Negative Emotions in Veterans Relate to Suicide Risk through Feelings of Perceived
Burdensomeness and Thwarted Belongingness

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Abstract

Background: Suicide rates among veterans are disproportionately high compared to rates among the general population. Veterans may experience a number of negative emotions (e.g., anger, self-directed hostility, shame, guilt) during periods of postwar adjustment and reintegration into civilian life that may uniquely confer risk for suicide. Mechanisms of these associations, however, are less well studied. The purpose of the present study was to examine the relationship between negative emotions and suicide risk in veterans through the theoretical framework of the interpersonal theory of suicide.

Methods: A large sample of veterans ($N = 541$) completed measures assessing their negative emotions, perceived burdensomeness, thwarted belongingness, and suicide risk.

Results: Self-directed hostility and shame related indirectly to suicide risk through both perceived burdensomeness and thwarted belongingness. Thwarted belongingness accounted for the association between anger and suicide risk, whereas perceived burdensomeness accounted for the relationship between guilt and suicide risk.

Limitations: This study had a cross-sectional design and relied solely on self-report measures.

Conclusions: These findings provide evidence for the role of negative emotions in conferring risk for suicide in veterans. Clinical implications, limitations, and future research directions are discussed.

Negative Emotions in Veterans Related to Suicide Risk through Feelings of Perceived Burdensomeness and Thwarted Belongingness

Suicide is the 10th leading cause of death in the United States, accounting for the deaths of over 42,000 individuals each year (Centers for Disease Control and Prevention [CDC], 2015). Among military veterans, risk for suicide is further elevated, with recent estimates indicating that veteran suicides account for approximately 22% of all suicide deaths in the United States (Kemp and Bossarte, 2012). Further, suicide is the second leading cause of death in this group (Department of Defense, 2010), with approximately 22 deaths by suicide per every 100,000 veterans (Kemp and Bossarte, 2012). Relative risk for suicide in veterans is currently approximately 1.5 times higher than for the general population (adjusted for age and gender), though for veterans aged 17 to 24 years, risk is almost four times higher than the general population (Gibbons et al., 2012). These rates highlight the need for additional research on how suicide risk may be uniquely conferred in this high-risk population.

Those who have served in the Armed Forces experience a number of unique stressors that are related to suicidal thoughts and behaviors, including combat exposure (Bryan et al., 2015a), reintegration into civilian life (Kang and Bullman, 2008), and heightened risk for psychopathology, including posttraumatic stress disorder (PTSD; Conner et al., 2014; May and Klonsky, 2016) and depression (Ashrafioun et al., 2016; Nock et al., 2013). Moreover, veterans frequently experience additional negative life events (e.g., divorce, job loss) in the postwar adjustment period (King et al., 1998). Related to these stressors, veterans may also experience a plethora of negative emotions upon completing military service and reintegrating into civilian life, including anger, self-directed hostility, shame, and guilt, that may further perpetuate suicide risk.

Although direct relationships between each of these negative emotions and suicide risk have been established, mechanisms of these associations should be considered. All emotions serve an interpersonal function (Keltner and Haidt, 1999; Morris and Keltner, 2000); thus, it may be beneficial to consider the influences of negative emotions on suicide risk through the lens of a framework of suicidal behavior that emphasizes interpersonal factors: the interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010). Briefly, the interpersonal theory of suicide posits that the simultaneous occurrence of two psychological states, perceived burdensomeness (i.e., feeling like a burden on others) and thwarted belongingness (i.e., social disconnection, loneliness), as well as hopelessness regarding the potential for these states to change, results in desire for suicide. However, only those who possess the capability to enact lethal or near-lethal self-harm (i.e., fearlessness about death and elevated physical pain tolerance) will go on to make a serious suicide attempt, according to the theory. The propositions of the interpersonal theory of suicide have been supported in a variety of samples (Hagan et al., 2015; Joiner et al., 2009; Van Orden et al., 2008), including military personnel and veterans (Bryan et al., 2010; Monteith et al., 2013; Silva et al., 2016).

Although research is limited, anger, self-directed hostility, shame, and guilt all may independently result in thwarted interpersonal needs, which consequently heighten suicide risk. Below we describe the phenomenology of each emotion, why veterans may experience heightened levels of these emotions, their direct links to suicidal thoughts and behaviors, and how each emotion might theoretically relate to feelings of perceived burdensomeness and thwarted belongingness.

Anger and Suicide

Empirical evidence suggests that elevated levels of anger and aggression are symptoms of postwar adjustment difficulties (Boulanger, 1986; Laufer et al., 1981) and are one of the most predominant emotional concerns reported by returning service members (Renshaw and Kiddie, 2012). Anger, defined as an emotional response to an external, unpleasant, and unfair event or condition that is associated with a desire to hurt someone or drive someone away (Kalat and Shiota, 2007), is independently associated with suicidal ideation, risk, and attempts (Hawkins and Cogle, 2013; Horesh et al., 1997), above and beyond its associations with depression, anxiety, and PTSD (Novaco et al., 2012).

Anger may relate to suicide risk indirectly through feelings of perceived burdensomeness and thwarted belongingness. Externalized anger is associated with increased engagement in interpersonal conflict and relationship problems (Baron et al., 2006; Ray and Webster, 2010; Tafrate et al., 2002), which may lead to perceptions that one is a burden on those around him/her. Indeed, a recent study found that perceived burdensomeness accounted for the association between anger and suicidal ideation and attempts in psychiatric outpatients (Hawkins et al., 2014). Those who experience frequent anger may also avoid certain situations or individuals as a means of coping with their emotions, perhaps leading to a lack of connection with others and experiences of thwarted belongingness (Hawkins et al., 2014; Hogan and Linden, 2004).

Self-Directed Hostility and Suicide

Differential emotion theory (Izard, 1989, 1977) identifies self-directed hostility as a basic, universal emotion. Self-directed hostility is conceptualized as a negative, antagonistic attitude or evaluation of the self (Elbogen et al., 2010; Weathers et al., 1996), incorporating

suppressed anger, feelings of aggression, self-hatred, and disdain toward oneself (Renshaw and Kiddie, 2012). Numerous studies have demonstrated elevated hostility in veterans, particularly in relation to PTSD and post-deployment adjustment (Beckham et al., 2000; Elbogen et al., 2010; Frueh et al., 2001; Jakupcak et al., 2007; Lasko et al., 1994; McFall et al., 1999) as well as suicidal ideation and attempts (Seidlitz et al., 2001; You et al., 2012).

Furthermore, self-directed hostility is related to self-disgust (Ramírez and Andreu, 2006; Renshaw and Kiddie, 2012), which has also been associated with increased suicidal ideation (Chu et al., 2013; Rogers et al., under review). Such animosity and disdain for the self is likely to deleteriously impact interpersonal functioning. Individuals who are self-hostile, or feel self-disgust, may assume that others perceive them in a similar manner and, as such, that their presence burdens others. Indeed, in a recent study, perceived burdensomeness significantly accounted for the association between self-disgust and suicidal ideation (Rogers et al., under review). Internalized cognitions of self-hatred, hostility, and perceptions of burdensomeness may also result in withdrawal from others, due to feelings of not belonging. Veterans may be particularly prone to social withdrawal and feelings of thwarted belongingness upon reintegrating into civilian life, due to feelings that others do not understand their military-related experiences.

Shame and Suicide

Shame is also frequently experienced by veterans. According to a field survey given by the Mental Health Advisory Team (MHAT), 27% of military personnel faced ethical dilemmas during deployment (Mental Health Advisory Team, 2008a, 2008b). Veterans who were forced into ethical dilemmas during deployment may struggle with the consequences of their choices,

leading to negative self-judgment and feelings of shame (Gaudet et al., 2016). Shame, conceptualized as a stable, global negative evaluation in which the individual feels inferior, helpless, or vulnerable (S. Kim et al., 2011), is often associated with the desire to withdraw or conceal oneself from others in order to hide something negative about the self (Tangney, 1995). Not only is shame a strong predictor of PTSD symptom severity (Hathaway et al., 2010), it also significantly contributes to suicide risk among military personnel (Bryan et al., 2013a, 2013b).

Although shame is generally characterized as an intrapersonal, as opposed to interpersonal, cognitive-affective state (Bryan et al., 2013a), shame may relate to suicide risk indirectly through feelings of perceived burdensomeness and thwarted belongingness. Recent evidence indicates that feelings of shame are positively associated with disrupted interpersonal functioning (Chen et al., 2015); individuals who experience feelings of shame may blame themselves more readily for perceived failures and rejections in social situations (Chen et al., 2015), resulting in feeling like a burden on others. Moreover, shame is associated with interpersonal conflict (Gaudet et al., 2016) and may inhibit returning military personnel from forging connections with family members, friends, and treatment providers (Blum, 2008; Forbes et al., 2003), fostering feelings of thwarted belongingness.

Guilt and Suicide

Guilt is conceptualized as a state of regret or remorse stemming from a specific action or behavior committed against someone that is perceived to be a transgression or violation of the other person's well-being (S. Kim et al., 2011; Tangney and Dearing, 2002). Guilt may emerge in military personnel and veterans who participate in or witness events that violate their sense of morality (Litz et al., 2009), particularly among those with combat exposure. Similar to shame

and other negative emotions, guilt, especially guilt disproportionate to a situation (S. Kim et al., 2011), is independently associated with PTSD and increased suicide risk in military personnel and veterans (Bryan et al., 2015b, 2013a).

Individuals who harbor feelings of guilt may also experience feelings of isolation and lack of belonging, due to regret or remorse over a particular event that makes them feel unlovable or unworthy (Henning and Frueh, 1997; Selby et al., 2010). Survivor guilt may also contribute to perceptions of burdensomeness in military and veteran populations, particularly if a veteran feels as though he or she did not deserve to live through combat or that he or she should have died alongside friends. These feelings of burdensomeness may be particularly exacerbated if, in the context of survivor guilt, the individual perceives that his/her action or inaction contributed to the death of a friend, perhaps resulting in feelings of responsibility or failure (Selby et al., 2010).

The Present Study

Although anger, internal hostility, shame, and guilt have been examined as independent predictors of suicide risk in veterans, research on the relation of these negative emotions to thwarted interpersonal needs is limited. Additionally, a comprehensive model of anger, internal hostility, shame, guilt, perceived burdensomeness, and thwarted belongingness as contributors to suicide risk in veterans has yet to be examined. Therefore, the aims of the present study were to (1) examine anger, internal hostility, shame, and guilt as independent predictors of suicide risk; and (2) examine perceived burdensomeness and thwarted belongingness as mechanisms of these associations in a veteran sample. We expected that each negative emotion would be related to suicide risk, via feelings of perceived burdensomeness and thwarted belongingness. Furthermore,

consistent with past research conceptualizing each of these emotions as distinct entities (e.g., (Siemer et al., 2007), we hypothesized that examining each emotion independently would provide better model fit than examining all emotions as a global latent variable of “negative emotions.”

Methods

Participants

Participants in this study were 541 veterans (69.1% male) who were between the ages of 20 and 98 ($M_{\text{age}} = 49.90$; $SD = 16.78$). The majority of the participants self-identified as White/Caucasian (461; 85.2%), 36 (6.7%) identified as Multiracial, 8 (1.5%) as Black/African American, 5 (.9%) as American Indian/Alaska Native, 1 (.2%) as Asian, 6 (1.1%) identified as another race, and 24 (4.4%) did not report a race. Additionally, 33 (6.1%) participants identified as Hispanic/Latino. Just over half of the sample reported being married (304; 56.2%), and the rest reported being divorced (117; 21.6%), single/never married (73; 13.5%), widowed (17; 3.1%), legally separated (14; 2.6%), or engaged in a common law marriage (9; 1.7%); 7 (1.3%) did not specify their marital status. The members of this sample largely reported being heterosexual (476; 88.0%), with the rest identifying as homosexual (23; 4.3%), bisexual (15; 2.8%), pansexual (5; .9%), undetermined (2; .4%), or declined to respond (20; 3.6%).

The veterans reported being from all branches of the military including 206 (38.1%) from the Army, 91 (16.8%) Navy, 87 (16.1%) Air Force, 40 (7.5%) Marine Corps, 14 (2.6%) National Guard, 9 (1.6%) Army Reserves, 5 (0.9%) Coast Guard, and 89 (16.4%) multiple branches. A substantial minority of these veterans reported serving in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF; 212; 39.2%), whereas the majority (320; 59.1%)

did not serve in these conflicts; 9 (1.7%) did not respond. Furthermore, 369 (68.2%) of these veterans reported serving in at least one combat zone (not limited to OEF/OIF operations), whereas 158 (29.2%) had not, and 14 (2.6%) did not respond. Finally, the majority of this sample had served at some point since September 2001 (279; 51.6%). Others (including some veterans who continued to serve in later time periods) served between August 1990 and August 2001 (215; 39.7%), May 1975 and July 1990 (173; 32.0%), August 1964 and April 1975 (168; 31.1%), February 1955 and July 1964 (33; 6.1%), July 1950 and January 1955 (7; 1.3%), January 1947 and June 1950 (5; 0.9%), or December 1941 and December 1946 (7; 1.3%).

Procedure

Participants were recruited through online advertisements and invitations posted to veteran relevant social media groups including military focused Facebook pages and through national veteran organizations (e.g. chapters of the Veterans of Foreign Wars [VFW]). Participants provided informed consent electronically, at the beginning of survey administration. All data were gathered electronically through the Survey Monkey platform and participants were compensated with a raffle entry to win an Amazon gift card. All study procedures were approved by the appropriate Institutional Review Board (IRB).

Measures

Differential Emotions Scale - IV (DES-IV; Izard et al., 1993). The DES-IV is a 36-item self-report scale that assesses 12 discrete emotion subscales (3 items per scale), including interest, joy, surprise, sadness, anger, disgust, contempt, self-directed hostility, fear, shame, shyness, and guilt. Due to time constraints, only the anger, self-directed hostility, shame, and guilt subscales were administered and, therefore, used in the present analyses. Each subscale measures the frequency of experiencing these emotional states on a 5-point scale ranging from 1

(*Rarely or never*) to 5 (*Very often*). The DES-IV has demonstrated strong psychometric properties in a variety of populations (Akande, 2002; Blumberg and Izard, 1985; Izard et al., 1993). Internal consistency was good to high in the present study for the anger ($\alpha = .89$), self-directed hostility ($\alpha = .91$), shame ($\alpha = .83$), and guilt ($\alpha = .86$) subscales.

Interpersonal Needs Questionnaire (INQ; Van Orden et al., 2012). The INQ is a 15-item self-report measure that assesses perceived burdensomeness (6 items) and thwarted belongingness (9 items). Participants rate each item on a 7-point scale ranging from 1 (*Not at all true for me*) to 7 (*Very true for me*). Previous studies have provided evidence for the psychometric properties and validity of the INQ (Hill et al., 2015; Van Orden et al., 2012); internal consistency in the current sample was excellent for the perceived burdensomeness ($\alpha = .96$) and thwarted belongingness ($\alpha = .93$) subscales.

Suicidal Behaviors Questionnaire – Revised (SBQ-R; Osman et al., 2001). The SBQ-R is a 4-item self-report measure that assesses suicidal thoughts, communication of suicidal intent, past attempts, and expectation of making future attempts. Total scores range from 4 to 18, with higher scores reflecting greater suicide proneness. The SBQ-R has previously been utilized to assess suicide risk in samples of veterans (Currier, Holland, Drescher, & Foy, 2015; Rudd, Goulding, & Bryan, 2011). Internal consistency in the present sample was good ($\alpha = .81$).

Data Analytic Strategy

Descriptive statistics and bivariate correlations were first computed to determine the normality and interrelatedness of all variables. Positively skewed and/or leptokurtic variables were log transformed to correct for non-normality, resulting in diminished skewness and kurtosis in all cases. For ease of interpretation, we refer to non-transformed descriptive statistics in text and tables. Multivariate analyses were conducted after the transformation of variables.

To examine whether negative emotions were best conceptualized as unidimensional or as individual emotions, three structural equation models were conducted, with anger, self-directed hostility, shame, and guilt forming a single latent variable (Model 1), anger and self-directed hostility forming one latent variable and shame and guilt forming another latent variable (Model 2), and all emotions considered separately (Model 3). Model fit was assessed using the chi-square statistic (χ^2), comparative fit index (CFI), Tucker Lewis index (TLI), and the root mean squared error of approximation (RMSEA). Good model fit is represented by a non-significant χ^2 , $CFI \geq .95$, $TLI \geq .90$, and $RMSEA \leq .06$ (Hu and Bentler, 1999; Schreiber et al., 2006). Direct and indirect path estimates with negative emotions, perceived burdensomeness and thwarted belongingness, and suicide proneness were examined for the best-fitting model (Model 3). Age was included as a covariate in all models due to its significant associations with all variables. Finally, to test the specificity of our model, we examined an alternative model where independent and mediator variables were reversed. Specifically, interpersonal theory variables served as the independent variables, negative emotions as the mediators, and suicide proneness as the outcome variable. Missing data were minimal (< 1%) and handled using full information maximum likelihood; all analyses were conducted in MPlus 6.11.

Results

Preliminary Analyses

See Table 1 for means, standard deviations, ranges, skewness, kurtosis, and bivariate correlations of all variables. Perceived burdensomeness and suicide proneness were slightly positively skewed, and suicide proneness was leptokurtic; these variables were log-transformed

to correct for non-normality, resulting in diminished skewness and kurtosis. All variables were positively correlated at the $p < .001$ level.

Model Fit

We first examined our theoretical model with all negative emotions (anger, self-directed hostility, shame, guilt) loading onto a single latent variable (Model 1). This model exhibited relatively good fit, with CFI = .989, TLI = .979, and RMSEA = .062; however, the chi-square test of model fit was significant ($\chi^2 = 46.03$, $df = 15$, $p < .001$). Model 2, where anger and self-directed hostility formed a latent variable and shame and guilt formed another latent variable, demonstrated slightly improved fit (CFI = .993, TLI = .986, RMSEA = .050), though the chi-square test was still significant ($\chi^2 = 33.35$, $df = 11$, $p = .003$). We then considered all four negative emotions separately (Model 3), resulting in excellent fit, including a non-significant chi-squared test ($\chi^2 = 4.52$, $df = 4$, $p = .340$, CFI = .999, TLI = .997, RMSEA = .015). Examination of AIC values (18047.87, 18037.19, and 18028.36, respectively) indicated that Model 3 provided the best fit to the data. Thus, Model 3 was utilized to examine direct and indirect pathways, as detailed below. These models each explained 25% of the variance in suicide proneness.

Direct and Indirect Pathways

See Figure 1 for direct pathways and the form of our proposed model. Anger was significantly associated with thwarted belongingness ($\beta = .19$, $p < .001$), but not perceived burdensomeness ($\beta = .02$, $p = .703$). Similarly, the indirect path from anger to suicide proneness through thwarted belongingness ($\beta = .04$, $p = .011$) was significant, whereas the indirect path from anger to suicide proneness through perceived burdensomeness ($\beta = .01$, $p = .709$) was not.

This indicates that thwarted belongingness accounted for the association between anger and suicide proneness.

Self-directed hostility was significantly associated with both perceived burdensomeness ($\beta = .42, p < .001$) and thwarted belongingness ($\beta = .47, p < .001$). Both perceived burdensomeness ($\beta = .13, p < .001$) and thwarted belongingness ($\beta = .10, p = .001$) significantly indirectly accounted for the relationship between self-directed hostility and suicide proneness.

Shame was significantly related to both perceived burdensomeness ($\beta = .23, p < .001$) and thwarted belongingness ($\beta = .21, p < .001$). Further, both perceived burdensomeness ($\beta = .07, p = .002$) and thwarted belongingness ($\beta = .04, p = .012$) significantly accounted for the association between shame and suicide proneness.

Guilt was significantly associated with perceived burdensomeness ($\beta = .17, p = .018$), but not thwarted belongingness ($\beta = -.09, p = .220$). The indirect path from guilt to suicide proneness through perceived burdensomeness ($\beta = .05, p = .034$), but not thwarted belongingness ($\beta = -.02, p = .253$), was significant, indicating that perceived burdensomeness accounted for the link between guilt and suicide proneness.

Alternative Model

An alternative model was tested to examine the directionality of our paths; namely, the relationship between interpersonal theory variables and suicide proneness through negative emotions was examined. Model fit of this alternative model was poor ($\chi^2 = 44.27, df = 2, p < .001$, CFI = .982, TLI = .761, RMSEA = .197, AIC = 18072.11), indicating that our proposed model provided better fit to the data. This model explained 18.2% of the variance in suicide proneness. See Figure 2 for direct paths; of each of the negative emotions, only self-directed

hostility was a significant predictor of suicide proneness. Moreover, the majority of indirect effects were non-significant, with the exception of perceived burdensomeness/thwarted belongingness and suicide proneness through self-directed hostility (β s = .14 and .07, p s = .009 and .011, respectively). These findings further demonstrated the specificity of our model.

Discussion

Suicide rates among veterans are disproportionately elevated in comparison to the general population (CDC, 2015; Kemp and Bossarte, 2012). A better understanding of risk factors contributing to veteran suicide is needed to inform the development of empirically-supported clinical interventions and treatments for this high-risk group. As such, we examined the mechanisms through which negative emotions, which are often experienced by veterans upon reintegrating into civilian life, confer risk for suicide. Specifically, we utilized a leading framework of suicide, the interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010), to elucidate these relationships.

Results of the present study confirmed previous research suggesting that the negative affective experiences of anger, self-directed hostility, shame, and guilt are best characterized as distinct emotions (Izard et al., 1993; Siemer et al., 2007), rather than as global experiences of negative affect. Further, pathways for interpersonal difficulties and suicide risk differed by negative emotion. As hypothesized, self-directed hostility and shame were each related to suicide proneness through both perceived burdensomeness and thwarted belongingness. Yet, interestingly, anger was indirectly associated with suicide proneness through thwarted belongingness, but not perceived burdensomeness, and guilt was related to suicide proneness through perceived burdensomeness, but not thwarted belongingness.

As mentioned previously, self-directed hostility is characterized by feeling mad at oneself, sick about oneself, and by an inability to stand oneself (Blumberg and Izard, 1985; Izard et al., 1993). Self-directed hostility has been associated with self-hatred, -disgust, and -disdain (Ramírez and Andreu, 2006; Renshaw and Kiddie, 2012), which may result in a perception that one is a burden on others. Our findings corroborate research demonstrating that perceived burdensomeness mediates the association between self-disgust and suicidal ideation (Rogers et al., under review), and we extend this association to a veteran sample. Our findings also confirm assertions that self-directed hostility may lead to social withdrawal and avoidance as, in our sample, self-directed hostility was related to greater thwarted belongingness and, in turn, to increased risk for suicidal behavior.

Anger, on the other hand, was related to suicide risk through thwarted belongingness, but not perceived burdensomeness. This finding contrasts with past research indicating that perceived burdensomeness, but not thwarted belongingness, accounts for the association between anger and suicidal ideation and attempts in psychiatric outpatients (Hawkins et al., 2014). Differences may have arisen due to the nature of the samples, as the previous study examined psychiatric outpatients, whereas this study tested these associations in veterans. For instance, veterans may be more prone to social avoidance in an effort to cope with negative emotions (Hogan and Linden, 2004), whereas psychiatric outpatients may engage in reassurance-seeking and approach other individuals to rebuild relationships (Cougle et al., 2012; Joiner et al., 1999). Another possibility is that while anger is associated with approach motivations (Harmon-Jones et al., 2008), its aftermath may cause others to avoid the individual, though the individual may not necessarily feel like a burden on others. Future research should examine these possibilities further to better delineate the role of anger in increasing thwarted belongingness and suicide risk.

Consistent with our expectations, shame was associated with suicide risk through both perceived burdensomeness and thwarted belongingness. As noted previously, shame is associated with a desire to withdraw or conceal oneself from others due to a perception that something is wrong with oneself (S. Kim et al., 2011; Tangney, 1995), which may result in both a belief that one is a burden on others and social disconnection. Similarly, shame is positively associated with interpersonal conflict (Gaudet et al., 2016), which, as with anger, may result in others avoiding the individual. However, given the presence of cognitions that one is inferior, which accompany shame, this may additionally result in shame-based perceptions of burdensomeness.

In partial support of our hypothesis, guilt was associated with suicide risk through perceived burdensomeness, but not thwarted belongingness. This pattern of findings, consistent with past research, suggests that guilt and feelings of regret may make veterans feel like a burden on their peers and country (Bryan et al., 2015b, 2013a; Selby et al., 2010), although our current study suggests that this may not be reflected in their social connections. It may be particularly important to examine feelings of survivor guilt in relation to combat exposure, as guilt is associated with more severe suicidal ideation among military personnel with direct combat exposure (Bryan et al., 2013a). Other military experiences may also result in feelings of guilt; for instance, guilt may arise from leaving family behind while overseas for extended periods of time or from the challenges of reintegrating into civilian life (e.g., identity crises, feeling detached from families, or lacking purpose after the military; (Demers, 2011). Previous work suggests that guilt is strongest and most common in the context of communal relationships, which are characterized by expectations of mutual concern (Baumeister et al., 1994); thus, if veterans are experiencing guilt and, therefore, do not feel that others care for them as a result, they may feel

as if they are burdening others who may be better off without them, leading to heightened suicide risk. Future work should examine which types of etiological experiences are most likely to result in guilt and their consequent impact on self-perceptions and suicide risk, for vulnerable subsamples of veterans, such as those returning from service.

Overall, there are a number of clinical implications that can be drawn from the present analyses. First and foremost, military personnel and veterans tend to under-report mental health symptoms, particularly suicidality (P. Y. Kim et al., 2011), but may be more willing to disclose negative emotional experiences. Assessing negative emotional experience in military personnel following discharge and throughout reintegration into civilian life may aid in identifying and connecting at-need veterans with mental health services, thereby preventing more severe psychopathology from developing.

With regard to clinical intervention, research suggests that cognitive appraisals are paramount to the development and maintenance of various emotions (Siemer et al., 2007). As such, therapies that integrate cognitive restructuring into treatment, such as cognitive-behavioral therapy, may help not only in reducing perceptions of burdensomeness and thwarted belongingness emerging from negative emotions, but may also assist in changing appraisals of situations that relate to the development of these emotions in the first place. Furthermore, emotion regulation treatments (e.g., dialectical behavioral therapy [DBT] skill training; Linehan, 2014, 1993) that teach skills on how to better manage one's emotions may be particularly helpful to veterans who are experiencing significant negative emotionality. DBT may further assist individuals by promoting recognition and differentiation of their emotions, which is related to better emotion regulation and well-being (Barrett et al., 2001). Finally, programs that promote the social integration and support of veterans may have beneficial outcomes, as some studies

have found a link between social support and resiliency (Lehavot et al., 2013; Ozbay et al., 2007).

Limitations and Future Directions

Despite the potential utility of these findings, several limitations must be noted. Most importantly, these data were cross-sectional, precluding any interpretations of causality in the present analyses. As such, it is possible that feelings of perceived burdensomeness and thwarted belongingness lead to the development of negative emotions, rather than vice versa. Although this is inconsistent with the interpersonal theory of suicide, in which perceived burdensomeness and thwarted belongingness are considered proximal predictors of suicidal ideation (Joiner, 2005; Van Orden et al., 2010), future research should employ prospective designs to examine the nature of these associations and how negative emotions might influence these risk factors over time. As these data were also derived exclusively from self-report measures, experimental designs may be a helpful avenue in examining how perceived burdensomeness and/or thwarted belongingness may be influenced following emotion inductions. Furthermore, the SBQ-R, which was utilized to assess suicide proneness, does not differentiate between suicidal ideation and behaviors; future research should employ alternative measures to examine whether these associations confer risk for suicidal ideation, behaviors, or both.

An additional limitation is that no information on psychiatric diagnoses or treatment engagement was gathered. As such, we were unable to determine how psychiatric diagnoses or treatment influenced the nature of our findings, a limitation that should be rectified in future studies. Further, we did not collect data on other emotions or negative life events that may play an important role in the development of each other or of suicide risk. Although other emotions

assessed by the DES-IV have not previously been associated with suicidality, future research should examine the possibility of unique associations emerging in veterans. Moreover, we were unable to examine how much time had passed since the veterans in this sample had completed their military service. Considering the role that reintegration into civilian life may have on these emotions and risk factors (Kang and Bullman, 2008; Renshaw and Kiddie, 2012), future research should address this limitation.

Finally and importantly, the present study did not include a control group of non-veterans. As such, we were unable to determine whether these associations differed between veterans and non-veterans (e.g., whether or not the association between negative emotions and suicide proneness through perceived burdensomeness and thwarted belongingness is stronger for veterans than those who are not veterans, if veterans experience a greater intensity and frequency of negative emotions which translates to greater suicide risk, etc.). Future work replicating and extending these findings in a variety of samples will aid in further elucidating the nature of these associations.

Nonetheless, the present study provided evidence for the role of negative emotions in increasing suicide risk through perceived burdensomeness and thwarted belongingness in a large veteran sample. Though a number of studies have examined the occurrence of these negative emotions in veterans and have linked negative emotions to increased suicide risk, research examining the mechanisms underlying these relationships has been limited. As such, our findings represent an important contribution to the literature and support the development of interventions for veterans who are reintegrating into civilian life that reduce risk for suicide.

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Table 1

Means, Standard Deviations, Ranges, Skewness, Kurtosis, and Bivariate Correlations of All Variables

Variable	1	2	3	4	5	6	7	8
1. Age	1							
2. Anger	-.46***	1						
3. Self-Directed Hostility	-.44***	.74***	1					
4. Shame	-.42***	.66***	.80***	1				
5. Guilt	-.38***	.67***	.86***	.77***	1			
6. Perceived Burdensomeness	-.31***	.59***	.76***	.70***	.72***	1		
7. Thwarted Belongingness	-.36***	.61***	.69***	.63***	.60***	.76***	1	
8. Suicide Proneness	-.15**	.35***	.41***	.34***	.39***	.48***	.45***	1
Mean	50.73	8.86	7.57	7.59	8.30	14.21	30.23	8.06
Standard Deviation	16.65	3.31	3.55	3.22	3.21	10.11	14.63	2.69
Minimum	20	3	2	3	3	6	9	4
Maximum	98	15	15	15	15	42	62	18
Skewness	.22	.05	.45	.48	.33	1.05	.15	1.22
Kurtosis	-1.08	-.87	-.88	-.64	-.75	-.02	-1.16	1.55

Note: *** $p < .001$

Figure 1

Path Analysis Model with Negative Emotions Relating to Suicide Proneness through Interpersonal Theory Variables

Note: * $p < .05$, *** $p < .001$

Figure 2

Path Analysis Model with Interpersonal Theory Variables Relating to Suicide Proneness through Negative Emotions

Note: * $p < .05$, *** $p < .001$