, N = 51, p < .01). Likewise, disgust sensitivity was positively correlated with PTSD-related symptomatology (r = .437, N = 61, p < .01) and with depressive symptomatology (r = .651, N = 56, p < .01). Overall, hypotheses 1 through 5 were fully supported (Table 3).

Mediation Analyses. For the sixth and final hypothesis, experiential avoidance and disgust were expected to mediate independently the association between moral injury and negative psychological outcomes (i.e., symptoms of PTSD and depression, respectively). To test whether data were consistent with our mediation hypotheses, we used the PROCESS macro v3.0 (model 4; Hayes, 2017) for SPSS 20.0.0, and computed six different mediation models.

The first model tested the significance of the indirect effect of moral injury on PTSD-related symptomatology through the hypothesized mediator experiential avoidance. For the indirect effect of moral injury on PTSD-related symptomatology through the hypothesized mediator experiential avoidance, B = .0334, SE = .0087, 95% CI for B [.0156, .0501]. Because the confidence interval for the indirect effect included zero, the indirect effect was not significant. In sum, results did not support our hypothesis.

The second model tested the significance of the indirect effect of moral injury on depressive symptomatology through the hypothesized mediator experiential avoidance. For the indirect effect of moral injury on depressive symptomatology through the hypothesized mediator experiential avoidance, B = .0258, SE = .0149, 95% CI for B [-.0069, .0522]. Similar to the first model, the confidence interval for the indirect effect included zero, and therefore the indirect effect was not significant. In sum, experiential avoidance did not mediate the association between moral injury and depressive symptoms in this sample.

The third model tested the significance of the indirect effect of moral injury on PTSD-related symptomatology through the hypothesized mediator disgust propensity. For the indirect effect of moral injury on PTSD-related symptomatology through the hypothesized mediator disgust propensity, B = .0052, SE = .0041, 95% CI for B [-.0034, .0128]. Again, because the

confidence interval for the indirect effect included zero, the model was not significant. Thus, our hypothesis was not supported.

The fourth model tested the significance of the indirect effect of moral injury on depressive symptomatology through the hypothesized mediator of disgust propensity. For the indirect effect of moral injury on depressive symptomatology through the hypothesized mediator disgust propensity, B = .0126, SE = .0074, 95% CI for B [.0003, .0296]. Because the confidence interval for the indirect effect included zero, the indirect effect was not significant, i.e., disgust propensity failed to mediate the link between moral injury and depressive symptoms.

The fifth model tested the significance of the indirect effect of moral injury on PTSD-related symptomatology through the hypothesized mediator disgust sensitivity. For the indirect effect of moral injury on PTSD-related symptomatology through the hypothesized mediator disgust sensitivity, B = .0023, SE = .0045, 95% CI for B [-.0071, .0113]. Because the confidence interval for the indirect effect included zero, the indirect effect was not significant, such that disgust sensitivity failed to mediate the association between moral injury and PTSD-related symptomatology.

The sixth and final model tested the significance of the indirect effect of moral injury on depressive symptomatology through the hypothesized mediator disgust sensitivity. For the indirect effect of moral injury on depressive symptomatology through the hypothesized mediator disgust sensitivity, B = .0195, SE = .0083, 95% CI for B [-.0052, .0375]. Because the confidence interval for the indirect effect included zero, the indirect effect was not significant. In sum, results did not support this hypothesis.

Overall, although several significant correlations were found among study constructs, none of the proposed mediators reached significance. Findings will be discussed in lieu of several limitations.

CHAPTER 5: DISUCSSION

Research into moral injury and the consequences of war-zone stressors that violate veterans' moral and ethical belief systems has increased in recent years. Such studies are important given that moral injury is associated with PTSD symptoms (Currier, Holland, Drescher, et al., 2015; Nash et al., 2013; Youssef et al., 2018), symptoms of depression (Yan, 2016), and treatment outcomes (i.e., poorer recovery from PTSD; Shay, 2014) among veterans. The purpose of this study was to gain a more nuanced understanding of moral injury in the context of experiential avoidance and other adverse reactions to these experiences. More specifically, we aimed to better clarify the potential negative outcomes associated with moral injury, and examine the mechanisms whereby violations of deeply held moral beliefs result in PTSD-related symptomatology and depressive symptomatology.

In the first set of hypotheses, results supported our notions that veterans' tendency to engage in experiential avoidance correlate with PTSD-related symptomatology and with depressive symptomatology, which is consistent with the extant literature (Cribb et al., 2006; Kelly et al., 2018). Moreover, we found that moral injury was positively associated with experiential avoidance. To our knowledge, this is the first study to date to examine the association between experiential avoidance and moral injury. While the mediation analyses from the present study examining the impact of experiential avoidance on the relationship between moral injury and mental health outcomes did not emerge as significant, future research should replicate these findings utilizing larger sample sizes.

Taken together, correlational findings lend preliminary support for the postulation that ACT, which aims to reduce experiential avoidance, may have unique potential as an evidence-based psychotherapy in treating moral injury (Nieuwsma et al., 2015). Specifically, within the

context of moral injury, ACT may help to promote willingness to experience unpleasant, negative moral emotions such as guilt, shame, and disgust (Nieuwsma et al., 2015). Future research should examine the efficacy of ACT and tailor ACT protocols for moral injury among veterans.

One intervention that demands both acceptance and change is promoting forgiveness (Purcell, Griffin, Burkman, & Maguen, 2018). Forgiveness involves a shift in affect, cognition, and/or behavior without condoning, justifying, or repudiating the transgression(s) (Purcell et al., 2018). As such, veterans may benefit from forgiveness processes, which are comprised of emotional growth, catharsis, and transformation that can facilitate reconciliation in the aftermath of transgressive acts (Webb, Bumgarner, Conway-Williams, Dangel, & Hall, 2017). Successfully forgiving oneself for transgressions can contribute to a newfound sense of self-respect, self-compassion, and self-acceptance (Cornish & Wade, 2015).

Moreover, emotion-focused therapy (EFT), which is an evidence-based approach (e.g., Greenberg & Paivio, 1997; Greenberg & Watson, 2006) to elucidate different types of emotions and emotional processing difficulties (Paivio, 2013) may have a unique potential in treating moral injury among veterans. Specifically, EFT-coping strategies such as enhancing awareness, regulation, reflection, and transformation of emotion may help veterans to identify problematic cognitive-affective processes (e.g., emotionally empty narratives, self-criticism, unresolved trauma; Pavio, 2013).

Also in our first collection of hypotheses, findings indicated that disgust was positively correlated with PTSD-related symptomatology and depressive symptomatology, which is consistent with the extant literature (Badour & Feldner, 2016); Sandín et al., 2013). Likewise, disgust was positively correlated with moral injury, which is consistent with the literature

examining similar but separate aspects of disgust (Zerach & Levi-Belz, 2018). Although disgust failed to mediate the relationship between moral injury and mental health outcomes in this small sample, this construct, too, may be an appropriate target for intervention. In fact, continuing to examine the role of disgust in moral injury could have several clinical implications.

First, disgust is a visceral and robust emotion associated with avoidance of distressing stimuli (Taboas, Ojserkis, & McKay, 2015), which, in turn, may increase symptoms over time. Disgust has a unique profile of behavioral, cognitive, physiological, and neurobiological activity (Cisler, Olatunji, & Lohr, 2009). Likewise, disgust reactions can evoke powerful affective and behavioral responses that may impede adaptive functioning (Curtis, 2011). For example, a combat veteran might appraise others as immoral because of disgusting acts witnessed during war (Litz et al., 2009). Moreover, research demonstrates that encountering decomposed corpses in war contributes to posttraumatic symptomatology such as intrusive thoughts, flashbacks, recurrent nausea, feelings of dirtiness that cannot be removed by washing and other manifestations that can leave patients unable to lead a normal life (Haidt, McCauley, & Rozin, 1994). To that end, disgust-based reactions following traumatic events may be distinguished and respond to targeted cognitive-behavioral interventions among individuals with PTSD (Jung & Steil, 2012, 2013; Steil, Jung, & Stangier, 2011). More specifically, cognitive behavioral therapy (CBT) would address both the distorted cognitions as well as exaggerated conclusions about emotional experiences as a result of morally injurious experiences. CBT procedures such as providing psychoeducation regarding common emotional experiences in the aftermath of moral injury, normalizing affective, cognitive, and/or behavioral responses, as well as introducing exposure and response prevention may prove useful for veterans with moral injury. Thus, future

research should continue to examine the utility of CBT-based approaches in distinguishing disgust reactions among veterans with a history of military-related traumas and moral injury.

Findings from the present study must be viewed in lieu of limitations. First, the present study was limited in generalizability by its small sample size. Likewise, it should be noted that the current study lacked an adequate sample size to detect indirect effects of proposed mediators. Second, while the MISS-M is the first comprehensive multi-dimensional symptom measure of moral injury (Koenig, 2018), there are several psychometric limitations. For instance, two of the theoretically-grounded subscales of the MISS-M are comprised of faith-laden variables (e.g., "I believe that God has forgiven me for what I did during combat"). Is imperative to note that moral injury is an existential construct that has been demonstrated to significantly affect PTSD-related symptomatology and depressive symptomatology among veterans regardless of deistic beliefs or religious identity (Fontana & Rosenheck, 2004). In other words, the development of moral injury symptoms and outcomes is not contingent upon religious or spiritual identity, and the nature of these subscales may have contributed to the large omission rate among veterans in our sample. This understanding of moral injury as a construct apart from other belief systems also informed our decision to remove faith-laden items for the present study to preserve power.

Other limitations of this study include the cross-sectional design and our reliance on veterans' retrospective self-reports. In addition, the sample consisted mostly of treatment seeking veterans, some of whom were participating in moral injury specific groups. This can be seen as both a strength and potential confound of the study. For example, the extent to which veterans in this sample had already dealt with their moral injuries in treatment is not known. Future studies may also utilize semi-structured interviews to provide more context for the moral injuries and establish a time-line for the onset of symptoms in the aftermath of trauma (e.g., PTSD Symptom

Scale-Interview; Foa & Capaldi, 2013). Future studies may also assess veterans' response to treatment over time, as well as examine outcomes for veterans in different types of treatment. Also, the present study utilized a measure of more general experiential avoidance. Future studies could include other behavioral indicators of avoidance (i.e., an individual's tendency to use substances to cope with negative affect), which have been found previously to mediate the link between trauma symptoms and outcomes (e.g., Asberg & Renk, 2012).

Despite the present study's limitations, there are also several strengths that should be acknowledged. First, a proportion of the present study's sample was comprised of a clinical sample of treatment-seeking veterans. Second, the present study utilized measures with demonstrated robust psychometric properties. Finally, the present study contributed to the literature by testing a more complex model that included mediators of the relations between moral injury and mental health outcomes (Frankfurt, 2015). Although power limited the utility of this approach, the correlations among study variables suggest that moral injury is indeed associated with experiential avoidance and disgust, which, in turn, are associated with mental health outcomes among veterans.

Overall, research on the associations between moral injury, spiritual injury, and mental health outcomes is in its infancy; thus, additional research into the sequelae of moral injury is imperative. In elucidating these associations, cognitive behavioral treatments that focus on reducing avoidance and/or that utilize acceptance-based approaches to dealing with negative affect and disgust can be tailored to more holistically address the needs among the brave men and women of the armed forces.

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Appendix A: Moral Injury Symptoms Scale – Military Version (MISS-M)

The following questions may be difficult, but they are common experiences of combat Veterans returning from battle. They concern your experiences while in a combat or war zone and how you are feeling now. Just do the best you can, and try to answer every question. Circle a single number between 1 and 10 for each.

	Strongly Disagree		Mildly Disagree		Neutral		Mildly Agree		Strongly Agree	
1. I feel betrayed by leaders who I once trusted.	1	2	3	4	5	6	7	8	9	10
2. I feel betrayed by fellow service members who I once trusted.	1	2	3	4	5	6	7	8	9	10
3. I feel betrayed by others outside the US military who I once trusted.	1	2	3	4	5	6	7	8	9	10
4. I feel guilt for surviving when others didn't.	1	2	3	4	5	6	7	8	9	10
5. I feel guilt over failing to save the life of someone in war.	1	2	3	4	5	6	7	8	9	10
6. Some of the things I did during the war out of anger or frustration continue to bother me.	1	2	3	4	5	6	7	8	9	10
7. It bothers me sometimes that I enjoyed hurting/killing people during the war.	1	2	3	4	5	6	7	8	9	10
8. If people knew more about the things I did during the war they would think less of me.	1	2	3	4	5	6	7	8	9	10
9. I feel ashamed about what I did or did not do during this time.	1	2	3	4	5	6	7	8	9	10
10. I am troubled by having witnessed others' immoral acts.	1	2	3	4	5	6	7	8	9	10
11. I am troubled by having acted in ways that violated my own morals or values.	1	2	3	4	5	6	7	8	9	10
12. I am troubled because I violated my morals by failing to do something that I felt I should've done.	1	2	3	4	5	6	7	8	9	10

Below are feelings that combat Veterans often have due to combat experiences. How much have you? (circle a single number between 1 and 10 for each statement)

	A great deal (very true)				Quite a bit			Somewhat		Not at all (very untrue)
13. I wonder whether God had abandoned me.	1	2	3	4	5	6	7	8	9	10
14. I felt punished by God for my lack of devotion.	1	2	3	4	5	6	7	8	9	10
15. I wondered what I did for God to punish me.	1	2	3	4	5	6	7	8	9	10
16. I questioned God's love for me.	1	2	3	4	5	6	7	8	9	10
17. I questioned the power of God.	1	2	3	4	5	6	7	8	9	10
18. I wondered whether my church had abandoned me.	1	2	3	4	5	6	7	8	9	10

19. *Compared to when you first went into the military* has your religious faith since then: (circle number below)

Weakened a lot — Weakened a little — Strengthened a little — Strengthened a lot

|----------|----------|----------|----------|----------|----------|----------|----------|----------|
1 2 3 4 5 6 7 8 9 10

Circle a single number between 1 and 10 that describes how true each statement is for you:

	Absolutely untrue		Mostly Untrue		Somewhat untrue	Can't say true or false	Somewhat true		Mostly True	Absolutely true
20. I understand my life's meaning.	1	2	3	4	5	6	7	8	9	10
21. My life has a clear sense of purpose.	1	2	3	4	5	6	7	8	9	10
22 I have a good sense of what makes my life meaningful.	1	2	3	4	5	6	7	8	9	10
23. I have discovered a satisfying life purpose.	1	2	3	4	5	6	7	8	9	10

Circle a single number between 1 and 10 that describes how true or false each statement is for you:

	Almost always false of me		Often false of me		More often false of me		Equally false & true of me		More often true of me		Often true of me		Almost always true of me	
24. Although I feel bad at first when I mess up, over time I can give myself some slack.	1	2	3	4	5	6	7	8	9	10				
25. I hold grudges against myself for negative things I've done.	1	2	3	4	5	6	7	8	9	10				
26. It is really hard for me to accept myself once I've messed up.	1	2	3	4	5	6	7	8	9	10				
27. I don't stop criticizing myself for negative things I've felt, thought, said, or done.	1	2	3	4	5	6	7	8	9	10				

Circle a single number between 1 and 10 that describes how much you agree or disagree with each statement:

	Strongly disagree		Disagree		Neutral		Agree		Strongly Agree	
28. Most people are basically honest.	1	2	3	4	5	6	7	8	9	10
29. Most people are trustworthy.	1	2	3	4	5	6	7	8	9	10
30. Most people are basically good and kind.	1	2	3	4	5	6	7	8	9	10
31. Most people are trustful of others.	1	2	3	4	5	6	7	8	9	10

Circle a single number between 1 and 10 for each statement:

	Strongly disagree									Strongly Agree
	Disagree				Neutral			Agree		
32. On the whole, I am satisfied with myself.	1	2	3	4	5	6	7	8	9	10
33. At times I think I am no good at all.	1	2	3	4	5	6	7	8	9	10
34. I feel that I have a number of good qualities.	1	2	3	4	5	6	7	8	9	10
35. I am able to do things as well as most other people.	1	2	3	4	5	6	7	8	9	10
36. I feel I do not have much to be proud of.	1	2	3	4	5	6	7	8	9	10
37. I certainly feel useless at times.	1	2	3	4	5	6	7	8	9	10
38. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4	5	6	7	8	9	10
39. I wish I could have more respect for myself.	1	2	3	4	5	6	7	8	9	10
40. All in all, I am inclined to feel that I am a failure.	1	2	3	4	5	6	7	8	9	10
41. I take a positive attitude toward myself.	1	2	3	4	5	6	7	8	9	10

Circle a single number between 1 and 10 for each statement:

	Strongly Disagree									Strongly Agree
	Disagree				Neutral			Agree		
42. I believe that God has forgiven me for what I did during combat.	1	2	3	4	5	6	7	8	9	10
43. I have forgiven God for what happened to me or others during combat.	1	2	3	4	5	6	7	8	9	10
44. I have forgiven myself for what happened to me or others during combat.	1	2	3	4	5	6	7	8	9	10

45. How hopeful are you about the future? (<u>circle</u> a number from 1 to 10):	Not at all hopeful		Not much		Somewhat not hopeful		Neutral		Somewhat hopeful		Quite hopeful		Very hopeful	
	1	2	3	4	5	6	7	8	9	10				

Appendix B: Disgust Propensity and Sensitivity Scale- Revised (DPSS-R)

Instructions: this questionnaire consists of 12 statements about disgust. Please read each statement and think how often it is true for you, then place a 'x' in the box that is closest to this.

		Never	Rarely	Some times	Often	Always
1	I avoid disgusting things.					
2	When I feel disgusted, I worry that I might pass out.					
3	It scares me when I feel nauseous.					
4	I feel repulsed.					
5	Disgusting things make my stomach turn.					
6	I screw up my face in disgust.					
7	When I notice that I feel nauseous, I worry about vomiting					
8	I experience disgust.					
9	It scares me when I feel faint.					
10	I find something disgusting.					
11	It embarrasses me when I feel disgusted.					
12	I think feeling disgust is bad for me.					

Appendix C: Dimensions of Anger Reactions (DAR)

As accurately as you can, indicate the degree to which the following statements describe your feelings and behavior. Rate the degree to which each statement applies to you.

1. I often find myself getting angry at people or situations.

0	1	2	3	4	5	6	7	8
not at all								exactly so

2. When I get angry, I get really mad.

0	1	2	3	4	5	6	7	8
not at all								exactly so

3. When I get angry, I stay angry.

0	1	2	3	4	5	6	7	8
not at all								exactly so

4. When I get angry at someone, I want to hit or clobber the person.

0	1	2	3	4	5	6	7	8
not at all								exactly so

5. My anger interferes with my ability to get my work done.

0	1	2	3	4	5	6	7	8
not at all								exactly so

6. My anger prevents me from getting along with people as well as I would like to.

0	1	2	3	4	5	6	7	8
not at all								exactly so

7. My anger has a bad effect on my health.

0	1	2	3	4	5	6	7	8
not at all								exactly so

Appendix D: Acceptance and Action Questionnaire-II (AAQ-II)

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

1.	My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2.	I'm afraid of my feelings.	1	2	3	4	5	6	7
3.	I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4.	My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5.	Emotions cause problems in my life.	1	2	3	4	5	6	7
6.	It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7.	Worries get in the way of my success.	1	2	3	4	5	6	7

Appendix E: Trauma Screening Questionnaire (TSQ)

Please consider the following reactions which sometimes occur after a traumatic event. This questionnaire is concerned with your personal reactions to the traumatic event which happened to you. Please indicate (Yes/No) whether or not you have experienced any of the following at least twice in the past week.

		No	Yes
1.	Upsetting thoughts or memories about the event that have come into your mind against your will		
2.	Upsetting dreams about the event		
3.	Acting or feeling as though the event were happening again		
4.	Feeling upset by reminders of the event		
5.	Bodily reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event		
6.	Difficulty falling or staying asleep		
7.	Irritability or outbursts of anger		
8.	Difficulty concentrating		
9.	Heightened awareness of potential dangers to yourself and others		
10.	Being jumpy or being startled at something unexpected		

Appendix F: Minnesota Behavioral Health Screen (MBHS)

Indicate your response to each item by circling the number. Please answer as accurately and honestly as you can.	Definitely False	Somewhat False	Somewhat True	Definitely True
1. I feel useless.	0	1	2	3
2. There is little joy in my life.	0	1	2	3
3. I worry a lot.	0	1	2	3
4. I am dissatisfied with my life.	0	1	2	3
5. I have little motivation.	0	1	2	3
6. Nervousness interferes with my daily functioning.	0	1	2	3
7. I feel generally discouraged.	0	1	2	3
8. I tend to avoid social activities.	0	1	2	3
9. I obsess about things I can't control.	0	1	2	3