2015

Reasons for Living and Self-Reported Suicidal Behavior Among a Sample of U.S. Army Personnel

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Abstract

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by

Deborah Elaine Willis

MA, Chapman University, 1999

BA, Southern Illinois University at Carbondale, 1988

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

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Abstract

Suicidal Behavior in the U.S. Army is a problem that persists despite significant efforts to promote help-seeking behaviors and the investment of millions of dollars to develop resilience-building interventions. Evidence-based literature supports the use of reasons for living as a protective factor against suicidal behavior in clinical and nonclinical samples, yet it has rarely been studied in an active duty (AD) Army population. This study examined the relationship between self-reported reasons for living and self-reported suicidal behavior, to determine if high levels of reasons for living correlated with low risk of suicidal behavior, over and above demographics, depression, stressful life events, and social support, using standardized questionnaires. The study sample consisted of 244 AD Army soldiers attending the Warrior Leadership Course in Germany. The results analysis showed that reasons for living were inversely related to suicidal behavior among this sample. Although African American soldiers scored higher on measures of reasons for living and suicidal behavior, demographic variables did not significantly predict suicidal behavior. Reasons for living accounted for a unique amount of variance in suicidal behavior; however, depression, stressful life events, and social support were better predictors. This study demonstrates the benefits of incorporating reasons for living in military research and practice, as efforts are made to identify AD Army personnel at risk for suicide. The study findings also support the claim that examining protective and risk factors supersedes efforts to study risk factors alone. It promotes positive social change by informing efforts to develop comprehensive suicide prevention policies, programs, and procedures aimed at effectively reducing the rate of suicide in the U.S. Army.

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Dedication

This dissertation is dedicated to my wonderful and precious daughter, Adrianna Michelle, who never complained while I spent many hours, days, and months pursuing the completion of this degree; to my very special friend, Ilaria Francesca de Franco, and her lovely daughter, Eva, who was always available to watch and care for Adrianna when I needed quiet time to study, and who supported me every step of the way; to the memory of my loving godfather, Rev. Walter Bowie Jr., who was always a constant source of support, encouragement, and strength; to my exemplary dissertation chair, Dr. Anne Morris, who gave tirelessly to this effort, and never wavered in her support of the completion of this dissertation; to the past and present soldiers of the United States Armed Forces, family members, and civilians, whose daily sacrifices allows the rest of us to live in a land where the flag still stands for freedom; and lastly, to those who are standing at the crossroads between life and death; my prayer is that you will "chose life that you might live" (Deuteronomy 30:19).

Acknowledgments

First, I thank God for allowing me this journey through higher education, indeed "You have a plan for our lives. It is good and not evil, to bring us to an expected end" (Jeremiah 29:11). To my dissertation chair, Dr. Anne Morris, words cannot express my gratitude for your support, commitment, consistency, and motivation which provided the forward momentum needed to complete this research. You are a true scholar-practitioner who is worth emulating! To my committee member and method's expert, Dr. John Astin, I would like to thank you for your critical review and detailed insight that helped break through many statistical barriers and provided the expert knowledge needed to ensure analytical integrity of this research. To my university research reviewer, Dr. Caren Jordan and dissertation editor, Dr. Basil Considine, thank you for giving your time and expertise to ensure this research was reflective of Walden University's high standards of academic professionalism. To Dr. Luis Fernandez, and U.S. Army Captain Serge M. Ngwanza, I would like to thank you for serving as mentors and accountability partners and ensuring that I did not allow procrastination to steal my time throughout this journey. To Mrs. Amy Holstein, European Regional Medical Command Human Protections Administer (ERMC HPA), I want to thank you for your tireless efforts in helping navigate the Army IRB process. You made what was considered by many to be impossible - possible! To Command Sergeant Major Wardell Jefferson and the staff and soldiers at the Warrior Leadership Course in Germany, thank you for graciously and willingly participating in this valuable study as we seek to understand suicidal behavior in the U.S. Army.

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Chapter 1: Introduction to the Study

Introduction

The problem of suicide in the U.S. Army came to the attention of the national public in 2008, when the media reported that the military's suicide rate had surpassed that of the general US population (Griffith, 2012). This was the first time in the recorded history of the U.S. Army that such an event had occurred (p. 488). As a result, the National Institute of Mental Health (NIMH) announced in 2009 that it would conduct the largest-ever study on suicide and mental health conditions among military personnel (NIMH, 2009). This effort, the Army Study to Assess Risk and Resilience in Service members (Army STARRS), employed four separate research institutions, and was designed as a direct response to the Army's concern about the rising rate of suicide and mental health issues among military personnel (p. 1).

Army STARRS was designed to quickly identify risk and protective factors for suicidal behavior among active duty (AD) Army soldiers, and to provide a scientific base for effective and practical suicide prevention and intervention strategies (p. 1). Five years after this study began, however, suicidal behavior among AD Army soldiers continued to rise, with more soldiers killing themselves by suicide in 2012, than had died in combat (Thompson & Gibbs, 2012). Researchers involved in the Army STARRS have acknowledged that this study is a major undertaking and that it will take some time to address the full range of questions related to the problem of suicidal behavior in the Army (Kessler et al., 2013).

The Army's position on suicide is clear: "I will not quit on life" (Department of the Army, 2012a). Despite this position, soldiers are engaging in suicidal behavior at an alarming rate. In 2011, the Behavioral and Social Health Outcomes Program (BSHOP) recorded 54 cases of completed suicides, 110 cases of suicide attempts, and 232 cases of suicidal ideation between July and September 2011. Between January and June 2012, BSHOP recorded 89 completed suicides, 180 suicide attempts, and 406 cases of suicidal ideation. Relationship, work-related stress, and having a mood disorder, were noted as primary precipitating events in 2011, and persisted as primary precipitators in 2012 (BSHOP, 2013, p. 8).

Since the publication of BSHOP (2013), several researchers have taken another look at possible precipitators of suicidal behavior among AD Army personnel. In 2013, the Department of the Defense (DOD) conducted a data analysis and determined that the majority of military suicides were not directly due to extended deployments, but to heavy drinking and depression, or from having a diagnosis of manic depression or Bipolar disorder. Kessler et al. (2015) investigated suicides that followed psychiatric hospitalizations and determined that soldiers at the highest risk were those within the 12 months of release from inpatient psychiatric hospitalization.

The reasons for death by suicide among AD Army soldiers are varied. Lusk et al.'s (2015) qualitative study examined potential risk factors among soldiers who participated in Operation Iraqi Freedom/Operation Enduring Freedom and were returning to the United States. The study authors identified the primary precipitators for suicidal behavior among this population of AD Army soldiers as:

- having a higher pain tolerance,
- experiencing chronic pain, emotional reactivity, numbing, and distancing;
- changes in physical functioning;
- combat guilt;
- discomfort with seeking care; and
- difficulty reintegrating into the family and society. (p. 843)

Shelef, Fruchter, Mann, and Yacobi (2014) identified the main precipitators of suicidal behavior as prior suicide attempts, loneliness, burdensomeness, difficulty in problem solving, and negative emotion regulation. Although the reasons for suicide among this population vary, it is clear that military life exposes soldiers to risk factors that ultimately place them at a heightened risk of suicide.

Research on military suicides has traditionally focused on identifying and reducing risk factors (Black, Gallaway, Bell, & Ritchie, 2011; Overholser, Braden, & Dieter, 2012). However, according to Kessler et al. (2013), traditional individual risk factors do not necessarily generalize to individuals serving in the U.S. Army, and may vary during different phases of a soldier's duty and mission. Recently research has shifted its focus to identifying and incorporating protective factors in understanding suicidal behavior in the military (Department of the Army, 2012a). At the time of this study, targeted research on specific risk and protective factors that could be used to inform effective suicide prevention programs had only recently begun (Kessler et al.).

In 1983, Linehan, Goodstein, Nielsen, and Chiles theorized that a set of cognitive beliefs and expectations, or reasons for living (RFL), is instrumental in protecting

individuals from engaging in suicidal behavior. Linehan et al. determined that individuals from diverse backgrounds can generate large numbers of reasons for staying alive should the thought of suicide arise. Linehan et al. advocated using reasons for living to differentiate suicidal from nonsuicidal individuals in clinical and nonclinical adult samples, and proposed that treatment aimed at reducing suicidal behavior may be enhanced if individuals are taught to believe in and attach importance to beliefs and expectations contained in the Reasons for Living Inventory (RFLI; p. 688).

Since 1983, researchers have incorporated reasons for living and the RFLI as primary variables in studies on suicidal behavior (Batigun, 2005; Connell & Meyer, 1991; Koolaee, Mahmmodi, & Davaji, 2008; McLaren & Hopes, 2002; Miller, Segal, & Coolidge, 2001). Many of these studies involved the participation of understudied populations, and have determined a significant relationship between reasons for living and suicidal behavior over and above a predetermined covariate. As of the date of this research, the only study found to investigate the relationship between reasons for living and suicidal behavior in an AD Army population was that conducted by Ulmer, Range, and Gale in 1992. Ulmer et al. studied the relationship between depression, loneliness, and reasons for living in a population of AD Army soldiers who were just completing BASIC training (p. 185). These soldiers had yet to experience the pressures associated with serving in the U.S. Army and endorsed both strong survival and coping beliefs and moral objections to suicide. In this early phase of their military careers, these soldiers stated that they could handle whatever stressors came their way (p. 187).

In 2015, the Stars and Stripes reported that many active duty U.S. soldiers have experienced significant stress associated with the military's involvement in protracted wars in Iraq and Afghanistan, as well as the pressures associated with the restructuring and downsizing of units and troops during a time of economic uncertainty. According to this Stars and Stripes article, many of these soldiers have experienced extended separation from family and friends, may be battling psychological disorders or medical injuries, and could possibly be facing relationship problems at home and at work, all of which are leading causes of suicide. Prior to this dissertation study, no formal investigation had specifically investigated the usefulness of reasons for living and the RFLI as important factors in protecting these soldiers against suicidal behavior, over and above demographics, depression, social support, and stressful life events.

Theories on Suicide

The reasons why individuals engage in suicidal behavior vary widely, but several common situations and circumstances highlighted in previous research suggest that certain factors are likely to contribute to this behavior. The following theories are presented in this section to highlight the theoretical and historical efforts to understand why individuals engage in suicidal behavior.

Durkheim's regulative/integrative theory of suicide. Durkheim (1951), a 19th-century French social scientist, emphasized the importance of social connectedness in suicide. Durkheim argued that suicide was "not an individual act or a personal action, but was caused by some power which was over and above the individual's will" (p. 7). Durkheim further emphasized that the forces behind suicide were not psychological

states, but social factors associated with an individual's degree of connectedness, and the balance between societal integration and regulation (p. 7). Durkheim argued that religion and other social networks have both regulative and integrative aspects, and proposed that a person's degree of religious affiliation was predictive of potential self-destructive suicidal behavior (p. 7). Heikkinen, Aro, and Lonngvist (1993) also indicated that the disintegration of social networks and poor social support resulted in a lack of protective factors, and raised the risk for suicidal behavior.

Network theory of suicide. Pescosolido and Georgianna (1989) modified Durkheim's integrative theory of suicide and emphasized the importance of network connections versus integrative societies. According to Pescosolido and Georgianna, churches and other organized organizations are natural communities that are dependent on the participation and socialization of its members (p. 42); emotional and spiritual solace result from social interaction, and depend on the strength of network ties or the "belonging" aspect of religion (p. 43). The key to these networks was not whether individuals identified themselves as having a religious affiliation, but whether they actually became part of the church community (p. 43). According to this theory, individuals draw on the collective energy of these communities during difficult times. When networks are strong, integrated, and regulated, the members of the network are protected from self-destructive impulses (Stack & Wasserman, 1992). As integration and regulation falls out of balance within networks, suicidal behavior among members of the network increases (p. 459).

Interpersonal-psychological theory of suicide. Van Orden, Witte, Gordon, Bender, and Joiner (2008) took a nonreligious view of cultural and societal crisis in the interpersonal-psychological theory of suicide. Van Orden and colleagues proposed that individuals do not attempt suicide unless they desire to kill themselves and have the ability to carry it out. According to Joiner (2009), this desire for death is grounded in an individual's sense of "thwarted belongingness" and "perceived burdensomeness" to society (p. 1). Joiner argued that an individual's perception of burdensomeness and failed belongingness have to occur simultaneously in order for suicide to occur (p. 1). This desire would then result in suicidal or self-destructive behavior when the individual gained the capacity for lethality. Stack and Wasserman (1992) argued that the key to thwarting this desire was an individual's belief system, not in the connectedness of social networks or the integration and regulation of societal communities, or in removing the capability for lethality (p. 231).

Foundational Theory for This Study

Linehan et al. (1983) theorized that certain beliefs, or reasons for living, were of great significance for not engaging in suicidal behavior. Although this theory has been tested extensively in college student populations and with diverse groups of ethnic minorities (Choi & Rogers, 2010; Connell & Meyer, 1991; June, Segal, Coolidge, & Klebe, 2009; Lee & Oh, 2012), my literature review for this study only identified a single article that addressed the relationship between self-reported reasons for living and self-reported suicidal behavior in an AD Army population: Ulmer et al. (1992). Ulmer et al. assessed the impact of depression and loneliness on reasons for living (p. 183), using a

participant pool recruited from an AD Army population of junior enlisted soldiers who had completed BASIC training shortly after enlisting in the military (p. 186). These soldiers were new to the Army and reported that they did not feel lonely or depressed; they endorsed strong coping and survival beliefs, and expressed moral objections to suicide (p. 187).

This dissertation differed from Ulmer et al. (1992) by testing whether a relationship existed between self-reported reasons for living among a diverse population of AD Army personnel. Reasons for living were measured using the RFL Inventory (RFLI), and self-reported suicidal behavior was measured by the Suicide Behaviors Questionnaire-Revised (SBQ-R). I also tracked demographics, depression, social support, and stressful life events to determine their unique relationships to the risk of suicidal behavior. The study population consisted of a sample of AD Army, junior enlisted soldiers who had served in the military for at least three years and were considered by their commands to be potential leaders of the U.S. Army. Many of these participants had previously served in the wars in Iraq and Afghanistan, and most were experiencing stress related to the rapid reduction and restructuring of the US military at the time of the study.

Background

Military service is a hazardous occupation that is characterized by high levels of stress, and uncertainty (Nock, 2011). According to the Subcommittee on Military Personnel (2013), U.S. soldiers are currently functioning at "an operational tempo that is higher than any in the history of the United States Army (p. 1)." Although soldiers go through training to increase resiliency in every level of functioning, no training has

entirely mitigated the stress of serving in a war-time military, with frequent deployments, the cruelty of combat, loss of fellow soldiers, family separation, and the potential for injury, pain, and possibly death (Bachynski, Canham-Chervak, Black, Dada, Millikan, & Jones, 2012).

There are several overlapping risk factors for suicide in both the general U.S. population and the U.S. military. The risk factors that are generally been associated with suicidal behavior in the general U.S. population include:

- being a Caucasian male,
- being between the ages of 17 and 30 years,
- social isolation,
- marital and relationship problems,
- a family history of suicide,
- previous suicide attempts,
- having impulsive and aggressive tendencies,
- suffering significant loss,
- substance abuse,
- depression and other mental health conditions, and
- having access to lethal means (Black et al., 2011; Griffith, 2012; Overholser, Braden, & Dieter, 2012).

The risk factors for suicide in the military are similar to that of the general population (e.g., age, gender, ethnicity, relationship problems, and work-related stress; Black et al.; BSHOP, 2011, 2013). Several articles have indicated that the stress of war and frequent

deployments increase the potential for suicidal behavior among AD service members (Bodner, Ben-Artzi, & Kaplan, 2006; Graham, 2008; Nock, 2011). However, according to Nock, suffering combat trauma does not necessarily account for the persistent rate of suicidal behavior among active duty Army personnel (p. 108).

Epidemiology of Suicide in the Military

Since 1981, the suicide rate in the Army remained stable, ranging from 10-15 suicides per 100,000 per year (Cersovsky, 2011). This was below the civilian rates at the time (p. 110). For example, in 2000, the civilian age-adjusted suicide rate was 15 per 100,000 compared to 10 per 100,000 for the Army; and in 2004, the civilian age-adjusted suicide rate was 18 per 100,000 compared to 11 per 100,000 for the Army (p. 110). During war, suicide rates in the military generally decline (Department of Health and Ageing, n.d.); however, during the Iraq and Afghanistan wars, suicide rates in the U.S. military rose significantly starting in 2004 (Warner, Appenzeller, Parker, Warner, Diebold, & Grieger, 2011). By 2008, the suicide rate in the military rose to 20 per 100,000, exceeding the general population's 19 per 100,000 to (Griffith, 2012).

The significance of this increase was especially evident during a three-month period in 2012. In June 2012, suicide was the second greatest cause of death in the military (Zoroya, 2012). In July 2012, U.S. soldiers killed themselves at a rate faster than one per day (Bachynski et al., 2012), and by August 2012, suicide was considered the number one cause of death in the U.S. Army, with a rate of 32 per 100,000 (Sklar, 2013). Although the US military experienced a sharp decline in suicides from 2012 (319) to 2013 (259), the suicide rate began to climb again in 2014 (Jahner, 2014). The 161

suicides recorded in the year-to-date in July 2014, was significantly up from the 154 at the same point in time the previous year (2013).

Reasons for Living and Suicidal Behavior

Reasons for living, or a set of life-maintaining cognitive beliefs and expectations, are regarded as key motives for not engaging in suicidal behavior (Linehan et al., 1983). According to Linehan et al., certain belief systems can soothe psychological pain, work to regulate emotions, and counter negative thoughts that could lead to suicidal behavior (Balk, 2007). Linehan et al. identified six reasons for living that are potentially important as protective factors against suicidal behavior: fear of suicide, fear of social disapproval, moral objection, survival and coping beliefs, responsibility to family, and child-related concerns (p. 688). Although reasons for living has received strong empirical support as protective factors for suicidal behavior (West, Davis, Thompson, & Kaslow, 2011), it has rarely been the focus of investigation among AD Army soldiers. Since protective factors are shown to counterbalance risk factors, examining reasons for living with a military population falls in line with Choi and Rogers (2010) argument that protective and risk factors are two very different aspects of suicidality. Thus, adding the assessment of protective factors creates the potential for greater accuracy in suicide prevention and assessment than assessing risk factors alone (p. 222). It also coincides with Lamis, Ellis, Chumney, and Dula's (2009) premise that focusing entirely on risk factors alone engages only one end of the suicide spectrum, neglecting protective factors that make up the other end (p. 278). Thus the inclusion of protective factors in the assessment of suicidal behavior allows the military the opportunity to capitalize on beliefs and expectations that

could serve to enhance soldier resiliency, and contribute to the overall reduction of suicidal behavior.

Demographics Factors and Suicidal Behavior

The most thorough reporting of suicide behavior in the U.S. Army is presented by the Behavioral and Social Health Outcomes Program. The BSHOP is a branch of the U.S. Army Institute of Public Health (USAPHC; BSHOP, 2011, 2013). One of their primary missions is to publish suicide surveillance reports that provide readers with a quick snapshot of the problem of suicide and suicidal behavior in the U.S. Army (BSHOP, 2011). In the first half of 2012, BSHOP (2013) noted that the following soldiers were most likely to engage in suicidal behavior mostly male, between the ages of 17 and 24 years, nonHispanic white, married, enlisted in the Regular Army, E1-E4, and with a history of at least one deployment. Demographic differences with reasons for living are varied. One study found no differences in scores across subscales (Malone, Oquendo, Haas, Ellis, Li, & Mann, 2000), while other studies reported that women scored higher than men on reasons for living, specifically on fear of suicide, responsibility to family, and moral objections to suicide (Rich, Kirkpatrick-Smith, Bonner, & Jans, 1992). In relation to military occupational specialty (MOS), soldiers serving in combat jobs, such as artillery and infantry, have a higher propensity for engaging in suicidal behavior than their counterparts in noncombat related specialties (United States Army, 2013a).

Stressful Life Events

In addition to reasons for living and demographics, the decision to attempt suicide is often affected by a number of other factors. According to Behets (2002) and Doerfler,

Moran, Hannigan (2010), when stressful life events exceed an individual's vulnerability level, the risk of engaging in suicidal behavior is increased. This is consistent with the latest report by BSHOP (2013), which indicated that soldiers who attempted suicide in the first half of 2012 were typically young men, experiencing significant work and relationship stress (p. 17). According to the Centers for Disease Control and Prevention (CDC; 2013), many young adults between the ages of 10 and 24 years attempt suicide after a stressful life event because they see their situation as hopeless and unsolvable. Updegraff and Taylor (2000) reported that young adults who have healthy self-esteem and use active coping skills flourish when faced with difficult life situations (p. 10). Conversely, young adults who tend to avoid difficult life situations and are pessimistic about their future are more susceptible to engaging in suicidal behavior. (p. 10).

Social Support

In addition to stressful life events and demographics, the lack of social support has also been linked to suicidal behavior, while the presence of social support has been strongly associated with the beneficial effects on mental and psychological health (June et al., 2009; West et al., 2011). In a study by June et al., older adults who had fewer social support systems also had higher levels of depression and suicidal ideation. June et al. also reported that deficits in social support among low-income African Americans were associated with greater rates of suicidal behavior (p. 754). Houle, Mishara and Chagnon (2005) reported that men who attempt suicide often endorse less support, and are also less satisfied with the support they receive following a significant life crisis (p. 64).

The Army recognized the importance of social support by establishing a buddy system or the battle buddy program (Sellers, 2010). This program pairs soldiers into two to three person teams designed to reduce stress, enhance teamwork, assist in the development of a sense of responsibility and accountability for fellow soldiers, improve safety during training, and reduce the likelihood and opportunity of suicidal behavior, and sexual assault (p. 1). Although statistical data on the effectiveness of the battle buddy system is not available, testimonies from soldiers and commands have served as a key component in measuring the success of the program. For example, a U.S. Army female combat medic team, assigned to provide combat medical support to the Afghan National Army, stated, "There is something about the battle buddy system that the Army is completely right on" (Straub, 2007, p. 1). In another example, the 2nd Infantry Division (2ID) reported that their emphasis on soldier-to-soldier intervention resulted in zero suicides from 2009 through 2012 (Dept. of the Army, 2012c). The Division's peer-to-peer based training program allowed commanders the ability to intervene with soldiers at the lowest level to promote and enhance protective relationships among soldiers (p. 1). According to the Division, instead of relying on chaplains, medical and mental health professionals, the buddy system served as the eyes of the unit leaders to observe risk factors associated with suicide (p. 1). As of the 2012, suicide attempts in the Division were down by 42 percent (p. 1).

Depression

Many soldiers experiencing relationship problems and real or perceived unmanageable stress are also battling significant psychological disorders (Cersovsky,

2011). Recently, depression was identified as a mental health threat to the operation, health, and success of the US military (Gadermann et al., 2012; Greenberg, Tesfazion, & Robinson, 2012; Mayo, MacGregor, Dougherty, & Galarneau, 2013). According to Miller (2014), depression is five times higher among soldiers than it is in civilian populations. The Desk Reference to the Diagnostic Criteria from DSM-5 (2013) noted that depression occurs when five of the following symptoms are present at the same time:

- A depressed mood
- Fatigue or loss support of energy
- Feelings of worthlessness or guilt
- Impaired concentration and indecisiveness
- Insomnia or hypersomnia
- Markedly diminished interest or pleasure in almost all activities
- Recurring thoughts of death or suicide
- A sense of restlessness or being slowed down
- Significant weight loss or weight gain.

For an individual to be diagnosed with depression, these symptoms must be present most of the day, either daily or nearly daily, for at least two weeks, and cause clinically significant distress or impairment (APA, 2013, p. 94).

A preponderance of published literature on depression indicates depressed individuals are at a higher risk for harm to self or others compared with their nondepressed cohorts (Bodner et al., 2006; Cersovsky, 2011; Greenberg et al., 2012; Mayo et al., 2013; Nock, 2011). The BSHOP (2013) reported between January 2004 and

June 2012, 11% of soldiers who completed suicide complained of depressive symptoms; 21% of soldiers who attempted suicide, and 21% of soldiers who reported suicidal ideation, also complained of depressive symptoms (p. 13). In the first half of 2012, 20% of soldiers who completed suicide, 25% of soldiers who attempted suicide and 19% of soldiers who reported suicidal ideation also complained of depressive symptoms (p. 13). According to Greenberg et al. (2012), the increase in soldiers diagnosed with depression, from 2007 to 2010, correlates with family problems, violence, substance abuse, and suicide (p. 60). Gaderman et al. (2012) estimated a lifetime prevalence rate of depression of 25% for women, and 12% for men in US samples. In 2012, the best estimates of prevalence of depression available for the US military were 12.0% among those that were currently deployed, 13.1% among those who had been previously deployed, and 5.7% among those who had never deployed (Greenberg et al., 2012).

Problem Statement

The problem addressed in this study was that suicidal behavior in the U.S. Army continues to rise despite evidence suggesting that a high level of reasons for living protects against suicidal behavior in adult clinical and nonclinical samples (Linehan et al., 1983). At the time of this study, there was also a significant research gap on the effectiveness of identifying and enhancing reasons for living among AD Army personnel. The Institute of Mental Health has recommended that the DOD pay close attention to suicide prevention programs proven effective in reducing suicidal behavior in civilian communities (Slomski, 2014, p. 1487). The enhancement of reasons for living among high-risk groups in the US population is one such strategy (Chatterjee & Basu, 2010;

Street et al., 2012; Wang, Nyutu, & Tran, 2011). A significant body of research has been conducted and many programs and interventions are being developed, revised, and modified to better understand the problem of suicidal behavior in the U.S. Army. However assessing the relationship between reasons for living and suicidal behavior, in an Army population that is likely to be experiencing pervasive psychological disorders, significant relationship stress, and strain associated with the restructuring and downsizing of the military continues to be largely overlooked.

Purpose of the Study

The purpose of this quantitative study was to explore whether or not a statistically significant relationship existed between self-reported reasons for living among a diverse population of AD Army personnel and self-reported suicidal behavior. In this study, self-reported reasons for living were measured using the RFLI and self-reported suicidal behavior was measured by the SBQ-R. Suicidal behavior was defined as the different dimensions of suicidality as measured by the SBQ-R: lifetime suicidal ideation and/or suicide attempts, frequency of suicidal ideation over the past twelve months, whether the individual has ever told someone that they were going to commit suicide or might commit suicide, and the self-reported likelihood of suicidal behavior in the future. Whether reasons for living protect beyond demographics, depression, social support (SS), and stressful life events (SLE) were also examined.

Although an investigation into the relationship between self-reported reasons for living and self-reported suicidal behavior, among a population of AD Army personnel, serving in a highly stressed military was the primary focus of this research, this study was

not expected to be predictive as individual beliefs and expectations do not always lead to or inhibit suicidal behavior (Fang, Lu, Liu, & Sun, 2011). The premise of this study was that high levels of reasons for living protect against suicidal behavior, and account for greater variance in suicidal behavior than depression, demographics, stressful life events, , and social support. Although other variables may impact suicidal behavior, they were not directly relevant to this study and were therefore excluded. The social change implication is that this research could add to the existing body of knowledge on military suicides; aid military scholars in capturing a set of life-maintaining beliefs that could be incorporated into a comprehensive, ongoing suicide prevention and risk assessment program; provide preliminary support for the development of a RFLI-military version that captures the unique experiences and characteristics of individuals serving in the U.S. Army, and encourage new policies and procedures for risk assessment at the Warrior Leadership Course.

Research Questions and Hypotheses

The primary research question for this study was: "Is having a high level of self-reported reasons for living associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively?" The secondary questions used to support the analyses of the primary question were:

- Are there significant demographic differences in the responses on the RFLI (rank, age, ethnicity, gender, military occupational specialty)?

- Do demographics (rank, age, ethnicity, gender, MOS), depression, social support, and stressful life events significantly add to the regression equation, over and above reasons for living, to suicidal behavior?

To answer the primary and secondary questions, the following hypotheses were tested:

$H_0$1: No significant relationship exists between self-reported reasons for living and self-reported suicidal behavior among AD military personnel, as measured by the RFLI, and the SBQ-R, respectively.

$H_1$1: A significant relationship exists between self-reported reasons for living and self-reported suicidal behavior among AD military personnel, as measured by the RFLI and the SBQ-R, respectively.

$H_0$2: There are no significant demographic differences in responses on the RFLI (rank, age, gender, ethnicity, MOS).

$H_1$2: There are significant demographic differences in responses on the RFLI (rank, age, gender, ethnicity, MOS).

$H_0$3: Demographics (rank, age, ethnicity, gender, MOS), social support, depression, and stressful life events do not significantly add to the regression equation, over and above reasons for living, to suicidal behavior, as measured by the RFLI and the SBQ-R, respectively.

$H_1$3: Demographics (rank, age, ethnicity, gender, MOS), social support, depression, and stressful life events significantly add to the regression equation, over and

above reasons for living, to suicidal behavior, as measured by the RFLI and the SBQ-R, respectively.

The core independent variables in this study are the six domains and total score on the RFLI; the dependent variable is suicide risk, measured by the total score on the SBQ-R. Depression, stressful life events, social support, and demographic characteristics are included in the analyses as covariates to determine their relationship to suicidal behavior. In an additional analysis, reasons for living is entered into the equation as the dependent variable to determine the unique contribution of demographics, social support, , stressful life events, depression, and suicidal behavior to RFL.

Theoretical and/or Conceptual Framework for the Study

The reason for living theory, as presented by Linehan and colleagues (Linehan et al., 1983), was the foundation for this study. According to this theory, a factor that differentiates suicidal from nonsuicidal individuals is the content of the individual's belief system (p. 276). The theoretical hypothesis was that soldiers who hold to a set of adaptive beliefs and expectations, had high levels of social support, are free of depressive symptoms, and have fewer stressful life events are less likely to engage in suicidal behavior than those who do not hold to such beliefs and expectations (p. 276

Ellis (2006) clarified the influence of cognitions or beliefs and expectations on suicidal behavior by reporting that some suicidal individuals see a future filled with failures (p. 97). Instead of anticipating negative events, these individuals anticipated few positive events, thus generating fewer reasons for living (p. 97). According to Daoud and

Tafrate (2010), these negative or irrational thinking patterns of thinking contribute to depression and hopelessness, which eventually result in suicidal behavior (p. 4).

Military populations are practically absent in most research on the protective factors of reasons for living and suicidal behavior. The exclusion of military populations in this type of research is unknown. However, assessing the protective factors of reasons for living, as a buffer against suicidal behavior, has been well established in age and gender matched civilians, college student samples, inpatient and outpatient adult populations, adolescents, older adults, and ethnic minorities. For example, the College Student Reasons for Living-Inventory (CSRLI) has been used extensively in diverse college student populations, and among various cultural groups (Choi & Rogers, 2010; Lamis et al., 2009). The Brief RFL Scale-Adolescent version has been used in clinical and nonclinical adolescent samples (Connell & Meyer, 1991; Pinto, Whisman, & Conwell, 1998), and the RFL Older Adult Inventory has been validated for use in inpatient and outpatient older adult populations (Edelstein et al., 2009).

Many researchers have recently turned their attention to the study of reasons for living as it offers an alternative approach to the traditional focus of studying risk factors that increase the chance of suicidal behavior (Choi & Rogers, 2010; Connell & Meyer, 1991; Edelstein et al., 2009; Koolaee, Mahmmodi, & Davaji, 2008; Lamis et al., 2009; Linehan et al., 1982). Reasons for living has reshaped the literature on suicide by focusing its' attention on the life-maintaining characteristics of nonsuicidal individuals.

This study fills a gap in literature and is warranted because it is the first study to formally investigate the usefulness of assessing reasons for living, and the impact of

social support, stressful life events, demographics, and depression, above and beyond the variance accounted for by reasons for living to suicidal behavior, in an AD Army population likely plagued by multiple deployments to Iraq and Afghanistan, relationship and work-related stress, and psychological problems. The aim of this study is to examine the relationship between self-reported reasons for living, as measured by the RFLI, and the self-reported suicidal behavior, as identified by responses on the SBQ-R, in a sample of AD Army soldiers. The core independent variables are the six domains and total score on the RFLI, and the dependent variable is suicide risk as measured by the total score on the SBQ-R. In this study, statistical analyses are employed to assess the unique relationship of depression, stressful life events, social support, and demographics to suicidal behavior.

Positive Social Change Implications

It is unclear why certain individuals choose to engage in suicidal behavior while others do not. In a movie documentary, Viktor Frankl, a Nazi Holocaust survivor, was quoted to say, "He who has a Why to live, can bear with almost any How; and the primary motivational force in man is to find meaning in life. In the most painful and dehumanizing situations, man can find meaning, and thus the will to live" (Vesely, 2010-2014). Linehan et al. (1983) followed behind Frankl's theory and proposed that certain reasons for living will keep individuals from engaging in suicidal behavior should the thought arise. Yet, despite the high rate of suicide in the Army, reasons for living have seldom been the focus of research when exploring military suicides.

Early in the religious history of the world, the subject of suicide was taboo, as it was considered a sin to take one's own life (Phipps, 1985). Although mankind has become more advanced in understanding suicidal behavior, the stigma associated with suicide remains (Joe, Canetto, & Romer, 2008). According to the Centers for Disease Control and Prevention (CDC; 2015), suicidal individuals tend to have more risk factors than protective factors. This provides researchers with a wealth of information on reasons why soldiers engage in suicidal behavior. This study has taken a different approach to studying suicide and focuses on reasons why soldiers chose not to kill themselves should the thought arise. This research is intended to add to the limited body of knowledge on reasons for living and suicidal behavior among AD Army personnel, and highlight the use of life-maintaining beliefs and expectations as key elements in reducing suicidal behavior, whether the soldier is new to military service, or has served on active duty for several years.

In 2013, General Odierno, Chief of Staff of the Army, reported on the plan to change the culture of the military to one that creates an environment acceptable for soldiers to seek mental health care, without being stigmatized, and without the fear of negative repercussions (United States Army, 2013b). This change makes it possible for leaders to address behavioral health problems "upstream," before an issue becomes a crisis that could lead to suicidal behavior (p. 1). Identifying and incorporating reasons for living as an essential element in this new culture, follows the same concept of catching the problem upstream. By identifying, incorporating, and reinforcing life-maintaining beliefs, leaders at all levels of command, and service providers working with AD Army

personnel, can aid in eliminating the stigma associated with suicide by promoting cognitive and behavioral resilience, thus improving the health and welfare of soldiers at every level of military service.

Nature of the Study

In this quantitative study, objective ratings are used to examine the beliefs and expectations endorsed by soldiers when faced with situations that could lead to suicidal behavior. Quantitative research proposes that truth exists and can be measured using standardized instruments (Hjelmeland & Knizek, 2010). Quantitative research is also firmly fixed in the study of reasons for living and suicidal behavior (Choi & Rogers, 2010; Lamis et al., 2009; Lee & Oh, 2012; Linehan et al., 1983; McLaren & Hopes, 2002; Ulmer et al., 1992; West et al., 2011). In this study, core independent variables were taken from the RFLI: survival and coping beliefs, responsibility to family, child-related concerns, fear of suicide, fear of social disapproval, and moral objections (Linehan et al., p. 279). The covariates (e.g., demographics, depression, stressful life events, and social support were drawn from the *2011 and 2013 BSHOP Surveillance of Suicidal Behavior Quarterly Updates*. The dependent variable, self-reported suicidal behavior, was captured in responses on the SBQ-R. These variables are presented descriptively in this study, using means, standard deviations, and correlations.

Definitions

Behavioral Social Health and Outcomes Program (BSHOP): A branch of the Army Institute of Public Health (USAPHC) that collects, analyzes, and disseminates

surveillance data on suicidal behavioral cases among AD Army, activated National Guard, and activated Army Reserve soldiers in the U.S. Army (BSHOP, 2013, p. 5).

Buddy System: A U.S. Army program where soldiers are paired so that their strengths and weaknesses balance each other. The program "buddies" work together as a single unit to monitor and help each other (Department of the Army, 2008, p. 78).

Child-Related Concerns: A distinct set of potentially life-oriented beliefs about the effect of suicide on the surviving children (e.g., "my children would be harmed"), that reduce the risk of committing suicide (Linehan et al., 1983, p. 278).

Cognitions: The processes involved in knowing, which include attending, remembering, and reasoning (APA, 2013).

Counterbalance: A force or influence that offsets or checks an opposing force (APA, 2013).

Depression: The American Psychiatric Association (2013) definition and criteria for depression as described in the *Desk Reference to the Diagnostic Criteria for DSM 5* (p. 94).

Fear of Social Disapproval: A distinct set of life-oriented beliefs about how other people see suicidal individuals (e.g., weak or selfish) that may reduce the risk of committing suicide (Linehan et al., 1983, p. 278).

Fear of Suicide: A distinct set of life-oriented beliefs about the actual act of suicide (e.g., pain, blood, and violence) that may reduce the risk of committing suicide (Linehan et al., 1983, p. 278).

Moral Objection: A distinct set of potentially life-oriented beliefs about right and wrong behavior (e.g., religious beliefs forbid it) that may reduce the risk of committing suicide (Linehan et al., 1983, p. 278).

Perceived Burdensomeness: A belief on the part of an individual that their existence does not make any notable contributions to the world and, their existence is a burden to family, friends, and society (Joiner, 2009, p. 1)

Protective Factors: Factors that buffer individuals from suicidal thoughts and behavior (CDC, 2012a).

Reasons for Living: Beliefs about life and expectation for the future (Linehan et al., 1983, p. 277).

Resiliency: The ability to face and cope with life difficulties and adapt to change (Jefferson, 2011).

Responsibility to Family: A distinct set of potentially life-oriented beliefs about one's responsibility to the members of their family (e.g., my family depend on me) that may reduce the risk of committing suicide (Linehan et al., 1983, p. 278).

Risk Factors: A combination of factors that contribute to an individual engaging in suicidal behavior (CDC, 2012a).

Social Support: Support provided by other people in the context of interpersonal relationship, or social ties to other individuals, groups, and the larger community (Cooke, Rossman, McCubbin, & Patterson, 1988, p. 211).

Stressful Life Events: Events that require adjustment and changes in an individual's normal activities (Dohrenwend, 2006, p. 477).

Suicidal Behavior: The different dimensions of suicidality as measured by the SBQ-R: lifetime suicidal ideation and/or suicide attempts, frequency of suicidal ideation over the past twelve months, whether the individual has ever told someone that they were going to commit suicide or might commit suicide, and the self-reported likelihood of suicidal behavior in the future (Osman, Bagge, Guitierrez, Konick, Kooper, & Barrios, 2001).

Suicide Prevention: Programs, policies, and initiatives created to reduce the incidence of suicidal behavior (Department of the Army, 2007, p. 38).

Suicide Surveillance: Involves everything that is necessary to report and track information related to a suicide event (Army National, 2011, p. 1).

Survival and Coping Beliefs: A distinct set of potentially life-oriented beliefs about one's courage to face life, and one's ability to find other solutions to problems, which may reduce the risk of committing suicide ((Linehan et al., 1983, p. 278).

Thwarted Belongingness: A belief that one does not have meaningful relationships because others do not care or because others do care, but they cannot relate to the one's experiences, and as a result, remain at a distance (Joiner, 2009, p. 1).

War-Time Deployment: Soldiers and logistics are transferred to a war-zone for an extended period of time in support of a war-time mission (Department of the Army, 2012b).

Assumptions

In addition to the operational definitions, the assumptions help to clarify the focal point of interest for this study. The primary assumption in this study is that stopping military suicides is important. Other assumptions inherent in this study include:

- Suicides in the military are distressing,
- People want to live and they can be helped,
- The RFLI, SBQ-R, MSPSS, BDI-II, and SRSS will provide valid and reliable data,
- Participants will respond in an honest manner,
- Information gathered will be valid and accurate,

Scope and Delimitations

This study investigates whether or not a statistically significant relationship exists between self-reported reasons for living, and self-reported suicidal behavior, among a diverse population of junior enlisted AD Army personnel. The study did not include the participation of senior enlisted noncommissioned officers, commissioned officers, or civilian personnel. Extending the study to all ranks of soldiers and civilian personnel was not feasible due to the mission requirements of AD Army units. In addition, participants were only recruited from one Army post versus sampling soldiers at different AD installations. The impact of depression, social support, stressful life events, and demographics was investigated to determine their impact over and above the variance accounted for by self-reported reasons for living to self-reported suicidal behavior. The analysis incorporates only the variables listed in the Research Question and Hypothesis

sections of this dissertation. Variables that were not directly relevant to this study were excluded.

Limitations

This study is not expected to be predictive as individual beliefs and expectations do not always lead to or inhibit suicidal behavior (Fang et al., 2011). As such, the main limitation in this study is the inability to draw causal inferences regarding the impact of self-reported reasons for living on self-reported suicidal behavior. The study also has limitations of generalizability as it is limited to a specific study population of soldiers at a single AD Army post. This limitation was handled by recommending future researchers broaden the study population of soldiers in order to increase generalizability.

The impact of response bias and confounding variables are also limitations in this study. Response bias was handled by asking participants to answer each question honestly; and only variables relevant to the study were included in the data analyses. It is recommended that future researchers consider qualitative and mixed methods research strategies which can help clarify the relationship between reasons for living and suicidal behavior.

Significance

This study is the first to investigate the relationship between self-reported reasons for living and self-reported suicidal behavior, in an AD Army population, while assessing the impact of demographics, depression, stressful life events, and social support. One trauma recovery program in the U.S. Army is using reasons for living and the RFLI in their inpatient group settings to start a conversation about reasons why people do not give

up on life. However, prior to this study, a formal investigation that focused specifically on the relationship between self-reported reasons for living and self-reported suicidal behavior, while controlling for depression, stressful life events, and social support, in an AD Army population, had not yet been conducted (E. Franks, personal communication, December 28, 2012). This study adds to the existing body of knowledge on reasons for living and suicidal behavior. It also identifies a set of life-maintaining beliefs that are thought to be important in preventing suicidal behavior, and provides support for the development of a RFLI-military version.

Summary

Suicide and suicidal behavior in the U.S. Army has become a national health crisis. Traditional research on suicide has focused on identifying and eliminating risk factors in order to improve an individual's mental well-being, thus reducing the risk of suicidal behavior. Although the pendulum of suicide research is swinging towards a more balanced view that incorporates protective factors, reasons for living continues to be an understudied area of suicide prevention in military research. According to Linehan et al. (1983), focusing on reasons for living allows researchers the ability to identify certain adaptive beliefs and expectations that are life-maintaining and potentially important as factors in preventing suicidal behavior, such as "Life is all that we have and is better than nothing," "I love and enjoy my family too much and could not leave them," "The effect on my children would be harmful," "I am afraid of death," "Other people would think I am weak and selfish," and "I believe only God has the right to end a life" (p. 279).

Chapter 2: Literature Review

Introduction

The purpose of this study was to test whether a statistically significant relationship existed between self-reported reasons for living and self-reported suicidal behavior in a diverse population of active duty (AD) U.S. Army personnel. This study specifically assessed reasons for living and suicidal behavior using the Reasons for Living Inventory (RFLI) and the Suicide Behaviors Questionnaire-Revised (SBQ-R). The dissertation study also examined the impact of demographic, depression, social support, and stressful life events because of the pressures associated with serving in today's Army. This problem is especially significant because the U.S. military's involvement in the Iraq and Afghanistan wars has been accompanied by a persistently increasing rate of suicide and suicidal behavior among AD Army personnel, reaching epidemic proportions by the time of this study (Kuehn, 2010).

Literature Search Strategy

A variety of strategies were used to examine and compile the relevant literature review for this study. First, available literature addressing theories of suicide was compiled, irrespective of years published. This strategy allowed access to historical literature on the study of suicide. Several articles were selected from the PsycINFO, PsycARTICLES, and SocINDEX databases, and a variety of other sources using the keywords: theory of suicide, suicidal behavior, and interpersonal-psychological theory of suicide, social support, depression, and stressful life events. Although scholarly and peer-reviewed articles were emphasized during this process, a selection of non-peer reviewed

resources was examined for relevant information. Second, a selection of available articles, addressing the epidemiology of suicide in the general US population, and in the U.S. Army, were compiled from a variety of databases using the keywords: epidemiology of suicide, suicide in the military, prevalence of suicide, completed suicides, suicide attempts, suicidal ideation, depression, and demographics. The selection of online resources, print media, and scholarly articles were reviewed and compiled by relevance and credibility. Third, a selection of literature addressing risk and protective factors for suicide were compiled from online resources, scholarly and peer-reviewed articles, and a variety of websites: Department of Defense, Department of Veterans Affairs, United States Army, United States Army National Guard, United States Army Public Health Command, and the Centers for Disease Control and Prevention (CDC), using the keywords: military suicides, suicide prevention, risk and protective factors, past suicide attempts, demographics, stressful life events, and social support. Fourth, a selection of literature addressing reasons for living and the RFLI were compiled using the keywords: reasons for living, RFLI, Linehan, suicide, suicidal behavior, and a combination of these terms. Scholarly and peer-reviewed articles were emphasized during this process without time limitations. However, efforts were made to select the most recent articles.

In 2008, a vast number of articles began to be published on the problem of suicide in the U.S. Army. It was during this time that the Department of Defense collaborated with several institutions to identify risk and protective factors associated with suicide among soldiers, and to develop a science-base for the implementation of effective and practical strategies that would reduce suicidal behavior and associated mental health

problems among active duty personnel (p. 1). To date, researchers acknowledge that such an undertaking is a substantial task that has taken more time than expected, to meet the intended goal of better understanding the problem of suicide in the U.S. Army (p. 273).

In 1983, Linehan et al. set out to determine if a set of cognitive beliefs, or reasons for living, could serve to protect individuals from suicidal behavior. The Reasons for Living Inventory (RFLI) was an outcome of this research. The study by Linehan et al. demonstrated strong correlation between reasons for living and suicidal behavior; and differentiated suicidal from nonsuicidal individuals in clinical and nonclinical settings. Since this time, a significant amount of research has been conducted using the RFLI to measure the potential importance of these beliefs in combating suicidal behavior in diverse populations (Choi & Rogers, 2010; Lamis et al., 2009; McLaren & Hopes, 2001; West et al., 2011). This dissertation study was designed, in part, to address a gap in the literature that I identified, consisting of a lack of peer-reviewed, research-based articles that explored this relationship among AD Army personnel since the beginning of the involvement of the U.S. in the Iraq and Afghanistan wars (Department of the Army, 2012b).

Literature Review

Reasons for Living

Linehan et al. (1983) propose a theory of suicide that incorporates protective factors, or positive cognitions, in the assessment of suicide, which is theorized to differentiate suicidal from nonsuicidal individuals. Linehan's theory is not only compatible with cognitive approaches to understanding and explaining suicidal behavior

(Beck, 1996; Ellis, 2006), but is also consistent with Victor Frankl's belief that one's thoughts about life, and expectations for the future, are critical in preserving an individual's life when faced with significant life stress (Frankl, 1959). According to cognitive-behavioral theorists, an individual's thinking often determines how the individual feels, which influences or determines their behavior (Ellis, 2006). This thought aligns with Linehan's premise that individuals who have more reasons for living are less likely to consider suicide or engage in self-destructive behavior (Linehan et al., 1983).

The following studies, which examined reasons for living and suicidal behavior in understudied populations, were included in this proposal to highlight the effectiveness of examining reasons for living as important factors in keeping individuals alive when suicide was considered. These articles included a summary of research by Choi and Rogers (2010), Chatterjee and Basu (2010), and Wang, Nyutu, and Tran (2012).

In 2010, Choi and Rogers examined the relationship between reasons for living and suicidal behavior in a population of Asian American college students. Choi and Rogers conducted an investigation to see if Asian students without a risk of suicidal behavior scored higher on the RFLI than students with a risk of suicidal behavior. Choi and Rogers also studied reasons for living scores among this population to see if they were significantly related to depression and hopelessness, and if reasons for living accounted for more variance in suicidal behavior than depression, social support, and hopelessness (p. 224). Participants in this study consisted of students from several community organizations, as well as the Asian American Psychological Association (p. 255).

The first hypothesis was that Asian American college students without suicide risk would score significantly higher than those with suicide risk on the College Reasons for Living Inventory (p. 229). The results of their investigation revealed that participant scores on the reasons for living inventory differed based on the participant's group membership (p. 229). A univariate analyses (ANOVA) showed that the no-risk group scored significantly higher on certain RFLI subscales: survival and coping beliefs, college and future related concerns, responsibility to friends and family, and moral objections domains than participants with suicide risk (p. 229). This study contributed to the literature on reasons for living and suicidal behavior as it supported Linehan's claim that individuals can generate reasons for living should the thought of suicide arise, and that specific reasons for living may be important in preventing suicidal behavior among certain groups of high risk individuals.

Choi and Rogers second hypothesis, "reasons for living scores would be significantly and negatively related to scores on depression and hopelessness," was tested using the Pearson product-moment correlation (p. 229). As hypothesized, all of the CRFLI subscales (e.g., survival and coping beliefs, college and future related concerns, responsibility to family and friends, and moral objections to suicide), except for fear of suicide, were significantly and negatively associated with depression and hopelessness (p. 229).

The third hypothesis, "reasons for living scores would account for a significant amount of variance in suicidal behavior, above and beyond the variance accounted for by depression and hopelessness, was tested using a hierarchical regression analyses (p. 229).

In the first step of the equation, depression and hopelessness accounted for approximately 29% variance in suicidal behavior (p. 229). In the second step, CRFLI scores contributed to an additional 8% of variance, above and beyond depression and hopelessness; and among the subscales, only survival and coping beliefs and moral objections to suicide were statistically significant in explaining suicidal behavior (p. 229).

There were several limitations in this study. According to Choi and Rogers (2010), respondents in the study were self-selected to participate in the online survey (p. 233). Although not indicated, individuals with suicidal ideations could have been drawn to respond to the study, and may have been over represented in the sample (p. 233). Also, because sampling was conducted through community and psychological associations, individuals not affiliated with these organizations might have answered differently in their responses (p. 234).

In another study examining high risk populations, Chatterjee and Basu (2010) studied reasons for living and suicidal behavior among female college students in Kolkata and Howra, India (p. 311). This population was chosen as a focus of study because of the high rate of suicide among female college students in India (p. 311). In their study, Chatterjee and Basu hypothesized that different types of stress would evoke suicidal behavior among these female college students, and reasons for living would be inversely related to suicidal behavior. (p. 312). The College Student Reasons for Living Inventory was used to collect specific data on beliefs and expectations about reasons for not engaging in suicidal behavior should the thought arise (p. 313). The results of the study supported the researcher's hypothesis that high scores on the CSRFLI were correlated

with lower suicidal behavior (p. 313). The results were also consistent with Choi and Rogers (2010) study where suicidal behavior was inversely related to high scores on survival and coping beliefs, college and future related concerns, responsibility to friends and family, and moral objections to suicide (p. 233). This study was another example of how researchers employed reasons for living to assess suicide risk among high risk populations.

Wang, Nyutu, and Tran (2012) contributed to the study of reasons for living and suicidal behavior among high-risk populations by studying Black college students beliefs and expectations related to suicidal behavior. According to Wang et al. (2012), this study was an important contribution to the study of suicide because empirical research investigating the relationship between reasons for living and suicidal behavior in African American populations was lacking (p. 459). In their study, Wang et al. hypothesized that certain coping styles, such as task-oriented and avoidance-oriented coping, would increase reasons for living, while other coping styles, such as emotion-oriented coping, would decrease reasons for living (p. 461). In their study, reasons for living were hypothesized to predict depression and suicide risk (p. 461). In addition, depression was hypothesized to directly increase the likelihood of suicidal behaviors (p. 461). The Reasons for Living for Young Adults (RFL-YA) scale was used to collect data related to beliefs and expectations about life and suicidal behavior.

Wang et al. (2012) reported that reasons for living partially mediated the relationship between coping styles, depression, and suicidal behavior (Wang et al., 2012). Specifically, emotion-oriented coping increased suicide risk, while avoidance-oriented

coping was protective against suicidal behavior because of the positive nature of reasons for living (p. 463). In a multiple regression analysis, reasons for living had the greatest influence on suicidal behavior than the other variables in the study (p. 463).

The one study that was found to examine the relationship between reasons for living and suicidal behavior in an AD Army population was that done by Ulmer et al. (1992). In this study, 288 AD Army soldiers who had just completed BASIC training were surveyed using the RFLI (p. 186). These soldiers entered the Army in 1992, during a time when the military was settling down from its involvement in Desert Shield/Desert Storm. Most of the participants in this study were male, between the ages of 18 and 22 years, single, Caucasian, had a high school diploma or GED, and considered themselves religious or spiritual (p. 186).

The data analysis for this study revealed that participants felt neither very lonely nor very depressed (p. 186). They scored moderately high on reasons for living, and there was a significant correlation between reasons for living and loneliness, with those who reported higher loneliness scores also reporting fewer reasons for living (p. 186). The correlations between depression and reasons for living were also significant; with participants who scored high on depression scales indicating fewer reasons for living (p. 186). In a step-wise multiple regression analyses, loneliness significantly predicted reasons for living, but depression did not add to the regression equation over loneliness (p. 187).

The results of this study demonstrated that loneliness and depression were related to reasons for living, and that reasons for living was useful in predicting risk factors for

suicide in this particular population of soldiers (Ulmer et al., 1992). The study was, however, limited by the fact that the soldiers completed the surveys shortly after completing BASIC training (p. 186). These participants may have scored differently at other points in their military careers (p. 186). Despite these limitations, the Ulmer et al. study highlighted the benefit of using reasons for living to identify life-maintaining beliefs and expectations in an active duty Army population, and concluded that strengthening RFL among this population may diminish suicide risk (p. 188).

Demographics

The literature on demographics and reasons for living is varied. However, in the *2012 Armed Forces Medical Surveillance Monthly Report*, between January 1998-December 2011, most soldiers who died by suicide were male (95%), active duty (89%), nonHispanic Caucasian (70%) and in their 20s (58%). The BSHOP (2013) reported that soldiers who were most likely to engage in suicidal behavior were predominantly male, nonHispanic white, 17 to 34 years of age, active duty, married, and enlisted with at least one deployment. Wang et al. (2012) reported that women were more likely to have higher reasons for living scores than men. This was consistent with the research done by Rich et al. (1992), who reported that women tended to score higher on reasons for living, specifically: fear of suicide, responsibility to family, and moral objections to suicide (p. 365). In terms of ethnicity, when comparted to nonHispanic White college students, Black college students scored higher on reasons for living, particularly on scales of moral objections to suicide and survival and coping beliefs (Wang et al.).

Depression

Bagge, Lamis, Nadorff, and Osman (2013) reported that depression has long been identified as a risk factor for suicidal behavior. The Centers for Disease Control and Prevention (2014) reported that one in ten Americans suffer with depression, and recently, the Harvard Medical School (2014) released a report which indicated that depression is five times higher among soldiers than in the general U.S. population. In 2000, Malone et al. investigated the relationship between reasons for living and suicidal behavior in a population of 84 individuals with major depression (p. 4). Study participants completed the RFLI, measures on depression, life events, and suicidality (p. 4). The results of the study indicated that individuals who had not previously reported depression scored higher on reasons for living , particularly survival and coping beliefs, fear of social disapproval, and moral objections to suicide versus individuals with a history of suicidal behavior (p. 4).

Bagge et al. (2013) also reported that depression was not only related to suicidal behavior, but was also associated with low reasons for living scores in both clinical and nonclinical samples. Bagge et al. (2013) studied the relationship between reasons for living, depression, hopelessness, suicidal ideation, and suicide attempts. Although different ethnicities and ages were represented in the study, the sample consisted mostly of European female college students (p. 20). Study data was collected through online surveys, using the RFLI for Young Adults (RFL-YA; p. 20). Lifetime suicide attempts were assessed with one dichotomous yes or no question: “Have you ever tried to kill yourself or attempt suicide?” (p. 21). After completing statistical analysis, Bagge et al.

reported that depression and hopelessness were positively related to suicidal behavior (p. 26). In addition, the hypothesis that reasons for living would partially account for the relationship between risk factors and suicidal behavior was supported by the results (p. 26). This study accentuated the importance of determining the extent to which protective factors are present with at-risk individuals, and reiterated that reasons for living are important factors when assessing suicidal behavior (p. 27). As was true of other studies, the main limitation in this study was that of generalizability. The participants in this study included a large sample of college students, and it is unknown how the results would generalize to young adults who were not students (p. 28).

Social Support

June et al. (2009) reported that social support is one of the most common factors associated with suicidal individuals. In their study, June et al. determined that fewer perceived social supports are associated with higher levels of depression, and lower perceived social support was significantly related to a higher risk of suicidal behavior (p. 754). In their study, June et al. examined the relationship between religiousness, perceived social support, and reasons for living among European and African American older adults (p. 754). Data analyses revealed that high religiousness was associated with more reasons for living, and ethnicity alone did not uniquely contribute to the variance in reasons for living. There was, however, a significantly strong relationship between religiousness and reasons for living among African Americans participants (p. 757). June et al. concluded that social support and religiousness within this population was inversely related to suicidal behavior (p. 753). These results were consistent with a study conducted

by West et al. (2011), who reported that spiritual well-being and perceived social support buffers individuals from engaging in suicidal behavior.

Stressful life events

In 2012, Overholser et al. investigated the relationship between stressful life events and suicidal behavior among individuals who had completed a death by suicide and individuals who died unexpectedly by causes unrelated to suicide (p. 335). Overholser et al. reported many different stressors were situational triggers for suicide among their study population. After reviewing 148 suicide completion cases, Overholser and colleagues identified a situational crisis in almost every case (p. 335). After reviewing these triggers, Overholser et al. hypothesized that individuals who completed suicide experienced a variety of risk factors compared to individuals who died of causes unrelated to suicide (p. 337). According to Overholser et al., individuals who died by suicide were more likely to have experienced the death of a close relative or friend, relationship problems, legal trouble, financial stressors, work-related issues, and health problems six months prior to death (p. 337).

After completing data analysis, Overholser et al. concluded that suicide completers and those who died by unrelated suicidal behavior were similar in terms of demographics, specifically age and education (Overholser et al., 2012). However, suicide completers were more likely to be Caucasian, divorced, separated, or widowed (p. 339). Individuals who died by suicide were also not significantly different on work-related stress, financial difficulties, or personal and family health problems compared to individuals who died unexpectedly by causes unrelated to suicide (p. 339). Of note,

suicide completers were more likely to have experienced relationship problems in the six months prior to death than the comparison group (p. 339). Overholser et al. concluded that depression, which may have been the culmination of various factors, remained the most important risk factor in the investigation suicidal behavior (p. 343).

This study included individuals from the Midwestern part of the United States. As such, results of this study may not generalize to individuals from other parts of the United States (Overholser et al., 2012). In addition, this study was a retrospective look at the relationship between stress and suicidal behavior. Individuals who had died by suicide were not available for interview; therefore, it was impossible for Overholser and colleagues to assess psychological factors that might have contributed to an individual engaging in suicidal behavior (p. 345).

Summary of Studies

The common theme throughout much of this literature was that suicide is a phenomenon with many different factors; and reasons for living could be assessed in any culture and in any population to differentiate suicidal from nonsuicidal individuals. It is suggested that ongoing and future research, including that being conducted by the U.S. Army, attempt to integrate different domains and variables in the study of suicidology in order to enhance the understanding of this phenomenon (p. 345).

Foundation

Despite efforts to implement new suicide prevention policies and programs, decrease the stigma associated with receiving mental health treatment and help-seeking behavior, and improve access to behavioral health care, the suicide rate in the U.S. Army

continues to rise (Cersovsky, 2011). Several researchers have suggested a realignment of suicide prevention programs with a conjoint focus on risk and protective factors, rather than risk factors alone (Choi & Rogers, 2010; Lamis et al., 2009). However, a considerable amount of research on suicidality continues to focus primarily on risk factors associated with suicidal behavior. The reasons for living theory was specifically chosen for this study as an attempt to engage the other end of the suicide spectrum by exploring reasons why soldiers chose not to kill themselves, rather than focusing on reasons why soldiers kill themselves. This research was a direct reflection of the current risk factors presented by BSHOP (2013) on the population of soldiers at the highest risk for suicide, and on a potential suicide reduction strategy demonstrated to be an effective approach in reducing suicidal behavior. The following research question was the primary focus of this study: "Is having a high level of reasons for living associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively. The secondary questions used to support the analyses of the primary question included:

- Are there significant demographic differences in responses on the RFLI (rank, age, ethnicity, gender, military occupational specialty)?
- Do demographics (rank, age, ethnicity, gender, MOS), depression, social support, and stressful life events significantly add to the regression equation, over and above reasons for living to suicidal behavior?

Conceptual Framework

This study proposes that soldiers who endorse high levels of reasons for living would also be at a lower risk of engaging in suicidal behavior, as measured by the RFLI

and SBQ-R, respectively. This concept was similar to that posed by researchers investigating the relationship between reasons for living and suicidal behavior among high risk clinical and nonclinical adolescent and adult populations (Choi & Rogers, 2010; June et al., 2009; Koolaee et al., 2008; Lamis et al., 2009; Linehan et al., 1983; McLaren & Hopes, 2001; West et al., 2011). The covariates in this study (e.g., depression, stressful life events, and social support were added to the analyses to assess their unique relationship to suicidal behavior. As of the date of this study, no other study had incorporated these variables into one research project. The literature review framed this study; and theories, concepts, and methods were extrapolated and modified to fit the present research. Lastly, gaps and limitations were used to help define the purpose and need for the investigation.

Figure 1 shows the conceptual model for this study.

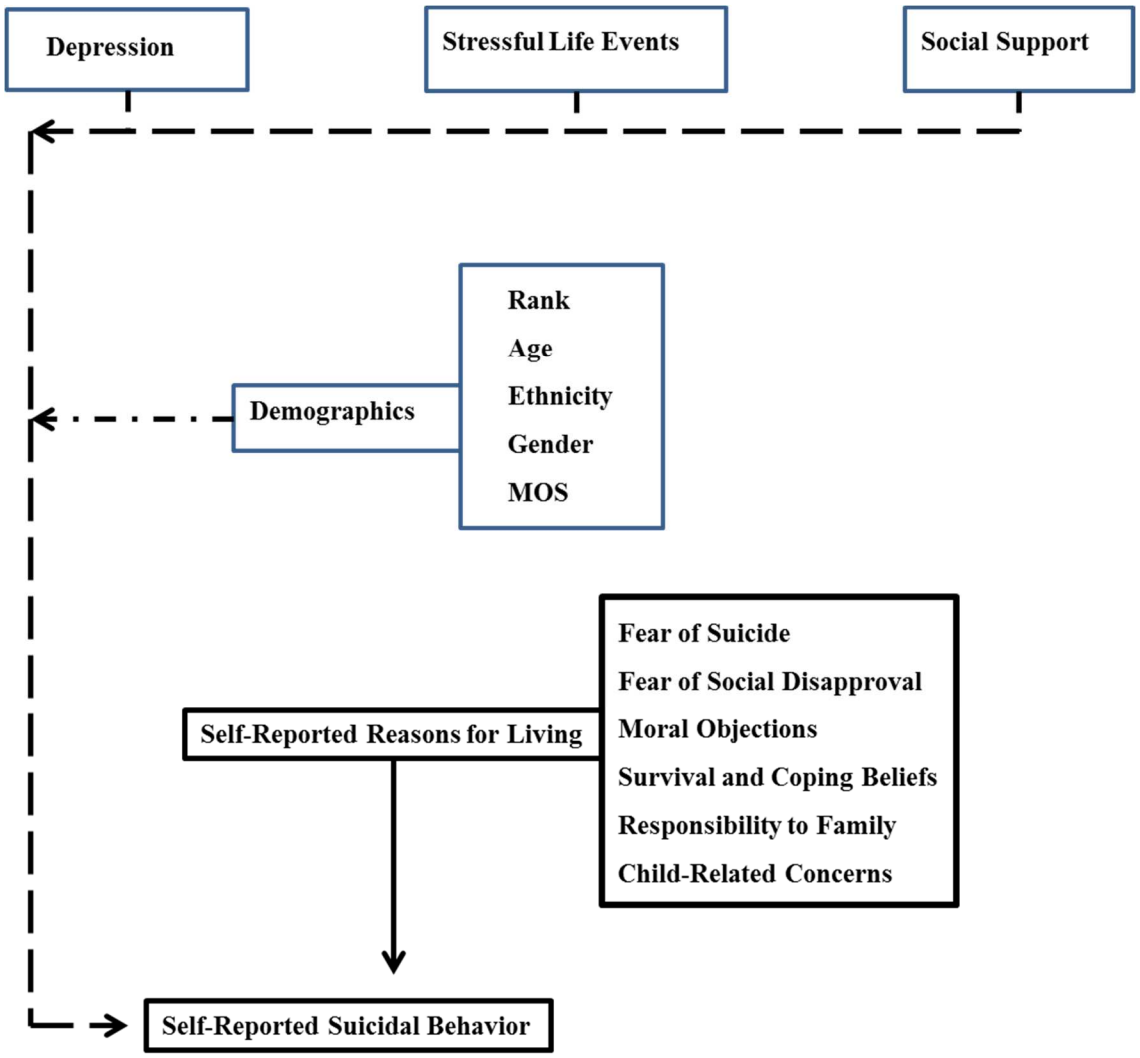

Figure 1. A conceptual model showing factors leading to self-reported suicidal behavior. Adapted from variables and analyses identified in Black et al. (2011), Griffith (2012), Linehan et al. (1983), Behets (2002), Doerfler et al. (2010), Heikkinen, Hillevi, & Lonnqvist, (2010), Gadermann et al. (2012), Blumenthal (2012), and the semiannual reports by BSHOP (2011, 2013).

Empirical Support for Instrumentation

Reasons for Living Inventory (RFLI)

RFLI is a 48 item self-report questionnaire that assesses the range of beliefs and expectations thought to be important in differentiating suicidal from nonsuicidal individuals (Miller, Segal, & Coolidge, 2001). Each item assesses potential reasons for not committing suicide should the thought arise (p. 360). The RFLI is based on a cognitive behavioral approach that cognitive patterns, such as beliefs and expectations, are significant mediators of suicidal behavior (Linehan et al., 1983; Miller et al., 2001; Ulmer et al., 1992). According to Miller et al. (2001), an advantage of the RFLI in the study of suicide is its positive wording. Miller et al. noted that "simply" completing the RFL may have a suicide-preventive impact (p. 360). Each item on the RFLI is rated on a six-point Likert scale ranging from "not at all important" (1) to "extremely important" (6; Ulmer et al., 1992). The number of items for each scale ranges from 3 to 24 (Miller et al., 2001). Subscale and total scores are divided by the number of items, therefore scores range from 1 to 6 (p. 360). The RFLI is considered reliable, with Cronbach alphas of .72 and .89 for each subscale (Linehan et al., 1983). The six reasons for living subscales include: survival and coping beliefs, responsibility to family, child concerns, fear of suicide, fear of social disapproval, and moral objections (p. 282). The RFLI is deemed valid, with subscales differentiating individuals with suicidal ideation and those without suicidal ideations, suicide attempters from nonsuicidal attempters, and those with a history of suicide ideation from those with no history of suicidal ideation (Ulmer et al., 1992).

Suicide Behaviors Questionnaire-Revised (SBQ-R)

In this study, the outcome variable, suicidal behavior, was measured using the Suicidal Behavior Questionnaire-Revised (SBQ-R), which was comprised of four questions designed to assess suicidal intent, communication, previous ideation and attempts, and likelihood of future suicide attempt (Osman et al., 1999). Each question on the SBQ-R was scored on a Likert scale, ranging from 5-7 points, indicating frequency or severity (p. 1). The items were summed for a total score, with higher total scores indicating greater levels of suicidal behavior (p. 1). The SBQ-R has demonstrated high internal consistency (a=.97) in university samples, and good convergent validity with the Adult Suicidal Ideation Questionnaire (r=.40, p<.01; Osman et al., 2001).

Beck Depression Inventory-II (BDI-II)

The effect of depression on the relationship between reasons for living and suicidal behavior was measured using the Beck Depression Inventory-II. The BDI-II is a 21-item self-report measure of the presence of cognitive and affective aspects of depression (Beck, Steer, & Brown, 1996). The BDI-II uses a 4-point Likert scale, ranging from 0-3, with "0" representing absence of a symptom, and "3" representing the severe presence of a symptom (p. 1). Responses on the items were summed to derive a total scale score, with higher scores suggestive of higher depressive symptom severity (Bagge et al., 2013). Each item measured a distinct depressive symptom through a series of four statements that reflect greater severity as they progress (p. 21). For example, "I do not feel sad," "I feel sad," "I am sad all the time," or "I am so sad or unhappy that I can't stand it" (p. 21). The BDI-II has demonstrated good internal consistency and concurrent

validity in clinical and nonclinical samples (p. 21). Osman, Kopper, Barrios, Gutierrez, and Bagge (2004) found that scores on the BDI-II correlated with measure of suicide risk and other measure of depression (p. 120).

Multidimensional Scale of Perceived Social Support (MSPSS)

The impact of social support on the relationship between reasons for living and suicidal behavior was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS). The MSPSS was developed as an easy to use, cost-effective questionnaire to measure the impact of life stress and social support on physical and mental well-being (Dahlem, Zimet, & Walker, 1991). It is a 12-item scale that distinguishes perceived social support from three sources: family, friends, and significant other (p. 756). Participants used a 7-point Likert scale (very strongly, disagree to very strongly agree) with each item (p. 758). According to Dahlem et al., the scale is psychometrically sound (p. 756). MSPSS scores were related to depression in university samples where strong test-retest reliability, internal reliability, and factorial validity were demonstrated (p. 756). Dahlem et al. also reported that social support was inversely related to physical and mental stress in individuals who were driven, but not in individuals who were more relaxed (p. 757). Dahlem et al. also reported that the MSPSS has yielded reliable data with diverse samples (p. 760).

Holmes and Rahe Stress Scale (SRRS)

The Holmes-Rahe Stress Scale was used to assess the impact of stressful life events on the relationship between reasons for living and suicidal behavior. The Holmes and Rahe Stress Scale, also called the Social Readjustment Rating Scale (SRRS),

identifies suicide attempters, in that suicide attempters were reported to have more stress than nonsuicide attempters (Baca-Garcia, Blasco-Fontecilla, Delgado-Gomez, Legido-Gil, deLeon, & Perez-Rodriguez, 2012). The SRSS is a 43 item questionnaires (p. 16). Each item is scored from 0 to 100 (p. 16). A score ranging from 0 to 149 was associated with no significant stressors (p. 16). A score of 150 to 299 was associated with moderate to high levels of stress; and a score of 300 or higher was considered major stress, with an individual having an 80% chance of illness or health change (p. 16). The SRSS was validated for use with a population of depressed inpatients in Malaysia (Chan, Maniam, & Shamsul, 2011), and has also been assessed against different ethnic populations in the United States (Dahlem et al., 1991). Isherwood (1981) reported acceptable reliability and validity for use with groups, but not as a stress index for specific individuals (p. 71).

Selection of Variables

The variables in this research were specifically selected to assess whether a relationship exists between reasons for living, and suicidal behavior, in an active duty Army population. Adding depression, social support, demographics, and stressful life events provided a novel combination of factors that has not been studied collectively, to this date, in empirical research.

Suicidal behavior

Studies on military suicides have identified suicidal behavior as a major problem in the United States Army (; Bachynski et al., 2012; Bodner et al., 2006; Carr, 2011; Cersovsky, 2011; Mann, 2011; Nock, 2011; Van Orden et al., 2008). According to Bachynski et al. (2012), “no program, outreach, or initiative has worked against the surge

of Army suicides, and no one knows why nothing works" (p. 1). Nock (2011) and Cersovsky (2011) acknowledged the limitations in understanding, predicting, and preventing suicidal behavior are great, primarily because of the inability to know every characteristic of a suicidal individual. Many researchers believe that eliminating risk factors is one of the greatest weapons to decreasing suicidal behavior (Bodner et al., 2006; CDC, 2012c; Harrell & Berglass, 2011; Kaplan, McFarland, Huguet, & Valenstein, 2012). However, this effort has been met with limited success in the overall reduction of suicidal behavior in the general population and in the U.S. Army. Overholser et al. (2012) reported that a variety of social, biological, and psychological factors contribute to an individual engaging in suicidal behavior (p. 334). Subsequently, Overholser et al. recommend using a combination approach to assessing risk and protective factors and in identifying individuals who may be at risk of engaging in suicidal behavior (p. 334).

Demographics

Kessler et al. (2013) reported that individual demographic factors considered high-risk for suicidal behavior in the general United States population may not generalize to AD Army soldiers. According to Kessler et al., Army personnel typically have good mental and physical health, have at least a high school education, have free healthcare, but also may experience a variety of factors that contribute to suicidal behavior (p. 268). The BSHOP (2011, 2013) highlights consistent trends for suicidal behavior in the U.S. Army (e.g., age, gender, ethnicity, work issues, relationship problems, and psychological health). As reported by Overholser et al. (2012), although demographics are considered

important variables when investigating suicidal behavior, they are only one component of a complex problem.

Depression

Depression has been identified by BSHOP (2011, 2013) as a primary behavioral health indicator among soldiers with completed suicides, suicide attempts, and suicidal ideation. According to Malone et al. (2000), the focus of current suicide research should not be limited to the question, "Why do depressed patients want to kill themselves," but should include an investigation into the reasons depressed patients gave for wanting to live (p. 1084). Malone et al. reported that an approach that incorporates both ends of the suicide spectrum would provide a more balanced study of suicidal behavior, and provide information that is critical to the development of effective suicide prevention programs.

Stressful Life Events

In 1959, Viktor Frankl, a Holocaust prisoner of war survivor, provided an inside view of how the extremes of stress, such as those seen in Nazi concentration camps during WWII, could lead individuals to engage in suicidal behavior, and how reasons for living could serve as protective factors against such behavior. Behets (2002) and Doerfler et al. (2010) added to this existing body of knowledge on reasons for living and stress by reporting that the impact of the cumulative effect of stressful life events can result in a perceived inability to manage the difficulties of life, and possibly lead to suicidal behavior.

Social Support

In addition to demographics, depression, and stressful life events, being unable to identify a support system or experiencing problems within a support system can alienate individuals from relationships that have served to buffer them against suicidal behavior. According to Sellers (2010), the current, uncertain, and complex state of the U.S. Army alters support networks for soldiers and family members, and contributes to the problem of suicidal behavior (p. 1). Van Orden, Cukrowicz, Witte, and Joiner (2012) reported that individuals who experience fewer perceived social support networks, and who become socially isolated, are at an elevated risk of engaging in suicidal behavior (p. 197). As stated above, suicidal behavior is often not the result of one risk factor alone, such as demographics, stressful life events, or social support, but is more often a combination of many factors.

Methodology

This dissertation study involves the use of quantitative measures. Quantitative research is firmly fixed in the study of suicide (McIntosh, 2002). It is a method that uses hypothesis-deductive reasoning (Hjelmeland & Knizek, 2010), and proposes that truth exists and can be measured using standardized instruments (p. 75). Although recent articles have been published to highlight the importance of qualitative and mixed methods research in the study of suicidology (Kral, Links, & Bergmans, 2012; Lester, 2010), the common statistical approach continues to be quantitative analyses. In a personal communication with H. Robinson (December 8, 2013) and the Commandant of the WLC training center (W. Jefferson, personal communication, December 20, 2013),

quantitative measures was the preferred method of data collection for this study. Pearson correlation and multiple regressions were used to analyze the study data and investigate correlations.

Limitations in Research

Each article reviewed for this study, expressed caution when interpreting the results due to certain limitations. The most common limitations were related to having a modest sample size, a high rate of attrition, and little ethnic diversity Choi & Rogers, 2010; Koolaee et al., 2008; Lamis et al., 2009). These restrictions hindered the researchers' ability to fully examine the relationship between the variables of interest, and limited generalizability to other populations (Choi & Rogers; Koolaee et al.; Lamis et al.). In most cases, control group were not included as a part of the study sample. This prevented the researchers from asking questions that could have been used to compare two groups on variables of interest (Street et al., 2012). In addition, studies that involved mailing questionnaires to participants suffered low return rates (McLaren & Hopes, 2001), and studies that administered online questionnaires were hindered by low participation (Lamis et al., 2009). Most studies measured levels of suicidality and reasons for living exclusively by self-report, which is inherently biased (Street et al., 2012). Miller et al. (2001) reported that some participants may have been unwilling to admit to suicidality because of the negative stigma associated with having a mental health condition. In addition, very few of the studies involved a longitudinal approach, and were therefore not designed to evaluate the change in responses overtime (Ulmer et al., 1992). Finally, the relationship between reasons for living and suicidal behavior may have been

a reflection of other variables, separate from the variables of interest. Although these limitations were not overcome in the studies, the articles provided a foundation for this dissertation study, and provided a rich source of information for future investigations, as researchers attempt to incorporate longitudinal studies, qualitative and mixed methods research designs, and more diverse sample populations.

Summary

Since 2003, a tremendous amount of research has been published on the crisis of suicide in the U.S. Army. Researchers and scholars have addressed issues related to the prevalence of suicide, characteristics of suicidal individuals, risk and protective factors, the impact of war and other life stressors, the lack of social support, and suicide treatment and prevention programs. This immense focus was generated to understand the problem of suicide after the Army's suicide rate surpassed that of the general U.S. population in 2008. Although a great deal of time, effort, and finances have been invested to improve the ability of scholars and practitioners efforts to predict at-risk individuals, and reduce the overall rate of suicidal behavior in the U.S. Army, military suicides continues to be a challenging, and resistant problem (Weiner, Richmond, Conigliaro, & Wiebe, 2011).

While a large body of literature exists that examines the relationship between reasons for living and suicidal behavior in the general U.S. population, little attention has been given to studying this relationship in an AD Army population involved in protracted wars in Iraq and Afghanistan, the strain of work and relationship stress, the rising rate of psychological disorders, and the new pressures associated with the current restructuring and drawdown of the Armed Forces, in a time of economic uncertainty. This study was

proposed to examine this relationship in such an AD Army population, and to explore the impact of demographics, depression, social support, and stressful life events on suicidal behavior, should the thought rise. It was the first study of its kind to include, in one research project, unique variables that have been identified by the BSHOP as primary precipitators of suicidal behavior in a high risk U.S. Army population.

Chapter 3: Research Method

Introduction

The purpose of this study was to investigate whether a relationship existed between self-reported reasons for living and self-reported suicidal behavior, as measured by the Reasons for Living Inventory (RFLI) and Suicide Behaviors Questionnaire-Revised (SBQ-R). The literature review for this dissertation only identified one prior study that investigated this relationship in an AD Army population (Ulmer et al., 1992). Ulmer et al. studied loneliness, depression, and reasons for living in a sample of 288 AD Army soldiers completing BASIC training (p. 186); these soldiers endorsed strong reasons for living, particularly survival and coping beliefs, and moral objections to suicide (p. 187).

In contrast to the Ulmer et al. study, this dissertation was designed to examine the relationship between self-reported reasons for living and self-reported suicidal behavior, in a sample of AD Army soldiers who have served in the military for more than three years, are stationed in Germany, and are completing a leadership course. The study also investigated the impact of demographics, social support, depression, and stressful life events to suicidal behavior using the Multidimensional Scale of Perceived Social Support (MSPSS), Beck Depression Inventory-II (BDI-2), and Holmes and Rahe Stress Scale, respectively. Pearson correlation was used to examine the relationship between reasons for living and suicidal behavior, a multivariate analysis was used to examine demographic differences on reasons for living scores, and a multiple regression analysis was used to determine the amount of variance of reasons for living, over and above,

depression, social support, stressful life events, and demographics, on suicidal behavior. Ethical considerations and potential threats to validity address research-related issues that have been reported to adversely impact study results when not managed and controlled.

Research Design and Rationale

This quantitative study was designed to investigate connections between self-reported reasons for living and self-reported suicidal behavior, as measured by the Reasons for Living Inventory (RFLI) and the Suicide Behaviors Questionnaire-Revised (SBQ-R). Data was collected from a convenience sample of n=244 active duty Army soldiers attending the Warrior Leadership Course (WLC) in Germany. The use of convenience samples is a common sampling method used by researchers studying the relationship between reasons for living and suicidal behavior. In their exploration of reasons for living and suicidal behavior in college student populations, Bagge et al. (2013), Chatterjee and Basu (2010), Choi and Roger (2010), Lamis et al. (2009), and Wang et al. (2012) used convenience samples to gather data and draw inferences. Street et al. (2012) used convenience samples to investigate the relationship between reasons for living and suicidal behavior among African American female suicide attempters, and Ulmer et al. (1992) used a convenience sample of AD Army soldiers completing BASIC training.

Although convenience sampling is the most common method of gathering data, random sampling is typically the preferred method of gathering data, and often provides a superior statistical outcome that could be generalized to larger populations (Slack & Draugalis, 2001). However, according to Slack and Draugalis, clinical studies rarely use

random sampling because the characteristics of every eligible and potential participant in the targeted population cannot be known at the beginning of the study in order for random sample to be taken (p. 1). Random sampling is rarely used to investigate suicidal behavior because of the problem identifying individuals who may or may not have engaged in suicidal behavior, and random sampling does not always guarantee generalizability to the larger population (p. 1). Although the use of convenience sampling in this dissertation study produced findings that are not necessarily generalizable to the larger Army population, the results of the study add to the body of knowledge presented by Ulmer et al. (1992) and other researchers on the association between reasons for living and suicidal behavior in high-risk populations.

Participants in this study were administered several questionnaires:

- a demographic data sheet,
- the SBQ-R,
- the RFLI,
- the BDI-II,
- the Holmes & Rahe Life Stress Inventory (SRRS), and
- the Multidimensional Scale of Perceived Social Support (MSPSS).

I compared individual RFLI total and scale scores against individual SBQ-R total scores to determine if a correlation existed between these variables. The participant responses were also examined to determine demographic differences (e.g., rank, age, ethnicity, gender, and military occupational specialty) in responses on the RFLI. Participant responses on the Holmes and Rahe Life Stress Scale (SRRS), BDI-II, and the MSPSS

were examined to determine their impact on suicidal behavior, over and above that of reasons for living.

United States active duty (AD) Army soldiers, stationed in Germany, were used for the participant pool in this dissertation study. Soldiers stationed in USAEUR (e.g., Germany, Belgium, and Italy) and other OCONUS locations (e.g., Alaska, Hawaii, Korea, etc.), experience unique stressors that are not experienced by soldiers stationed in the United States. Most American soldiers are stationed in the United States where they are afforded the luxury and convenience of serving in their country of origin, except when deployed in support of an out-of-country mission. Many soldiers living in the United States are stationed within close reach of family and friends, and all perform their duties and mission in one of the most influential and wealthiest countries in the world. In contrast, USAEUR and other OCONUS soldiers are uprooted from primary support systems and disconnected from many of the conveniences of living in the United States when they not only serve in a foreign country, but are also expected to adapt to the customs and expectations of their host country.

Some USAEUR soldiers arrive to deploying units, and face leaving their families and other support systems for extended periods of time, to support military activities, such as the drawdown in Afghanistan, and other military missions throughout the world. In addition, as military bases are closed and units are restructured, some soldiers and families are relocated from Europe to the United States, while others are relocated to Army posts within Europe (U.S. Army Europe, 2012). These stressors are coupled with the pressures of the Army-wide drawdown and personnel reduction, which create a

unique environment where researchers can investigate the reasons why soldiers would chose not to engage in suicidal behavior should the thought arise.

The variables included in this study were taken directly from *2011 and 2013 Behavioral and Social Health Outcomes Program Surveillance of Suicidal Behavior Quarterly Updates*. In these reports, data related to suicidal behavior among AD Army, activated National Guard, and activated Army Reserve soldiers, are collected, analyzed, and disseminated from BSHOP's *Army Behavioral Health Integrated Data Environment (ABHIDE)*, the most comprehensive data warehouse for information pertaining to suicidal behavior in the Army (BSHOP, 2013, p. 5). These reports describe the characteristics of soldiers who have engaged in suicidal behavior, and presents observed trends and changes in risk factors over time (p. 5). BSHOP reported that the consistent and primary precipitating factors related to suicidal behavior among AD Army soldiers are demographic characteristics (e.g., gender, age, rank, ethnicity), stressful life events (e.g., relationship and work-related stress), and having a behavioral health diagnosis (p. 14).

Research on suicidal behavior has traditionally focused on negative cognitions associated with stressful life events (Batigun, 2005). However, a recent upsurge in empirical research on the association between reasons for living and suicidal behavior, and the ability of the RFLI to differentiate suicidal from nonsuicidal individuals in clinical and nonclinical samples, has brought more attention to the importance of incorporating positive cognitions in understanding the phenomenon of suicide. This dissertation study provides a contemporary investigation into the relationship between

reasons for living and suicidal behavior, and the impact of demographics, depression, stressful life events, and social support, in an AD Army population currently serving in one of the most stressed militaries. Given that enhancing reasons for living has been shown to decrease suicidality in civilian populations, the implication of this dissertation study is that strengthening reasons for living in an AD Army population might diminish suicidal behavior. In addition, the RFLI has been shown to be a valuable tool in assessing suicidal behavior among AD Army populations, thus laying the groundwork for the development of an RFLI military version.

Instrumentation

Demographic Data Sheet

A brief demographic data sheet was used to capture pertinent information of the specific study population. It provided unique cultural insights that were not captured by the other survey instruments, including the participants' rank, age, gender, ethnicity, and military occupational specialty (MOS). This information provided a clearer understanding of the characteristics of individuals that made up the specific study population. No identifying information was collected on the demographic data sheet, surveys, or survey packets.

Reasons for Living Inventory (RFLI)

The RFLI is a 48-item questionnaire that was developed by Linehan et al. (1983) to measure a range of beliefs potentially important as reasons for not engaging in suicidal behavior. The RFLI uses a 6-point rating scale, where 1 is "not at all important" and 6 is "extremely important" (p. 278). Each respondent was asked to rate how important each

item would be for living if they contemplated suicidal behavior. The six primary domains of the RFLI include: survival and coping beliefs, responsibility to family, child-related concerns, fear of suicide, fear of social disapproval, and moral objections (p. 278). The RFLI total score was computed by calculating the mean of the answered items and multiplying the result by 48, as suggested by the University of Washington (2013). Each subscale score was calculated by averaging item ratings, with higher total and subscale scores indicating more reasons for living (p. 1).

Suicide Behaviors Questionnaire-Revised (SBQ-R)

The Suicide Behaviors Questionnaire-Revised (SBQ-R) is a self-report measure of suicidal thoughts and behaviors (Osman et al., 2001). The SBQ-R consists of four questions and uses a Likert scale to measure lifetime suicide ideation and/or suicide attempt, the frequency of suicidal ideation over the past twelve months, the threat of suicide attempt, and the self-reported likelihood of suicidal behavior in the future (p. 443). Specific items included: “Have you ever thought about or attempted to kill yourself?” “How often have you thought about killing yourself in the past year?” “Have you ever told someone that you were going to commit suicide, or that you might do it?” “How likely is it that you will attempt suicide someday?” (p. 444). According to Wang et al. (2011), the SBQ-R has been validated for use with clinical and nonclinical adult and adolescent populations.

Choi and Rogers reported that the SBQ-R has adequate internal consistency in clinical (Cronbach’s alpha = .75) and nonclinical samples (Cronbach’s alpha = .80). Test-retest reliability was also reported to be good (r = .95), and the SBQ-R has been

significantly correlated (r=.69) with the Scale for Suicide Ideation in a sample of college students (p. 225). The SBQ-R-R has been negatively correlated with female psychiatric outpatients (r = -.34; Linehan et al., 1983).

In this study, the SBQ-R total score was calculated by summing all individual item scores (Osman et al., 2001). The total score ranged from 3-18, with higher scores (>7), indicating greater risk for suicidal behavior (p. 2). The SBQ-R subscales were scored based on client responses per item. The total score for item 1 ranged from 1-4 (e.g., 1=nonsuicidal, 2=suicidal ideation, 3=history of suicide plan, and 4=history of suicide attempt). The total score of item 2 ranged from 1-5 (e.g., 1=never, 2=rarely, 3=sometimes, 4=often, and 5=very often; Osman et al., 1999). The total score of item 3 ranged from 1-3 (1=never, 2=one time occurrence, and 3=more than one time occurrence; p. 1). The total score of item 4 ranged from 0-6 (e.g., 0=never, 1=no chance at all, 2=rather unlikely, 3=unlikely, 4=likely, 5=rather likely, and 6=very likely; p. 1).

Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support (MSPSS) is a brief 12-item self-report questionnaire that measures perceived social support using three subscales: family, friends, and significant others (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Items were rated on a 7-point Likert-scale, ranging from 1 (very strongly disagree) to 7 (very strongly agree; p. 614). Zimet et al. noted that MSPSS subscales and the total scale scores tend to have strong internal consistency (Cronbach's alphas = .85 to .91), as well as strong test-retest reliability(r= .72 to .85), and the negative association of scores on the MSPSS with scores on measures of depression, was used to establish

instrument validity (p. 614). The total MSPSS score was calculated by summing all the items (Lopez, & Cooper, 2011). The total score ranged from 12-84 (p. 87). The Significant Other subscale was scored by summing items 1, 2, 5, and 10 (p. 87). The Family Subscale was scored by summing items 3, 4, 8, and 11 (p. 87). The Friends subscale was scored by summing items 6, 7, 9, and 12 (p. 87). Total subscale scores ranged from 4-28 (p. 87). Higher total and subscale scores indicated higher levels of perceived social support (p. 87).

Holmes & Rahe Stress Scale (SRSS)

The Holmes & Rahe Stress Scale, also known as the Social Readjustment Rating Scale (SRSS), is a stress and coping inventory that measures 43 stressful life events that could contribute to mental and physical distress (Harvest Enterprises, 2013). In 1970, Rahe, Mahan, and Arthur administered the Holmes and Rahe Stress Scale to 2,500 U.S. sailors to test whether the SRSS could reliably be used to predict illness. Sailors were asked to rate life events over the past six months of their life (p. 401). The investigation yielded a +0.118 correlation between stress scale scores and illness (p. 401). This correlation supported a link between stressful life events and physical and mental illness (p. 401). The total score on the Holmes & Rahe Stress Scale (SRRS) was the sum of all items scored (Harvest Enterprises, 2013). Each scale item was assigned a score. Items were scored by multiplying each event (e.g., death of a spouse, divorce, etc.) item score by the total number of times the event was experienced in the past year (p. 1). The total score was the sum of all item scores (p. 1). A total score of 150 points or less indicated low life stress, and low susceptibility to medical and mental conditions caused by stress

(p. 1). A score of 150-299 points implied a moderate to high chance of experiencing stress-related physical and mental conditions (p. 1). A score of 300 points or more gave individuals a high to very high chance of developing an illness, having an accident, or experiencing significant emotional deterioration (p. 1).

Beck Depression Inventory-II

The Beck Depression Inventory (BDI-II) is a 21-item self-report measure of the presence of cognitive and affective aspects of depression (Rowe, Walker, Britton, & Hirsch, 2013). The BDI-II used a 4-point Likert scale ranging from 0-3, with 0 representing the absence of a symptom, and 3 representing the severe presence of a symptom (p. 235). According to Rowe et al., the BDI-II has exhibited good internal consistency in clinical and nonclinical adolescent and adult samples (p. 235). The total BDI-II score was calculated by summing the score for each of the 21 questions, by counting the number to the right of each question marked (Rowe et al., 2013). The highest possible total for the test was 63. The lowest possible score for the test was zero (Beck et al., 1996). A total score of 0-10 indicate that the ups and downs are considered normal (p. 1). A total score of 11-16 implied mild mood disturbances; 17-20 indicated borderline clinical depression; 21-30 was considered to be moderate depression; 31-40 implied severe depression; and over 40 indicated extreme depression (p. 1).

Methodology

Population

U.S. Army soldiers have been stationed in Germany for more than 60 years (Hohn & Klimke, 2010). As a "forward presence," U.S. soldiers are strategically positioned in

Germany to protect America's interest in Asia, Africa, and Europe (p. 1). After World War II, there were roughly 250,000 active duty (AD) soldiers based in Europe (p. 1). At the end of the Cold War, the U.S. presence in Germany became less relevant, and in the 1980s and 1990s, the U.S. military began downsizing (Thompson, 2002). By the end of 2012, there were approximately 41,000 AD Army soldiers remaining in Europe (U.S. Army Europe, 2012; p. 1). This number is expected to be reduced to approximately 30,000 soldiers by 2016 (p. 1). The remaining soldiers are expected to be stationed in seven military communities throughout Europe (Feickert, 2013). Some of these communities are expected to be large, like the Joint Multinational Training Center in Germany, which runs the Warrior Leadership Course (WLC; p. 1). Other posts will be smaller and located near small German villages and towns (U.S. Army Europe, 2013).

Selection of Participants

The participants for this study were drawn from a convenience sample of AD Army soldiers attending the Warrior Leadership Course (WLC) in Germany. The WLC processes approximately 320 active duty enlisted soldiers, (E4-E5), through a 4-week training cycle (W. Jefferson, personal communication, December 20, 2013). Soldiers who attend the WLC come from various units throughout Europe, and fall within the following demographics: male and female, married and single, diverse ethnic backgrounds, varying levels of education, and a variety of military specialties (U.S. Army Europe, 2013). Soldiers who attend WLC are also considered top-ranked in their units, and show the most leadership potential for advancement in the United States Army

Europe (p. 1) Soldiers are selected to attend the WLC because they are viewed as disciplined, accountable, adaptive, physically fit, mentally tough, and resilient (p. 1).

The sample population for this study was selected based on *the Behavioral and Social Health Outcomes Program, January –June 2012, Analyses Highlights of Suicide Attempt Cases* (BSHOP, 2013). BSHOP reported that soldiers with the highest rate of suicidal behavior in the U.S. Army are male, between the ages of 17 and 24 years, nonHispanic white, married, enlisted in the Regular Army, E1-E4, and have a history of at least one deployment. Many of the soldiers attending the WLC during the time of this study fell within several of these high risk categories, thus capturing the targeted demographics identified as at risk, Army-wide. Women were included in this study, although an equal number of men and women were not represented in the sample. In addition, the Army identified several military occupational specialties (MOS) that were associated with elevated suicide risk (United States Army, 2013a). Soldiers serving in combat arms had the highest number of individuals to engage in suicidal behavior than soldiers serving in combat service support and combat support (MOS; BSHOP, 2011, 2013). As such, military occupational specialty (MOS) was included as a specific demographic variable. Senior enlisted noncommissioned officers and commissioned officers were not targeted in this research and were therefore excluded from the study.

Power Analyses

The primary hypothesis, in this quantitative study, was tested by regression analyses (n=244) on a dependent variable (e.g., suicidal behavior, as measured by the SBQ-R). The independent variables included the following: 1) demographic variables

[rank, age, ethnicity, gender, and military occupational specialty], 2) reasons for living domains [e.g., fear of suicide, fear of social disapproval, moral objection, survival and coping beliefs, responsibility to family, and child related concerns], and 3) 3 covariates [perceived social support, depression, and stressful life events]. The inter-correlations of reasons for living subscales and the other study variables were assessed, and data reduction was considered to minimize multicollinearity of predictor variables in the regression analyses. Statistical power (n=244) was .996 for this regression analyses with 14 independent variables, a=.05, and estimated R^2=0.25 (Cohen & Cohen, 1983).

Data Collection

Upon receiving permission to collect data, volunteers were solicited to participate in the study from soldiers attending the WLC in Germany. Participants were administered a demographic data sheet, SBQ-R, RFLI, MSPSS, BDI-II, and the Holmes & Rahe Stress Scale (SRSS). No identifying information was collected on the demographic data sheet, surveys, or survey packets. Consent to participate in the study was voluntary, and consent was indicated by participants, who wished to participate, staying seated and completing the surveys. The consent setting was the entire study body, and those who wished not to participate in the study were allowed to leave the area.

Prior to participating in the study, I introduced myself, the Chaplain, and the European Regional Medical Command Human Protections Administer, Amy Holstein. The study procedures began immediately following the consent. I reviewed confidentiality information as described in the consent form, and as part of the instructions, participants were asked to answer honestly and confidentially, without

consulting other participants or looking at the survey responses of others. Participants were made aware that they were not obligated to complete the surveys, and that they could discontinue their participation in the research at any time.

Once consent was reviewed, participants completed the paper-based questionnaires in a group setting. Administering the RFLI in a group setting to determine correlation between suicidal behavior and other variables has precedence in several studies (Koolaee et al., 2008; Lee & Oh, 2012; Ulmer et al., 1992). Various measures were taken to ensure anonymity. No identifying information was obtained from the surveys. Once completed, participants handed their completed questionnaires to me and the ERMC HPA. The ERMC HPA handed all collected surveys to me and I consolidated surveys in a locked box at the research site. Following completion of the surveys, each participant was offered a chance to speak to the Chaplain, either presently or at a later date. Each participant was also provided with my contact information, the contact information of the Chaplain, the contact information for the ERMC HPA, as well as a packet on available resources in area. No participant directly or personally endorsed suicidal ideation to either me, the Chaplain, or the ERMC HPA. Once the study was completed, the questionnaires were stored in my home, in the same locked box. They will be stored for no less than 3 years upon completion of this dissertation (Walden University, 2012). Destruction of research data will be coordinated through the United States Army, which offers secure destruction of written records. All information will be reported in the aggregate in published findings.

Data Analyses

The following research question was the primary focus of the study: "Is having a high level of self-reported reasons for living associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively?" The secondary questions that were used to support the analyses of the primary question were:

Are there significant demographic differences in responses on the RFLI (rank, age, ethnicity, gender, military occupational specialty)?

Do demographics (rank, age, ethnicity, gender, MOS), depression, social support, and stressful life events significantly add to the regression equation, over and above reasons for living, to suicidal behavior?

To answer the primary and secondary research questions in this study, a quantitative analysis was conducted using the following hypotheses:

- $H_0$1: No significant relationship exists between self-reported reasons for living, and self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively.
- $H_1$1*:* A significant relationship exists between self-reported reasons for living and self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively.
- $H_0$2: There are no significant demographic differences in responses on the RFLI (age, rank, ethnicity, gender, MOS).
- $H_1$2: There are significant demographic differences in responses on the RFLI (age, rank, ethnicity, gender, MOS).

- $H_0 3$: Demographics (rank, age, ethnicity, gender, MOS), social support, depression, and stressful life events do not significantly add to the equation, over and above reasons for living, as measured by the RFLI and SBQ-R, respectively.
- $H_1 3$: Demographics (rank, age, ethnicity, gender, MOS), social support, depression, and stressful life events significantly add to the equation, over and above reasons for living, as measured by the RFLI and SBQ-R, respectively..

Descriptive Statistics

A summary of the descriptive statistics for study variables, such as mean, standard deviations, and correlations of variables by demographic subgroups, and by high and low scores on the RFLI and SBQ-R are presented. Univariate analyses were applied to examine the distribution, central tendency (e.g., mean, median, and mode), and dispersion of continuous and categorical variables, and all data was examined for the presence of outliers, out of bound values, and systematic or disproportionate patterns of missing data. For skewed data and scales with missing data, remedies such as data transformation to address nonnormality, and imputation were considered in consultation with the dissertation committee. Multiple imputations were applied in SPSS by identifying patterns in missing data, and running simulations on the missing data relative to the data that was available (TheRMUoHP, 2013). The minimum percentage of missing data was set at a threshold of 0.01% as it allowed for a review of all patterns of missing data.

A hierarchical multiple regression analysis was employed to examine the relationship between reasons for living and suicidal behavior. The amount of variance in suicidal behavior that was accounted for by demographics, stressful life events, social

support, and depression was also investigated (Allison, 1999). Covariates were entered hierarchically into a multiple regression analysis in order to test for the significance of the incremental proportion of variance in SBQ-R that was explained at each step of the analyses. In essence, attempts were made to identify and analyze whether there was an observed relationship between reasons for living and suicidal behavior, after controlling for depression, demographics, stressful life events, and social support. Although mean differences and correlations of the RFLI subscales were examined, only RFLI total scores were used in the regression analyses.

The following steps, as explained by Allison (1999), outlined the regression analyses:

Step 1 included demographic variables, with age as a continuous variable. Categorical variables included gender, ethnicity, rank, and military specialist. Ethnicity was dummy-coded with white as a reference category.

Step 2 included depression, social support, and stressful life events.

Step 3 included RFL total score.

It was hypothesized that reasons for living, entered at the last step of the analyses, would be associated with a significant increment in the proportion of variance explained in SBQ-R scores. In addition, a regression analyses was conducted with reasons for living as the dependent variable; in order to assess the amount of variance in reasons for living accounted for by demographic variables, depression, social support, and stressful life events. The SPSS Gradpack software was utilized to analyze the statistical data.

Threats to Validity

There were a number of potential threats to validity that were addressed in this study.

Population and Selection of Participants

The sample represented AD junior enlisted, male and female soldiers, attending the Warrior Leadership Course (WLC), in Germany. Senior enlisted and officers were excluded from the study because they did not fit the target demographics. In addition, attempting to include all ranks as research participants would have caused a significant disruption to the established training curriculum at the WLC. As such, the results of this study may or may not generalize to other military populations or the general population.

Confounding Variables

In this study, it was not feasible to examine every variable that could impact the association between reasons for living and suicidal behavior. Only variables relevant to this study were included, which had been identified through a systematic review of theory and literature in Chapter2.

Study Instrumentation

The initial RFLI was validated on a sample of Seattle shoppers and patients admitted to a Seattle psychiatric hospital (Linehan et al., 1983). Subsequently, the RFLI has been modified for use with diverse populations of college students (Choi & Rogers, 2010), various ethnic and cultural groups (Lamis et al., 2009), and in clinical and nonclinical adolescent and adult samples (Connell & Meyer, 1991). The SBQ-R was validated for use with clinical and nonclinical adolescents and adults (Osmann, 1999).

The MSPSS has been validated on inpatient and outpatient psychiatric and medical patients (Zimet et al., 1988), and the Holmes and Rahe Stress Scale has been validated for use with medical and nonmedical patients (Rahe, 1970). Surveys that are specifically tailored to capture the AD Army soldier's unique military experience may yield different responses than those captured in this study.

Setting, Demand Characteristics, and Hawthorne Effect

Surveys were administered in a group setting. This method of surveying participants posed concerns related to privacy and confidentiality. In addition, it was possible that participants may have picked up on what they considered to be cues to the anticipated results of the study. As a result, participants might have exhibited performance that they believed was expected of them. Also, the mere presence of others watching their performance could have caused a change in performance. These threats were handled by reviewing the threats with the participants, reviewing the purpose of the study, and indicating the importance of each participant to answer honestly in order to capture accurate data that could be used to help assist in suicide prevention

Researcher Bias

Researcher bias can result in errors that skew the study in a certain direction. This threat was handled by being cognizant of such biases, having close supervision, and making a conscious decision to be an objective investigator.

Ethical Considerations

Lakeman and FitzGerald (2009) noted that researchers are often reluctant to engage with individuals who have engaged in suicidal behavior. This reluctance is in part

due to ethical problems that are often raised in research (p. 13). The Department of Health, Education, and Welfare (HEW; 1979), Lakeman and FitzGerald, and Pearson, Stanley, King, and Fisher (2001), provide guidance on handling some of these ethical issues.

Permission to Use Volunteer Participants in the Research Study

Permission to use soldiers as volunteer participants was granted in several phases. First, the proposal to conduct the study was approved by Walden University. Next, the Department of Defense Institutional Review Board (IRB) application was completed and approved. The raining certificate, demonstrating the completion of an eight-hour training course on the protection of human subjects, was submitted to the Army IRB. The Walden IRB application was then submitted and approved. Finally, support to elicit participation in the study was granted by the Commandant, 7th Army Non-Commissioned Officer Academy (NCOA), and the European Regional Command Office for the Protection of Human Subjects.

There were no unanticipated problems in the administration of the study. However, if an unanticipated problem involving risk of harm to subjects or others, or if a serious adverse event had occurred, it would have been promptly reported by phone (301-619-2165), by e-mail (IRBOFFICE@amedd.army.mil), by facsimile (301-619-4165) to the HQ, USAMRMC IRB, or sent to the U.S. Army Medical Research and Materiel Command, ATTN: MCMR-RP, 504 Scott Street, Fort Detrick, Maryland 21702-5012. A complete written report would have followed this initial notification.

Justification for the Research

Justification of research involved weighing the benefits against the risk, and determining that the potential benefits of the study was great enough to warrant intrusion in this population (Pearson et al., 2001; Lakeman & FitzGerald, 2009; HEW, 1979).

In this study, ascertaining reasons for living directly from AD Army personnel has strong advantages in understanding the problem of suicide in the U.S. Army. As was mentioned in other sections of this study, research on suicide traditionally focused on attempting to understand negative cognitions associated with stressful life events (Batigun, 2005). Linehan et al. (1983) modified this focus by creating the RFLI to measure a range of positive beliefs that may be important as motives for not engaging in suicidal behavior (p. 277). As of the date of this research, only one study had assessed reasons for living in an AD Army population (Ulmer et al., 1992). The Ulmer et al. study was beneficial to research because it demonstrated the correlation between loneliness, depression, and reasons for living in a population of junior enlisted soldiers, completing BASIC training (p. 186). In 1992, these soldiers endorsed strong survival and coping beliefs and moral objections to suicide (p. 187). Unlike the Ulmer et al. study, this study examined the relationship between reasons for living and suicidal behavior in a different group of AD junior enlisted soldiers, at a different time in military history. The study population for this dissertation study had already served in the military for more than three years, some had combat experience, and all were faced with the pressures associated with the restructuring and drawdown of troops in the U.S. military.

To date, nothing has worked to deter the rise of suicide in the U.S. Army. Many soldiers are distressed, and many continue to turn to ending their lives through suicide rather than finding alternative ways to manage life crisis. Identifying a set of reasons for living that AD soldiers consider protective against suicidal behavior provides the military valuable information that can be incorporate into risk reduction efforts, and possibly aid in reducing the overall rate of suicide in the U.S. Army.

Access to Data

Only data that had utility for the study and posed a minimal risk to participants was collected. In this particular population, survey methods were the least intrusive, the least costly, and the most preferred method of data collection (W Jefferson, personal communication, December 20, 2013). Approval to survey soldiers at the training center was granted by the Command Sergeant Major W. Jefferson, Commandant of the WLC, under the supervision of the Army and Walden IRBs. Substance abuse was not included as a covariate in this study as it would have raised additional complex IRB issues and added to the participant's burden.

Access to the Population

Access to the population involved assessing who ought to receive the benefits of the research, and bear its burden (HEW, 1979). In this study, access to the population was determined by the latest BSHOP (2013) report that indicated that soldiers most at risk for suicide in 2012 were male, between the ages of 17 and 24 years, nonHispanic white, married, enlisted in the Regular Army, E1-E4, and had a history of at least one deployment. Because these soldiers were already a target population, assessing their

reasons for living benefitted an already identified at risk population. Women and soldiers of diverse ethnic backgrounds were also included in the study.

Self-Report Bias

Self-report questionnaires are a popular method of gathering data in behavioral sciences (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Inherent in this study was the concern for self-report bias, which referred to a participant's tendency to respond a certain way to survey questions despite what was being assessed (p. 882). For example, participants may have had a tendency to present a favorable image in order to conform to certain acceptable values (p. 883). According to Mortel (2008), this type of bias tends to occur in response to socially sensitive questions. Podsakoff et al. reported that self-report studies are inherently biased by the person's feelings at the time they fill out the questionnaire. If a person feels bad, their answers might be more negative. If a person feels good, their responses might be more positive. All of these biases could result in false and obscured relationships between study variables, and potentially produce misleading conclusions (Podsakoff et al.; Mortel).

In this study, response-bias was handled by allowing participant answers to be anonymous, indicating that there were no" right" or "wrong" answers, and encouraging participants to answer questions as honestly as possible. These procedures were intended to make it less likely that participants would edit responses to be more socially desirable, and less likely to respond how they thought they were expected to respond (Nock & Kessler, 2006). Such biases were also overcome through the statistical procedure of

extrapolation (p. 621). According to Nock and Kessler, the use of extrapolation allows inferences that would apply to the population that was being sampled.

Confounding Variables

A confounding variable is an extraneous variable that is statistically related to the independent variable (Frank, 2000). There were many confounding variables that could have impacted the relationship between reasons for living and suicidal behavior. In this study, it was not feasible to examine every variable. As such, only variables relevant to this study were included in this research. The issue of confounding variables was addressed by reviewing with the participants, the purpose of the study, the study variables, and asking each participant to respond to the questions posed on each questionnaire. Statistical procedures in SPSS were also employed to address the problem of confounding variables.

Potential Harm to Participants

Potential harm to participants tends to be the most pressing issue in using human subjects as research participants (HEW, 1979; Lakeman & FitzGerald, 2009; Pearson et al., 2001). In some cases, researchers believed that suicidal thoughts and feelings might be exacerbated or reinforced as a result of participating in such a study (HEW, 1979). However, because of its positive focus, this research was unlikely to exacerbate symptoms of suicidality. A safeguard incorporated into the study was that soldiers had the opportunity to speak to the Chaplain, either presently or at a later date. Each participant was also provided with my contact information, the contact information of the Chaplain, as well as a packet on available resources in the area. Another concern was that

participants may feel coerced or manipulated into participating in the study, and may be concerned about the potential stigma of being labeled mentally ill. These concerns would affect participant responses and participation (Lakeman & FitzGerald, 2009). This was handled by letting participants know that their participation in the study was strictly voluntary, and that they could stop at any time.

There was no question about soldier's ability to consent to participate in the study due to the caliber of soldiers attending the Warrior Leadership Course (WLC). Only participants who volunteered were allowed to participate. The participants were made aware of what was required, the possible risks, benefits of the study, limits to confidentiality, and the right to cease involvement at any time. Participants were also informed that their data would not be directly released to their commands, and that all data provided would be used specifically for the purpose of research.

Potential for Harm to the Researcher and Researcher Competency

According to Pearson et al. (2011), some researchers may feel distressed, guilt, or liable if a participant attempted or completed a suicide following participation in a research study. Lakeman and FitzGerald (2009) recommended that researchers have sufficient training, supervision, and support in working with suicidal or potentially suicidal individuals. At the time of the study, I was employed as a mental health provider at an Army post in Germany. My job routinely involved assessing and treating suicidal patients, in addition to collaborating and coordinating care with appropriate suicide prevention resources. For this study, supervision was provided by my dissertation chair, and additional support was provided by my professional peer support system.

Participant Competency and Consent

Participant competency and consent involved the competency of participants to consent to involvement in the research (HEW, 1979, Lakeman & FitzGerald, 2009; Pearson et al., 2011). Because the sample was taken from a group of soldiers who were selected to attend the Warrior Leadership Course (WLC) based on their skill and potential as a leader in the U.S. Army, there was not an issue of competency of the participant to consent to involvement in the study.

Responsibility of the Researcher to Participants

Responsibility of the researcher to participants involved the researcher's responsibility or "duty to care," and to provide or facilitate access to help (HEW, 1979, Lakeman & FitzGerald, 2009; Pearson et al., 2011). Participants were provided with resource information about support services. In addition, each participant was offered the opportunity to speak to the Chaplain prior to leaving the research area. They were also provided with information about mental health resources.

Maintaining Confidentiality

Subjects were informed that their individual information was private and confidential. Participants were also instructed on the importance of respecting the privacy and confidentiality of each participant and guarding against discussing their participation and the participation of others in the study. In addition, I was the primary person handling the data, from data collection to storage. This reduced the risk of unwanted access to private and confidential research data.

Protocols for Assessing Risk

Participants had the opportunity to speak to the Chaplain following their participation in the study. No participant directly or personally endorsed suicidal ideation to either me, the Chaplain, or the ERMC HPA. All participants were provided with my contact information, the contact information for the Chaplain, and a suicide prevention packet, which included information on available resources, and how to seek help.

Summary

To examine the relationship between reasons for living and suicidal behavior, as measured by the RFLI and SBQ-R, respectively, in the context of demographics, depression, stressful life events, and social support, in a sample of *n*=244 AD soldiers, attending the WLC in Germany, a quantitative analyses was employed using SPSS. A hierarchical multiple regression analyses, correlation, and mean differences of demographic variables with RFLI, SBQ-R scores, and other study variables, were assessed. Although this investigation was not intended to be predictive, as individual beliefs and expectations do not always lead to or inhibit suicidal behavior, it does offer insight into a set of life-maintaining beliefs that could be incorporated into a comprehensive, ongoing suicide prevention and risk assessment program, and provide preliminary support for the development of a RFLI-military version. The results of the analyses are discussed in Chapters 4 and 5.

Chapter 4: Results

Introduction

The purpose of this study was to investigate whether a relationship exists between self-reported reasons for living and self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively. An additional goal was to assess the contribution of demographics (e.g., rank, age, ethnicity, gender, and MOS), stressful life events, social support, and depression on suicidal behavior. As of the date of this study, no research study had simultaneously incorporated these variables into one study that focused primarily on the responses of an AD Army population. This study was designed to address an important gap in research on risk and protective factors for suicidal behaviors, particularly in an armed services population where rates of suicide are alarmingly high.

This study used a quantitative research design to answer the following research questions:

1. Is having a high level of self-reported reasons for living associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively?"

2. Are there significant demographic differences in the responses on the RFLI (rank, age, ethnicity, gender, MOS)?

3. Do demographics (rank, age, ethnicity, gender, MOS), depression, social support, and stressful life events significantly add to the regression equation, over and above reasons for living?

These questions were investigated in a sample of n=244 AD Army soldiers attending the WLC in Germany, using descriptive statistics, chi-square analyses,

independent sample *t* tests, ANOVA, Pearson correlation, and multiple regression. This chapter presents the data collection strategy, definitions of coded variables, data screening and cleaning, sample characteristics, descriptive statistics, analyses of study measures, assumptions of multiple regressions, analyses of hypotheses, and the evaluation of research hypotheses from descriptive and regression analyses. The chapter concludes with a summary of the results.

Data Collection

Data were collected on March 3, 2015 from soldiers attending the Warrior Leadership Course (WLC) in Germany. After a brief introduction of the study and a review of consent and confidentiality, a total of 244 soldiers completed self-report questionnaires. Data collection was supervised by Amy Holstein, the Human Protections Administer for European Regional Medical Command, United States Army Europe. The data collection for this study was approved on November 21, 2014, by the Department of the Army, Headquarters, U.S. Army Medical Research and Material Command, Institutional Review Board (IRB), Fort Detrick, MD, IRBNet Number 407094, IRB Log Number M-10413, CY 14-12, expiration date: 21 November 2015. Data collection was also approved by Walden University Institutional Review Board (IRB), approval number 01-14-15-0112608, expiration date: January 14, 2016.

No data were collected prior to Walden University approval date, January 14, 2015. Data collection took place without incident. No identifying information for any participant was shared or collected in the process of data collection, and no information was mishandled or shared with outside parties. I collected the data using paper surveys

and without electronic transmissions; the completed surveys were stored in a lock-box immediately following their completion. I subsequently entered the survey results into an Excel spreadsheet and then imported them into SPSS for data analyses. After completing this transcription, I returned the completed surveys to a lock-box in my home.

Overview of Analytical Strategy

I used descriptive statistics, including frequencies, mean, minimum, maximum, standard deviation, skewness, kurtosis, and correlations to examine the data for each variable. Based on the results of these analyses, the variables were recoded, transformed, or trimmed, using the procedures recommended by Tabachnik and Fidell (2012). The assumptions of multiple regression (normally distributed variables, linear relationship between independent and dependent variables, variables are measured without error and homoscedasticity) were explored and satisfied. I then prepared the variables for hypothesis testing using prespecified constructs, taking into consideration the distributions of variables and psychometric analyses of measurement scales.

Hypotheses were tested using chi-squared analyses, independent sample *t*-tests, univariate analyses, Pearson's correlation, and multiple regression. The SBQ-R total scores were entered as the dependent variable in the regression analyses. Variables were then entered hierarchically in the following steps, and incremental variance explained at each step by the set of variables entered was assessed:

1. Demographics. Rank, gender, ethnicity, and MOS were recoded as categorical variables; age was coded as a continuous variable.
2. Stressful Life Events, social support, and depression (total scores).

3. Reasons for Living (RFL) total score.

An added analysis included entering the RFLI total score as the dependent variable to assess the proportion of unique variance in suicidal behavior associated with reasons for living, after depression, social support, and stressful life events had been accounted for. Models were compared at each step of the analyses for overall model fit, and percentage of variance account for by the model.

Definitions of Coded Variables

The variables in the analyses were coded as follows:

Age: As reported by the participant on the Brief Demographic Data Sheet, the age of the participant was recorded as a continuous variable.

Beck Depression Inventory-2 Total Score (BDI2_TS): As reported by each participant on the BDI-2, recorded as a total score, range (0-63) with higher scores (above *M*=7.0) indicating greater levels of depression.

Ethnicity: As reported by the participant on the Brief Demographic Data Sheet, the ethnicity of the participant was recorded as: 1=African American (AA), 2=Caucasian (CAU), 3=Hispanic (HIS), 4=Asian, or 5=”Other.” Ethnicity was dummy-coded with Caucasian as the reference category.

Gender: As reported by the participant on the Brief Demographic Data Sheet, the gender of the participant was recorded as 1=Female, 2=Male.

Holmes and Rahe Stress Scale Total Score (HANDR_TS): As reported by the participant on the Holmes and Rahe Stress Scale, recorded as a total score, with scores above the mean (*M*=277.27) indicating higher levels of stress.

MOS: As reported by the participant on the Brief Demographic Data Sheet, recorded as: 1=combat arms, 2=combat support, 3=combat service support, 4="Other." MOS was dummy-coded with combat arms as the reference category.

Multidimensional Scale of Perceived Social Support (MSPSOCIAL SUPPORT) Domain Scores: As recorded by the participant on the MSPSOCIAL SUPPORT, domain scores were reported by category for each MSPSOCIAL SUPPORT domain: Significance (*M*=5.68), Family (*M*=5.82), and Friends (*M*=5.57), with a range of (0-28). Scores above the mean indicate greater perceived social support.

Multidimensional Scale of Perceived Social Support Total Score (MSPSOCIAL SUPPORT_TS): As reported by the participant on the MSPSOCIAL SUPPORT, recorded as a total score (0-84) with higher scores (above *M*=5.69) indicating greater perceived social support.

Rank: As reported by the participant on the Brief Demographic Data Sheet, the rank of the participant was recorded as: 2=E4 (Specialist), or 3=E5 (Sergeant).

Reasons for Living (RFL) Domain Scores: As reported by the participant on the Reasons for Living Inventory, domain scores were reported by category: Survival and Coping Beliefs (SCB; *M*=5.12), Responsibility to Family (RF; *M*=4.85), Child-Related Concerns (CRC; *M*=4.78), Fear of Suicide (FS; *M*=2.34), Fear of Social Disapproval (FSD; *M*=2.86), and Moral Objections to Suicide (MO; *M*=3.45). Scores above the mean indicate strong reasons for living.

Reasons for Living Mean Index Score (RFL_MIS): As reported by the participant on the Reasons for Living Inventory, range of total score (0-6), with higher scores (above *M*=4.35) indicating more reasons for living.

Reasons for Living Total Score (RFLI_TS): As reported by the participant on the Reasons for Living Inventory, range of total score (0-288), with higher scores (above *M*=210.78) indicating more reasons for living.

Suicide Behaviors Questionnaire-Revised Total Score (SUICIDAL BEHAVIORQR_TS): As reported by participants on the SUICIDAL BEHAVIORQ-R, range of total score (3-18) with higher scores (≥7) indicating greater suicide risk.

Data Screening and Cleaning

To accomplish data screening and cleaning, I entered the original dataset into an Excel spreadsheet, and then imported the data into SPSS for analyses. Data were visually examined for the presence of outliers, out-of-bound values, and systematic and disproportionate patterns of missing data. In addition, I used the outlier labeling rule to verify the identification of outliers (THERMUoHP, 2012). The formula for the outlier labeling rule utilized the 3rd and 1st quartile raw score percentages, multiplied by 2.2, and the results determined the upper and lower boundaries of potential outliers. After that, I compared the actual data scores to the upper and lower boundaries to identify actual data scores that exceeded or were below the lower outlier cutoff boundaries (Tabachnik & Fidell, 2012). The normality of the dataset was explored using descriptive statistics, visual examination of histograms, normal Q-Q plots, box plots, and the Shapiro-Wilk's test of normality; and significantly skewed and kurtotic data were

recoded, transformed, and trimmed to correspond to frequency scores at the 95th percentile or higher (Gravetter & Wallnau, 2009). Missing data was coded as 999 (THERMUoHP).

Study Measures

In this study, five study measures, in addition to a brief demographic data sheet, were used to collect data:

1) the Reasons for Living Inventory (RFLI),
2) the Suicide Behaviors Questionnaire-Revised (SBQ-R)
3) the Multidimensional Scale of Perceived Social Support (MSPSS),
4) the Holmes and Rahe Stress Scale, and
5) the Beck Depression Inventory-2 (BDI-2).

The RFLI was used to measure a range of beliefs potentially important as reasons for not engaging in suicidal behavior, to include: 1) survival and coping beliefs (SCB), 2) responsibility to family (RF), 3) child-related concerns (CRC), 4) fear of suicide (FS), 5) fear of social disapproval (FS), and 6) moral objections to suicide (MO; Linehan et al., 1983). The SBQ-R was used to measure suicidal thoughts and behaviors in the past year (Osman et al., 2001). Perceived social support, to include family, friends, and significant others, was measured using the MSPSS (Zimet et al., 1988). The Holmes & Rahe Stress Scale, also known as the Social Readjustment Rating Scale, measured the number and type of stressful life events that could contribute to an individual developing mental and physical distress (Harvest Enterprises, 2013); and the BDI-2 measured the presence of cognitive and affective aspects of depression (Rowe, Walker, Britton, & Hirsch, 2013).

Table 1 presents the range, means (initial and recoded), and standard deviations (initial and recoded) of study measures.

Table 1

Range, Means, and Standard Deviations of Study Measures

MEASURE	Range	*M*	Recoded *M*	*SD*	Recoded *SD*
RFL_TS	0-288*	211.44	210.78	36.95	35.75
RFL_MIS	0-6	4.39	4.35	.79	.75
SCB	1-6	5.12	5.12	.88	.88
RF	1-6	4.85	4.85	1.16	1.16
CRC	1-6	4.78	4.78	1.80	1.80
FS	1-6	2.40	2.34	1.39	1.24
FSD	1-6	2.86	2.86	1.72	1.72
MO	1-6	3.45	3.45	1.75	1.75
SBQ-R _TS	≥7 higher risk of suicidal behavior	4.51	4.46	2.34	2.20
SBQr1	1-4	1.51	1.48	.79	.73
SBQr2	1-5	1.59	1.57	.98	.90
SBQr3	1-3	1.15	1.11	.44	.32
SBQr4	0-6	.28	1.57	.72	.50
MSPSS_TS	0-84**	5.69	5.69	1.52	1.52
SIGNOTH	4-28	5.68	5.68	1.84	1.84
FAMILY	4-28	5.82	5.82	1.69	1.70
FRIENDS	4-28	5.57	5.57	1.57	1.57
H_AND_R	0-150 low stress 150-299 Moderate to high stress 300(+) high stress	296.96	277.27	404.63	264.44
BDI2_TS	0-63 0-10 normal ups and downs 11-16 mild mood disturbance 17-20 borderline clinical depression 21-30 moderate depression 31-40 severe depression Over 40 extreme depression	7.16	7.0	9.16	8.65

* = High scores represent having more reasons for living.
** = High scores represent having greater perceived social support.

Table 2 presents the reliability analyses (Cronbach alpha) of each quantitative measure. Several articles were used to compare Cronbach's alphas in this study: Linehan et al. (1983) reported a Cronbach alpha of .72 and .89 for the Reasons for Living Inventory (RFLI). The SBQ-R was reported to have adequate internal consistency in clinical samples (Cronbach alpha=.75), and nonclinical samples (Cronbach alpha=.80; Choi & Rogers, 2010). Zimet et al. (1990) studied the MSPSS and revealed strong reliability and consistency, with Cronbach alpha ranging from 0.85 to 0.91. Gomes-Oliveira, Gorenstein, Lotufo-Neto, Andrade, and Wang (2012) reported strong reliability and consistency for the BDI-2, with a Cronbach alpha of 0.93. Lastly, the Holmes and Rahe Stress scale was reported by Aggarwal, Prabhu, Anand, and Kotwal (2007) to have a Cronbach alpha between 0.83 and 0.94.

Table 2

Reliability Analyses of Study Measures (Cronbach alpha)

Measure	Range	*Recoded M*	Cronbach's alpha	Cronbach's alpha based on standardized items
RFL (*n*=79)	0-288*	210.78	.94	.95 (*n*=48)
SCB	1-6	5.12	.96	.96 (*n*=23)
RF	1-6	4.85	.80	.83 (*n*=7)
CRC	1-6	4.78	.85	.85 (*n*=3)
FS	1-6	2.34	.86	.86 (*n*=7)
FSD	1-6	2.86	.76	.76 (*n*=3)
MO	1-6	3.45	.84	.84 (*n*=4)
SBQ-R(*n*=79)	≥7 higher risk of suicidal behavior	4.46	.78	.79 (*n*=4).
MSPSS(*n*=79)	0-84**	5.69	.97	.96 (*n*=12)
SIGNOTH	4-28	5.68	.96	.96 (*n*=4)
FAMILY	4-28	5.82	.97	.97 (*n*=4)
FRIENDS	4-28	5.57	.92	.92 (*n*=4)
Holmes and Rahe (*n*=79)	0-150 low stress 150-299 Moderate to high stress 300(+) high stress	277.27	.92	.89 (*n*=42)
BDI-2 (*n*=79)	0-63 0-10 normal ups and downs 11-16 mild mood disturbance 17-20 borderline clinical depression 21-30 moderate depression 31-40 severe depression Over 40 extreme depression	7.0	.89	.948 (*n*=21)

* = High scores represent having more reasons for living.
** = High scores represent having greater perceived social support.

Sample Characteristics

A summary of the descriptive statistics for study variables is presented in Table 3 showing the frequencies of demographic variables in the sample. Although the proposed

sample size was *n*=131, a total of *n*=244 AD Army soldiers participated in the study. Eighty-three percent of participants returned completed survey packets. Prior to recoding, 17% of variables were missing data, 12% of cases, and .5% of values. After recoding, no missing data were present in variables, cases, or values. The mean age of participants was 25 years (*SD*=2.99). The majority of participants were male (88%), E4/Specialist (80%), Caucasian (51%), and serving in a combat support occupation (83%). Women made up a total of 12% of the sample population. The ethnicity of participants included: African American (9 women, 30 men), Caucasian (8 women, 117 men), Hispanic (7 women, 31 men), Asian (0 women, 13 men), and individuals who labeled themselves as "Other" (4 women, 15 men). Military Occupational Specialty (MOS) was categorized as combat arms (Infantry, Air Defense Artillery, Field Artillery, Engineers, Cavalry, Aviation), combat support (Ordinance, Chemical, Military Intelligence, Military Police, Signal, Army Aviation), combat service support (Supply, Maintenance, Transportation, Health Services, Human Resources, Food Service, Chaplain's Assistant), and other (Space Shuttle). Chi-square analyses revealed that men made up all combat arms participants (75 men), 12 women served in combat support (versus 71 men), and 17 women served in combat service support (versus 65 men). One male soldier classified his military occupational specialty as "other," and three soldiers did not report a MOS.

Table 3

Frequencies by Demographics Variables of Sample Population

Category	Frequency (*n*)	%
Rank		
E4 (Specialist)	196	80%
E5 (Sergeant)	44	18%
Subtotal	240	98%
Missing	4	1.6%
Total	244	100.0
Gender		
Female	29	12%
Male	215	88%
Total	244	100.0
Ethnicity		
AA (African American)	39	16%
CAU (Caucasian)	125	51%
HIS (Hispanic)	38	16%
Asian	13	5%
Other	19	8%
Subtotal	234	96%
Missing	10	4%
Total	244	100.0
MOS		
Combat Arms	75	31%
Combat Support	83	34%
Combat Service Support	82	34%
Other	1	.4%
Total	241	99%
Missing	3	1.2%
Total	244	100.0

Table 4 presents the frequency of study participants by gender and ethnicity to MOS. According to the results of the analysis, a relatively equal number of women served in combat support and combat service support. The numbers were not as

homogenous for men serving in combat arms, combat support, and combat service support. In addition, there were significantly fewer Sergeants/E-5 who participated in the study, most serving in combat support.

Table 4

Frequency by Demographic Variables of Gender and Ethnicity to MOS

n=244	Combat Arms	Combat Support	Combat Service Support	Other MOS
Female				
African American		4	5	
Caucasian		4	4	
Hispanic		3	4	
Asian				
Other		1	3	
Male				
African American	4	10	16	0
Caucasian	48	43	23	1
Hispanic	11	10	10	0
Asian	1	4	8	0
Other	7	1	7	0

Descriptive Statistics

The following sections present the results of the univariate analyses computed to examine each hypothesis, to include the relationship between reasons for living and suicidal behavior, demographic responses on the RFLI, and the impact of depression, stressful life events, and social support on suicidal behavior. An extra analysis involved entering reasons for living as the dependent variable to determine the amount of variance accounted for by demographics, depression, stressful life events, perceived social

support, and suicidal behavior. The Least Significant Difference (LSD) of adjustments for multiple comparisons and Bonferonni adjustment were used to decrease the chance of a Type 1 error.

Univariate Analyses of Demographic Variables, SBQ-R, and RFLI Total Scores

Gender and Ethnicity. An examination of the relationship between gender, ethnicity, SBQ-R, and RFLI total scores revealed that African American men scored lower on the SBQ-R(*M*=4.20, *SD*=2.04), and were at a lower risk of engaging in suicidal behavior than other men and women in the study. Although African American women scored higher on the SBQ-R than other participants in the study (*M*=5.22, *SD*=2.91), they also had the highest reasons for living (RFL) scores (*M*=236.22, *SD*=11.55). Caucasian women endorsed fewer reasons for living (*M*=196.00, *SD*=12.22), followed by Caucasian men (*M*=201.92, *SD*=3.20). Caucasian men also scored higher on the SBQ-R (*M*=4.57, *SD*=.21) than any other ethnic men in the study. A pairwise comparison and LSD of adjustments, revealed a significant difference between male and female scores on the RFLI; as well as significant differences between participants from different ethnic groups; particularly between African American and Caucasian participants.

Rank and MOS. An examination of the relationship between rank, MOS, SBQ-R, and RFLI total scores revealed that Specialists/E-4 serving in combat service support were at a greater risk of engaging in suicidal behavior (*M*=4.59, *SD*=2.35) than Specialist/E-4 serving in combat arms and combat support. Specialists/E-4 serving in combat service support also scored higher (*M*=219.22, *SD*=32.39) on the RFLI than Specialist/E-4s serving in the other military occupational specialties In addition,

Sergeants/E-5 serving in combat support were at a higher risk of engaging in suicidal behavior (*M*=5.29, *SD*=2.20) than other Sergeants/E-5 in the study. However, Sergeants/E-5 serving in combat support also scored higher on reasons for living (*M*=213.93, *SD*=35.95) than other Sergeants in the study. The pairwise comparisons and LSD of adjustments revealed a significant difference between SBQ-R scores of participants serving in combat arms and combat Support.

Univariate Analyses of Demographic Variables and Stress Scale Total Scores

In this study, females scored higher on the measure of stress (*M*=392.38, *SD*=604.87) than male participants (*M*=284.08, *SD*=284.08); particularly, 28-year-old African American female Specialists/E-4 serving in combat service support (*M*=981, *SD*=265.05), followed by 22-year-old African American female Sergeants/E-5 serving in combat support. Of all male participants in the study, 34 year-old Specialists/E-4 serving in "other" occupational specialties, and 26-year-old African American Specialists/E-4 serving in combat service support, reported the highest degree of stress. Male Sergeants/E-5 who reported the highest level of stress included a 20-year-old African American (*M*=981, *SD*=265.05), and a 43-year-old Asian soldier serving in combat support (*M*=981, *SD*=265.05). The pairwise comparisons and LSD of adjustments revealed a significant difference on the Holmes and Rahe Stress scale scores between African American scores and Caucasian and Asian participant scores, and the participants who labeled their ethnicity as "Other." The LSD also revealed a significant difference between soldiers serving in each military occupational specialty; with those soldiers

serving in combat support and combat service support experiencing the highest levels of stress.

Univariate Analyses of Demographic Variables and Depression Total Scores

In this study, women scored higher (*M*=7.17, *SD*=9.11) than men (*M*=6.97, *SD*=9.18) on the measure of depression (BDI-2), particularly 22-year-old Hispanic female Specialists/E-4 serving in combat service support (*M*=29, *SD*=15.95) and 23-year-old, Caucasian female Sergeants/E-5 (*M*=11, *SD*=4.24) serving in combat support. In the male participant population, 26-year-old Caucasian male Specialists/E-4 (*M*=30.5, *SD*=.71), 28-year-old Caucasian male Sergeants/E-5 (*M*=31, *SD*=12.46), and 20-year-old African American male Sergeants/E-5 serving in combat support (*M*=31, *SD*=15.56) reported high levels of depression. The LSD analyses revealed a significant difference on BDI-2 scores between African American participants and soldiers who labeled their MOS as "other," Caucasian participants and those who labeled their MOS as "other" and Asian participants and those who labeled their MOS as "other; with those who reported their MOS as "other" reporting fewer depressive symptoms.

Univariate Analyses of Demographic Variables and Perceived Social Support

A large number of both male and female Specialists/E-4 and Sergeants/E-5 from all ethnicities and MOS reported high levels of perceived social support in one of the three categories: significant other, family, and friends. Hispanic, female Specialists/E-4 serving in combat support reported the highest level of perceived social support (*M*=7.0, *SD*=.88). Female Specialist/E-4 serving in combat service support, who reported their ethnicity as "other," also reported high levels of perceived social support (*M*=6.86,

SD=.88). Male Specialists/E-4 serving in combat arms and who reported their ethnicity as "other," reported high levels of perceived social support (*M*=6.7, *SD*=.71), followed by Hispanic male Specialists/E-4 serving in combat arms (*M*=6.63, *SD*=.76). African American female Sergeants/E-5 serving in combat support reported high levels of perceived social support (*M*=6.08, *SD*=1.52), as well as Hispanic male Sergeants/E-5 serving in combat support (*M*=6.96, *SD*=1.08), and Hispanic male Sergeants/E-5 serving in combat arms (*M*=6.64, *SD*=.71). The LSD revealed a significant difference in MSPSS scores between several ethnic groups: African American and Asian participants, Caucasian and Hispanic participants, Hispanic and Asian participants, and Asian participants and those participants who labeled their ethnicity as "Other." The LSD also revealed a significant difference between soldiers serving in combat arms and those serving in combat support. According to the analyses, Hispanic participants and those soldiers serving in combat arms and combat support tend to report higher levels of perceived social support.

Independent Sample *t* Tests of SBQ-R Domain Scores

The independent sample *t*-test of SBQ-R domain scores revealed that women scored higher on each domain of the SBQ-R: domain 1 (Have you ever thought about or attempted to kill yourself?), domain 2 (How often have you thought about killing yourself in the past?), domain 3 (Have you ever told someone that you were going to commit suicide, or that you might do it?), and domain 4 (How likely is it that you will attempt suicide someday?).

Independent Sample *t* Tests of RFLI Domain Scores

Women also scored higher on the six domains of the RFLI than men: survival and coping beliefs (*M*=5.34, *SD*=.94) was the highest rated domain, followed by responsibility to family (*M*=5.14, *SD*=.95), child-related concerns (*M*=4.75, *SD*=1.81), moral objections to suicide (*M*=4.34, *SD*=1.71), fear of social disapproval (*M*=2.95, *SD*=1.95), and fear of suicide (*M*=2.61, *SD*=1.34). Male participants ranked reasons for living domains, from greatest to least importance, in the same order as female participants, but scored lower on each domain.

Independent Sample *t* Tests of MSPSS Domain Scores

Women also scored higher on each domain of the scale of perceived social support (MSPSS; *M*=6.04, *SD*=1.31), with family (*M*=6.21, *SD*=1.22) ranked highest, followed by friends (*M*=6.03, *SD*=1.50), then significant others (*M*=5.88, *SD*=1.89). Men scored lower on perceived social support (*M*=5.64, *SD*=1.54), and ranked family (*M*=5.77, *SD*=1.74) highest, followed by significant others (*M*=5.88, *SD*=1.84), then friends (*M*=5.50, *SD*=1.57).

Pearson Correlation Analyses

A Pearson correlation matrix, showing the significant linear relationships between demographic and study variables is presented in Tables 5. The significant relationships between reasons for living and study measures is presented in Table 6; and Table 7 presents the significant correlations between SBQ-R, MSPSS, and Holmes and Rahe Stress scale scores and study variables. Although reasons for living total scores were inversely correlated to suicidal behavior, the Pearson correlation did not reveal a

significant relationship. As shown in Table 5, combat service support was the only variable significantly correlated with RFL total scores. Soldiers serving in combat service support tend to score higher on RFLI (r=.163, *p*=.011) than soldiers serving in combat arms and combat support. In Tables 6 and 7, moral objections to suicide and fear of social disapproval were negatively correlated with SBQ-R, indicating that high scores on moral objections to suicide and fear of social disapproval were associated with a lower risk of engaging in suicidal behavior. Using the LSD of adjustments for multiple comparisons, the only significant interaction was found between gender, ethnicity, MOS, and rank, with African American male, Specialists/E-4 and African American Sergeants/E- 5, serving in combat support, endorsing lower suicide risk. The Bonferroni adjustment indicated the only significant difference within groups was in ethnicity, where African Americans scored significantly higher than other ethnicities on reasons for living, with a mean difference of 27.80, p=.000.

Table 5

Pearson Correlation of Demographic Variables

#	Correlation Variables	Pearson's Correlation	Sig	*n*
1	Age			
	Age and Hispanic	.136	.040	229
	Age and Asian	.168	.011	229
	Age and Friend (MSPSS)	-.139	.036	229
2	Gender			
	Gender and African American	-.151	.018	244
	Gender and SBQr1 (Have you ever thought about or attempted suicide?)	-.156	.014	244
3	Rank			
	Rank and Other MOS	-.137	.035	244
4	Ethnicity/African American			
	African American and "Other" Ethnicity	-.127	.048	244
	African American and Child Related Concerns (RFLI)	.137	.033	244
	African American and Responsibility to Family (RFLI)	.140	.029	244
	African American and Fear of Social Disapproval (RFLI)	.136	.034	244
4a	Ethnicity/Caucasian			
	Caucasian and Child Related Concerns	-.126	.049	244
4b	Ethnicity/Hispanic			
	Hispanic and Age	.136	.040	229
	Hispanic and Child Related Concerns	.145	.033	244
4c	Ethnicity/Asian			
	Asian and Combat Service Support	.140	.028	244
	Asian and Age	.168	.011	229
	Asian and Significant Other (MSPSS)	-.158	.014	244
	Asian and Moral Objection to Suicide (RFLI)	-.134	.036	244
4d	Ethnicity/"Other"			
	Other Ethnicity and Combat Support	-.144	.024	244
	Other Ethnicity and BDI2 Total Score	-.145	.023	244
5	MOS/Combat Arms			
	Combat Arms and Holmes and Rahe Total Score	-.150	.019	244
	Combat Arms and SBQr3 (Have you ever told someone you were going to commit suicide?)	-.129	.019	244
	Combat Arms and BDI2 Total Score	-.154	.016	244
5a	MOS/Combat Support			
	Combat Support and "Other" Ethnicity	-.144	.024	244
5b	MOS/Combat Service Support			
	Combat Service Support and Asian	-.140	.028	244
	Combat Service Support and RFL Total Score	.163	.011	244

Combat Service Support and RFL Mean Index Score	.137	.035	238
Combat Service Support and Child Related Concerns (RFLI)	.162	.011	244
Combat Service Support Fear of Social Disapproval (RFLI)	.126	.049	244
Combat Service Support and Moral Objections to Suicide (RFLI)	.153	.017	244
Combat Service Support and BDI-2 Total Score	.148	.021	244

Note. Correlation is significant at the 0.05 level (2-tailed).

Table 6

Pearson Correlation of Reasons for Living (RFL) Variables

#	Correlation Variables	Pearson's Correlation	Sig	*n*
1	RFL Mean Index Score			
2a	Fear of Suicide (RFLI)			
	Fear of Suicide and Child Related Concerns	.152	.018	244
2b	Child Related Concerns (RFLI)			
	Child Related Concerns and Fear of Suicide	.152	.018	244
	Child Related Concerns and SBQ-R Total Score	-.142	.026	244
	Child Related Concerns and SBQr2 (How often have you thoughts about killing yourself in the past?)	-.130	.042	244
	Child Related Concerns and Fear of Social Disapproval (RFLI)	-.159	.013	244
	Child Related Concerns and Friend (MSPSS)	-.139	.036	244
2c	Responsibility to Family (RFLI)			
	Responsibility to Family and SBQ-R Total Score	-.142	.026	244
	Responsibility to Family and SBQr2 (How often have you thought about killing yourself in the past year?)	-.130	.042	244
	Responsibility to Family and Family (MSPSS)	-.139	.036	244
2d	Fear of Social Disapproval (RFLI)			
	Fear of Social Disapproval SBQr2 (How often have you thought about killing yourself in the past year?)	-.162	.011	244
2e	Survival and Coping Beliefs (RFLI)			
2f	Moral Objections to Suicide (RFLI)			
	Moral Objections to Suicide and SBQ-R Total Score	-.161	.012	244
	Moral Objections to Suicide and BDI-2 Total Score	-.149	.020	244
	Moral Objections to Suicide and Family (MSPSS)	.154	.016	244

Note. Correlation is significant at the 0.05 level (2-tailed).

Table 7

Pearson Correlation of SBQ-R, MSPSS, and Holmes and Rahe Variables

#	Correlation Variables	Pearson's Correlation	Sig	*n*
1	SBQ-R Total Score			
	SBQ-R and Moral Objections to Suicide	-.161	.012	244
	SBQ-R and Fear of Social Disapproval	-.152	.017	244
2	MSPSS			
	MSPSS Total Score and Significant Other	-.158	.014	244
2a	Family (MSPSS)			
	Family and SBQr1 (have you ever thought about or attempted suicide?)	.157	.014	244
	Family and Moral Objections to Suicide	-.154	.016	244
3	Holmes and Rahe Stress Scale			
	Holmes and Rahe Stress Scale and Combat Arms	-.150	.019	244
	Holmes and Rahe Stress Scale and SBQr3 (Ever told someone that you were thinking about suicide?)	.156	.015	244

Note. Correlation is significant at the 0.05 level (2-tailed).

Assumption of Multiple Linear Regression

The assumptions of multiple regression included: (1) normal distribution of variables, (2) linear relationship between the independent and dependent variables, (3) reliability of variables, and (4) homoscedasticity (Osborne & Waters, 2002). Normality of variables was tested using measures of skewness, kurtosis, and the Shapiro Wilk's test of normality. Initially, all variables were significantly skewed and kurtotic. Variables were recoded, transformed, and trimmed to correspond to frequency scores at the 95th percentile or higher, following procedures recommended by Tabachnik and Fidell (2013). The descriptive statistics for recoded variables are shown in Table 1. Linearity of variables and monotonic relationships between variables were tested using a bivariate scatterplot matrix and examination of residual plots, which revealed that the relationships

between all study variables were adequately linear. Reliability of variables was tested and satisfied, using Cronbach alpha, and after variables were recoded and transformed, heteroscedasticity was not found to be significant.

Representativeness of the Sample

Study Sample Compared to Total U.S. Army Enlisted Population (2012)

In 2012, Military-One-Source published the *2012 Demographics Profile of the Military Community*. At the time of this publication, 447,308 AD enlisted soldiers were serving in the U.S. Army. The number of Specialists/E-4 on AD was recorded as 143,090 (26.2%), and the total number of Sergeants/E-5 was reported as 83,117 (15.2%; p. 17). Male AD Army enlisted soldiers numbered 389,848 (83.8%), and females made up 57, 460 (16.2%) of the total Army enlisted population. Minority AD Army enlisted soldiers included: African American (98,896, 22.1%), Hispanic/Latino (157,206, 11.3%), Asians (15, 213, 3.4%), Native Hawaiian or other Pacific Islander (4, 707, 11%), Native American or Alaska Native (3,787, 0.8%), and those who labeled themselves as "Other/Unknown," (19,644, 4.4%). Caucasian soldiers made up 68% of the total Army enlisted population, and the mean age of enlisted soldiers serving on active duty at the time of this dissertation study was 29 years.

In this study, the sample n=244 included 96% of all soldiers attending the Warrior Leadership Course on 3 March 2015. Male soldiers made up 88.1% of the study population. Female soldiers made up 11.9% of the study population. Specialists and Sergeants made up 80.3% and 18% of the study sample, respectively. African American

soldiers made up 16% of the study population; Caucasians, 51.2%; Hispanics, 15.6%; Asians, 5.3%, and 7.8% of the study population recorded their ethnicity as "Other."

Study Sample Compared to Linehan's (1983) Sample

The study sample was significantly different than the sample population that participated in the Linehan et al. study in 1983. Linehan et al. surveyed 197 Seattle shoppers (94 men and 103 women) with a mean age of 36 years. They also surveyed an inpatient psychiatric sample (63 men and 112 women) with a mean age of 31 years. Each individual ranked the importance of reasons for living, using the RFLI. Participants who scored higher on the measure of suicide also endorsed lower scores on the RFLI, particularly on survival and coping beliefs domain, responsibility to family, child-related concerns, and moral objections to suicide.

Study Sample Compared to Ulmer et al. Sample (1992)

The study sample was however, similar to the sample of participants in the Ulmer et al. study of 1992, where 288 AD Army soldiers (234 men, 46 women, 8 nonrespondents), completing BASIC training in the southeastern part of the United States, ranked the importance of reasons for living, using the RFLI (p. 183). In the Ulmer et al. study, 75% of the population was between the ages of 18 and 22, 18% between 23-27, and 6% were older (p. 185). The ethnicity of participants varied, with 56% Caucasian, 34% Black, 4% Filipino, 4% Hispanic, and 3% reporting "Other" ethnic origins (p. 185). The sample in this study reported a reasons for living mean index score (RFL_MIS) of 4.37; average depression score of 1.77 (*SD*=.42), and an average loneliness score of 1.81 (*SD*=.47; p. 187). These soldiers were neither very lonely nor very depressed (p. 187). In

contrast, participants in this dissertation study reported a total RFL_MIS score of 4.35 (*SD*=.75); average depression score of 7.0 (*SD*=8.65), suicide risk score of 4.46 (*SD*=2.20), perceived social support score of 5.69 (*SD*=1.52), and a Holmes and Rahe Stress Scale average score of 277.27 (*SD*=264.44). Although the average participant in this dissertation study experienced higher levels of depression than those in the Ulmer et al. study, the depression scores of participants in this study fell within the range of normal ups and downs. Participants in this study were also at a lower risk of engaging in suicidal behavior, despite reporting low perceived social support and moderate to high levels of stress.

Study Sample Compared to 1st Quarter BSHOP 2012 *Suicide Surveillance Report*

A summary of the BSHOP *Surveillance of Suicidal behavior: January-June 2012* suicide, suicide attempt, and suicidal ideation cases are included in this section in order to provide a quick snapshot of comparison of high-risk data specific to the AD Army enlisted population.

Suicide Cases: In the first half of 2012, the greatest proportion of suicides in this data set was among male soldiers (92%), between the ages of 25 to 34 years of age (54%), followed by soldiers 35 to 64 years of age (24%; p. 10). The majority (66%) of suicides was among nonHispanic Caucasian soldiers with a significant increase among nonHispanic Black soldiers (22%) compared to the first half of 2011 (5%; p. 10). Most of the completed suicides occurred among soldiers in the E5-E9 rank (47%), followed by E1-E4 (37%; p. 11). Most of these soldiers experienced relationship, health, work, legal

stressors, and reported suffering with mood-related disorders, depression, or PTSD (p. 15).

Suicide Attempt Cases: In the first half of 2012, the greatest proportion of suicide attempt cases was also among male soldiers (77%), between the ages of 17 and 24 (47%) and 25 to 34 years of age (44%; p. 17). The majority (66%) of suicide attempts were among nonHispanic Caucasian soldiers, followed by nonHispanic Black soldiers (23%; p. 17). Most of the suicide attempts were among soldiers E1-E4 (69%), followed by E5-E9 (27%; p. 17). The principal stressors among these soldiers were also relationship, health, work and legal stressors; and having a mood disorder, depression, or PTSD related symptoms (p. 19).

Suicide Ideation Cases: In the first half of 2012, the greatest proportion of suicidal ideation cases was among male soldiers (80%), between the ages of 17 and 24 (53%) and 25 to 34 years of age (31%; p. 22). The majority (65%) of suicidal ideation cases were also among nonHispanic Caucasian soldiers (p. 22). Most of the suicide ideation cases were among soldiers E1-E4 (71%; p. 23). The principal stressors among these soldiers were also relationship, health, work, and legal stressors; in addition to having a mood disorder, depression, PTSD related symptoms (p. 25).

Evaluation of Research Hypotheses from Descriptive and Regression Analyses

The following research question was the primary focus of this study: "Is having a high level of self-reported reasons for living associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively?" The secondary questions that were used to support the analyses of the primary question were:

- Are there significant demographic differences in responses on the RFLI (rank, age, ethnicity, gender, MOS)?
- Do demographics (rank, age, ethnicity, gender, MOS), depression, social support, and stressful life events significantly add to the regression equation, over and above reasons for living to suicidal behavior?

Hypothesis 1 was designed to answer Research Question 1: Is having a high level of self-reported RFL associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively? The null and alternative hypotheses are restated below.

$H_0$1: Self-reported RFL is not significantly related to self-report suicidal behavior, as measured by the RFLI and SBQ-R, respectively.

$H_1$1: Self-reported RFL is significantly related to self-report suicidal behavior, as measured by the RFLI and SBQ-R, respectively.

Hypothesis 2 was designed to answer Research Question 2: Are there significant demographic differences in responses on the RFLI (rank, age, ethnicity, gender, military occupational specialty)? The null and alternative hypotheses are restated below.

$H_0$2: No significant demographic (rank, age, gender, ethnicity, MOS) differences exists in responses on the RFLI.

$H_1$2: Significant demographic (age, rank, ethnicity, gender, MOS) differences exists in responses on the RFLI.

Hypothesis 3 was designed to answer Research Question 3. Do demographics (rank, age, ethnicity, gender, MOS), depression, social support, and stressful life events

significantly add to the regression equation, over and above reasons for living to suicidal behavior? The null and alternative hypotheses are restated below.

*H*03: Demographics (rank, age, ethnicity, gender, MOS), social support, depression, and stressful life events are not significantly related to self-reported suicidal behavior, over and above reasons for living, as measured by the RFLI and SBQ-R, respectively.

*H*13: Demographics (rank, age, ethnicity, gender, MOS), social support, depression, and stressful life events are significantly related to self-reported suicidal behavior, over and above self-reported reasons for living, as measured by the RFLI and SBQ-R, respectively.

Pearson correlation was conducted to analyze Hypothesis 1. Univariate analysis was employed to analyze Hypothesis 2, and a multiple regression analysis was conducted to analyze Hypothesis 3. During the examination of Hypothesis 3, demographics variables were entered into the regression analysis first (rank, age, ethnicity, gender, MOS), followed by depression, stressful life events, and social support. This process was employed to determine the amount of variance accounted for by demographics, depression, stressful life events, and social support in SBQ-R. Reasons for living (RFL_TS) total scores were added in the last step of the equation to see if reason for living predicted SBQ-R better than demographics (rank, age, ethnicity, gender, and MOS), depression, stressful life events, and social support. A regression analyses was also conducted with reasons for living as the dependent variable. This was an ad hoc analysis that allowed for the exploration of the amount of variance in reasons for living

accounted for by demographics (rank, age, ethnicity, gender, and MOS), depression, social support, stressful life events, and suicidal behavior. Table 8 presents the regression analyses for Model 1. The regression for Model 2 is presented in Table 9; and Table 10 displays the regression analyses for Model 3.

In Step 1 of the hierarchal regression, demographic variables (rank, age, gender, ethnicity, and MOS) were entered into the equation with SBQ-R as the dependent variable. The results of the analyses included: R^2=.04, adjusted R^2= -.02, *F*-change=.72 and significant *F*-change=.73. Demographic variables (rank, age, gender, ethnicity, MOS) accounted for 4% of the variance or variability in SBQ-R.

In Step 2 of the regression, social support, stressful life events, and depression, were added to the model. The addition of these variables resulted in: R^2=.33, adjusted R^2=.28, adjusted R^2=.28, R^2 change=.29, *F*-change=29.9; and significant *F*-change=.000. Adding social support, stressful life events, and depression to the analyses accounted for about 29% of variance in SBQ-R when the demographic variables were removed. Model 2, including demographic variables, social support, stressful life events, and depression, accounted for about 28% of variance in SBQ-R.

In Step 3 of the regression, reasons for living were added to the analyses. This step resulted in: R^2=.41, adjusted R^2=.36, R^2 change=.08, *F*-change=28.9; and significant *F*-change=.000. Reasons for living accounted for approximately 8% of variance in suicidal behavior when Step 1 and Step 2 were statistically controlled for. The model as a whole accounted for about 36% of variance in suicidal behavior. Thus the addition of Step 1 and Step 2 added a significant contribution to predicting SBQ-R, and the Model as

a whole was a statistically significant predictor of SBQ-R. In review of the standardized coefficients, three variables made a statistically significant unique contribution to the regression at the $p<.05$ level: depression made the most contribution (.404), $p=.000$, followed by reasons for living (-.330), $p=.000$, and finally stress (.119). $p=.046$. High levels of depression and stress were positively related to suicidal behavior, while higher reasons for living scores was inversely related to suicidal behavior.

Table 8

Hierarchical Regression Model 1 (n = 244)

	Model 1			*t*-test	Sig
Step 1 Demographic Variables	*B*	*SE B*	*β*		
Age	-.077	.045	-.121	-1.689	.093
Rank	.115	.404	.020	.285	.776
Gender	-.550	.485	-.081	-1.134	.258
African American	.154	.846	.026	.182	.856
Caucasian	.612	.770	.139	.794	.428
Hispanic	.457	.835	.075	.547	.585
Asian	.297	.998	.030	.298	.766
Other Ethnicity	-.220	.921	-.027	-.239	.811
Combat Arms	-.564	1.384	-.119	-.408	.684
Combat Support	-.124	1.383	-.027	-.090	.929
Combat Service Support	-.021	1.392	-.005	-.015	.988
Other MOS	-1.756	2.715	-.051	-.647	.518
R^2		.039			
Adjusted R^2		-.015			
$F(12)$		.724			
Change in R^2		.039			
$F(12)$		.724			
p		.727			

Note. Correlation is significant at the 0.05 level (2-tailed).

Table 9

Hierarchical Regression Model 2 (n = 244)

	Model 2			*t*-test	Sig
Step 2 Social support (SS),Stressful life events (SLE),Depression (BDI-2)	*B*	*SE B*	*β*		
Stressful life events	.001	.001	.091	1.448	.149
Depression)	.123	.017	.482	7.237	.000
Social support	-.148	.089	-.102	-1.657	.099
R^2		.328			
Adjusted R^2		.280			
$F(3)$		29.926			
Change in R^2		.289			
$F(15)$		6.802			
p		.000			

Note. Correlation is significant at the 0.05 level (2-tailed).

Table 10

Hierarchical Regression Model 3 (n = 244)

	Model 3			*t* test	Sig
Step 3 Reasons for Living (RFL)	*B*	*SE B*	*β*		
RFL Total Score	-.020	.004	-.330	-5.372	.000
R^2		.410			
Adjusted R^2		.364			
F (1)		28.854			
Change in R^2		.082			
F(16)		9.030			
p		.000			

Note. Correlation is significant at the 0.05 level (2-tailed).

An ad hoc observation in the study included entering reasons for living as the dependent variable, in order to assess the amount of variance in reasons for living accounted for after controlling for demographics (rank, age, gender, ethnicity, MOS), depression, social support, stressful life events, and suicidal behavior. Demographics variables were entered into the regression analysis first (rank, age, ethnicity, gender, MOS), followed by depression, stressful life events, and social support. Lastly, suicidal behavior was added to the equation to see if it predicted reasons for living better than the other variables in the study.

In Step 1 of the hierarchal regression, demographic variables (rank, age, gender, ethnicity, and MOS) were entered into the regression equation, with reasons for living as the dependent variable. The results of the analyses included: R^2=.11, adjusted R^2= -.06,

F-change=2.1, and significant *F*-change=.019.Thus the demographic variables (rank, age, gender, ethnicity, MOS) accounted for 11% of the variance in reasons for living.

In Step 2 of the regression, social support, stressful life events, and depression were added to the model. The addition of these covariates resulted in: R^2=.25, adjusted R^2=.19, R^2 change=.14, *F*-change=13.2; and significant *F*-change=.000. The addition of the covariates accounted for about 14% of variance in reasons for living when the demographic variables were removed. Model 2, including demographic variables, depression, social support, and stressful life events accounted for about 19% of variance in reasons for living.

In Step 3 of the regression, SBQ-R total scores were added to the analyses. This step resulted in: R^2=.34, adjusted R^2=.29, R^2 change=.09, *F*-change=28.9; and significance=.000. Suicidal behavior accounted for about 9.2% of variance in reasons for living when Step 1 and Step 2 were statistically controlled for. The Model as a whole accounted for about 29% of variance in reasons for living. Thus the addition of Step 1 and Step 2 added a significant contribution to predicting reasons for living, and the Model as a whole was a statistically significant predictor of reasons for living. In review of the standardized coefficients in this analyses, two variables made a statistically significant unique contribution to the regression at the $p<.05$ level: suicidal behavior made the most contribution (-.369), p=.000, followed by perceived social support (.224), *p*=.000. Suicidal behavior was inversely related to reasons for living; and higher levels of perceived social support were positively related to reasons for living.

The outcome of each hypothesis in the study is related below.

Hypothesis 1. Hypothesis 1 tested whether having high levels of self-reported reasons for living was associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively. Pearson correlations revealed that suicidal behavior was inversely correlated to reasons for living (-.419) at the .01 significance level. In this study, soldiers who scored higher on the RFLI tended to have lower scores on the SBQ-R. However, there were a few exceptions: African American women scored higher than all other participants on both the SBQ-R and the RFLI; Specialists/E-4 serving in combat service support scored higher than other Specialists/E-4 on both the SBQ-R and RFLI; and Sergeants/E-5 serving in combat service support scored higher on both the SBQ-R and RFLI than other Sergeants/E-5 in the study. In the regression analyses, when reasons for living was added to the analyses, after controlling for the demographic variables (rank, age, gender, ethnicity, MOS), depression, perceived social support, and stressful life events, reasons for living accounted for about 8.2% of variance in suicidal behavior. This was an improvement over Model 1, where demographic variables accounted for 4% of variance in suicidal behavior, but not an improvement over Model 2, where depression, social support, and stressful life events accounted for about 28.9% of variability in suicidal behavior. The result of these analyses support the hypothesis that self-reported reasons for living is a unique and significant predictor of self-reported suicidal behavior. However, depression, perceived social support, and stressful; life events were better predictors of suicidal behavior than reasons for living. These results also support the hypothesis that having higher levels of self-reported

reasons for living is associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively.

Hypothesis 2. Hypothesis 2 tested whether there were significant demographic (rank, age, gender, ethnicity, MOS) differences in responses on the RFLI. In this study, women scored higher on reasons for living than men, with African American women scoring higher than all other participants in the study. African American women also scored higher on each domain of the RFLI, ranking survival and coping beliefs as the primary reason for not engaging in suicidal behavior should the thought arise. Specialist/E-4 serving in combat service support also scored higher on the RFLI than Specialists/E-4 in combat arms and combat support. In addition, Sergeants/E-5 serving in combat support scored higher on the RFLI than Sergeants/E-5 serving in combat arms and combat service support, except for the one soldier who labeled his MOS as "Other." Thus, the analyses resulted in the retention of the alternative hypothesis that demographic differences exists among study participants on the RFLI.

Hypothesis 3. Hypothesis 3 tested whether depression, social support, and stressful life events significantly added to the regression equation, over and above reasons for living. The results of the analyses indicated that depression, social support, and stressful life events were better predictors of suicidal behavior than both demographic variables and reasons for living. Depression, perceived social support, and stressful life events accounted for 28.9% variance in suicidal behavior versus 8.2% accounted for by reasons for living. The analyses resulted in the retention of the alternative hypothesis that reasons for living was a unique predictor of suicidal behavior

however depression, stressful life events, and social support were better predictors of suicidal behavior among this study population.

Summary of Results

The primary research question under investigation in this study was the following: "Is having a high level of self-reported reasons for living associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively?" The secondary questions that were used to support the analyses of the primary question were:

1. Are there significant demographic differences in responses on the RFLI (rank, age, ethnicity, gender, MOS)?

2. Do demographics (rank, age, ethnicity, gender, MOS), depression, social support, and stressful life events significantly add to the regression equation, over and above reasons for living, to suicidal behavior?

In this study, suicidal behavior (SBQ-R) was entered into a hierarchal multiple regression analyses as the dependent variable to assess the amount of variance accounted for by demographics (rank, age, gender, ethnicity, MOS), depression, social support, stressful life events, and reasons for living. In a sample of n=244 AD Army soldiers attending the WLC in Germany on March 3, 2015, most participants experienced normal ups and downs, and reported at a low risk of engaging in suicidal behavior, despite reporting low perceived social support and moderate to high levels of stress. Furthermore, the analyses revealed that higher scores on the RFLI were associated with lower scores on the SBQ-R, except in a few cases. Thus, cognitive factors, as exemplified by reasons for living, are associated with lower scores on the measure of suicidal behavior in this

sample population. In addition, reasons for living accounted for greater variance in suicidal behavior than demographics (rank, age, gender, ethnicity, MOS), however, stressful life events, social support, and depression accounted for a greater amount of variance in suicidal behavior than both reasons for living and demographics. African American women had the highest RFLI and SBQ-R scores, and Caucasian men and women scored the lowest on the RFLI than any other ethnic groups in the study. Specialists/E-4 serving in combat service support and Sergeants/E-5 serving in combat support scored higher on reasons for living than any other rank and MOS, and both men and women soldiers endorsed survival and coping beliefs as the primary reason for not engaging in suicidal behavior should the thought arise. This was followed by responsibility to family and child-related concerns.

In the ad hoc, when reasons for living was added into the regression as the dependent variable, depression, stressful life events, and social support accounted for a greater amount of variance in reasons for living than demographics (rank, age, gender, ethnicity, MOS) and suicidal behavior. As in the previous analyses, depression, stressful life events, and social support accounted for more variance in reasons for living than demographics and suicidal behavior, and were unique predictors of reasons for living.

Chapter 5 reviews the findings of this study, provides an interpretation and comparison of the study results to the existing literature on reasons for living among AD Army soldiers, explores the limitations of this research study, provides recommendations for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

Discussion

Many new initiatives and programs aimed at reducing the rate of military suicides have been developed and implemented in the United States since 2008, when the problem of suicide in the U.S. Army came to the attention of the national public, (Stars and Stripes, 2015). Despite these efforts, U.S. military suicide death rates in 2012 surpassed the number of troops killed in combat. The Department of Defense reported in 2013 that its fight to decrease suicides in the military continues, and that it is focusing its efforts on prevention and ensuring military members have access to proper healthcare. However, many top officials in the Department of Defense (DOD) have also reported that the rate of suicide is expected to continue to rise well into the future (Stars and Stripes, 2014). A consensus in suicide-reduction research is that there are a variety of steps that can be taken to make things better. This study was one such effort, and departs from prior literature on risk factors related to suicide. It specifically examined protective factors, particularly reasons for living that can be enhanced among AD Army soldiers to decrease suicidality.

The purpose of this study was to investigate the relationship between reasons for living and suicidal behaviors, in a sample of U.S. Army soldiers, as measured by the Reasons for Living Inventory (RFLI) and the Suicide Behaviors Questionnaire-Revised (SBQ-R), respectively. Although there is a large volume of literature on reasons for living and suicidal behavior among high-risk populations, a gap remains in the research literature on the relationship between these variables among AD Army populations,

where rates of suicide are alarmingly high. This study was the first of its kind to explore the relationship between reasons for living and suicidal behavior in an AD Army population, while controlling for demographics (rank, age, gender, ethnicity, MOS), perceived social support, stressful life events, and depression.

This study employed a quantitative research design including Pearson correlation, univariate analyses, and hierarchal multiple regression analysis to explore the relationship between reasons for living and suicidal behavior in a sample of 244 AD Army soldiers attending the WLC in Germany. The results of the analyses offer insight into life-maintaining beliefs that can promote cognitive and behavioral resiliency in soldiers. The impact of demographics (rank, age, gender, ethnicity, MOS), depression, social support, and stressful life events on suicidal behavior and reasons for living were also examined to determine which variables accounted for a greater amount of variance in suicidal behavior. The findings in this dissertation study can be used to inform suicide prevention programs and interventions designed to improve the health and welfare of soldiers at every level of military service.

Interpretation of the Findings

Before testing the three main hypotheses of the study, I conducted several preliminary analyses to evaluate the internal consistency of the measures used, examine inter-correlations between scale and among subscales, and determined significant group differences in demographic variables. The study participants included significantly fewer women than men; Caucasian participants also outnumbered other ethnicities. Eighty percent of the study sample participants held the rank of Specialist/E-4 and were male

(88%), and 51% were Caucasian. There were relatively equal numbers of participants in combat arms, combat support, and combat service support, with men making up all of the combat arms participants. Generally, the research hypotheses were partially supported.

The scales and subscales used in the study demonstrated good internal consistency. For example, the RFLI yielded a Cronbach alpha of .94, the SBQ-R produced a Cronbach alpha of .78, the MSPSS yielded an alpha of .97, the Holmes and Rahe Stress Scale produced a Cronbach alpha of .92, and the BDI-2 yielded a Cronbach alpha of .89. Additionally, all of the RFLI subscales were significantly positively correlated with each other ($p<.05$) such that more reasons for living was associated with more survival and coping beliefs, responsibility to family, child-related concerns, fear of suicide, fear of social disapproval, and moral objections. The results confirmed that the RFLI was a reliable measure for this sample of AD Army soldiers. In this dissertation study, the items associated with the RFLI domain, fear of social disapproval, demonstrated the least consistency; however, this subscale contained only four items, resulting in a limited capacity for strong internal consistency.

All of the RFLI scales and subscales were also strongly related to the constructs that they were theoretically associated with, providing evidence in support of the RFLI as a valid measure for use with AD Army soldiers. The BDI-2 scores significantly correlated with RFLI total and subscale scores, such that more depressive symptoms were associated with less survival and coping beliefs, responsibility to family, child-related concerns, fear of suicide, fear of social disapproval, and moral objections to suicide.

These results were also consistent with those of the Ulmer et al. (1992) study, where it was reported that RFLI scores were inversely associated with depressive symptoms.

The Multidimensional Scale of Perceived Social Support (MSPSS) and Holmes and Rahe stress scale scores (SRSS) were correlated with both RFLI and depressive symptoms; where more perceived social support and less stressful life events were associated with less depressive symptoms and more survival and coping beliefs, responsibility to family, child-related concerns, fear of suicide, fear of social disapproval, and moral objections to suicide. These results were consistent with Rey and Extremera (2015), Wang, Joel, Tran, Nyutu and Spears (2013), and Wang, Lightsey, Tran, and Bonaparte (2013), who reported that individuals with more perceived social support and fewer stressful life events endorse more reasons for living and fewer depressive symptoms.

Outcome of the Hypothesis Testing

Hypothesis 1. The study findings supported the hypothesis that high levels of self-reported reasons for living were associated with lower self-reported suicidal behavior, as measured by the RFLI and SBQ-R, respectively. This was consistent with most research that examined the relationship between reasons for living and suicidal behavior in high-risk populations (Bagget et al., 2013; Chatterjee & Basu, 2010; Choi & Rogers, 2010; Lamis et al., 2009; Lee & Oh, 2012; Street et al., 2012; Wang et al., 2012). However, female African American participants and soldiers serving in combat service support endorsed higher levels of reasons for living and suicidal behavior. Although these results were not the norm in most research on suicidality, they were consistent with the

Flowers (2015), who examined reasons for living and diminished suicide intent among African American female suicide attempters and nonattempters, and who reported that African American suicide attempters also endorsed high scores on the RFLI than nonattempters.

In this study, both male and female participants reported strong survival and coping beliefs, responsibility to family, and child-related concerns as the primary reasons for not engaging in suicidal behavior. Captain Lanzarote Dailey, the commander of an Army unit in Germany, suggested that the results of this analysis may be due in part to the intensive nature of U.S. military training that teaches soldiers to believe that they can handle whatever situation comes their way. This may also be due in part to a common belief by many AD dependents that soldiers are obligated and condition to put the Army first and family second, if they are to succeed in their military careers (L. Dailey, personal communication, August 7, 2015).

Hypothesis 2. The data in this study showed significant demographic differences in responses on the RFLI. African American women scored higher on the RFLI than all other participants in the study. This was followed by African American men, Hispanic men, and then Hispanic women. Caucasian men and women endorsed fewer reasons for living than all other participants in the study. These results are consistent with Morrison and Downey's study results (2000), which indicated that European Americans tended to report fewer reasons for choosing not to kill themselves than their African American peers. Military occupational specialties (MOS) had a notable association: soldiers serving in combat service support scored higher on the RFLI than soldiers serving in combat

arms and combat support, a finding consistent with the BSHOP (2011) report on high-risk characteristics of suicidal soldiers. Although Sergeants scored higher on the RFLI than Specialists, Specialists/E-4 significantly outnumbered Sergeants/E-5 in the study (80% to 18%).

Hypothesis 3. In this study, reasons for living was determined to be a unique predictor of suicidal behavior, over and above demographics (rank, age, gender, ethnicity, MOS), however depression, social support, and stressful life events accounted for greater variance in suicidal behavior than both reasons for living and demographics. Thus, the alternative hypothesis that depression, stressful life events, and social support were better predictors of suicidal behavior, over and above reasons for living, was retained, with depression as the strongest predictor of suicidal behavior. These results were consistent with studies conducted by Bagge et al. (2013), Batigun (2005), and Malone et al. (2000) who reported that reasons for living only partially accounted for suicidal behavior among high-risk populations. Other factors, such as depression, loneliness, and high levels of stress were better predictors of whether individuals would or would not engage in suicidal behavior.

The findings in this study contribute to understanding the importance of reasons for living, demographics (rank, age, gender, ethnicity, MOS), depression, social support, and stressful life events as risk and protective factors for suicidal behavior; particularly in a highly stressed AD Army population where the rate of suicide, once again, continues to climb. Consistent with the research done by Ulmer et al. (1992), this study supports the importance of using an assessment tool that incorporates reasons for living in assessing

cognitive beliefs and expectations that may be instrumental in protecting AD service members from engaging in suicidal behavior.

Limitations of the Study

Causal Inference

This study was not expected to be predictive as individual beliefs and expectations do not always lead to or inhibit suicidal behavior (Fang et al., 2011). In addition, because all data was collected at one point in time, causality and the temporal relationship between reasons for living and suicidality cannot be assessed.

Study Population

The study population was limited to soldiers attending the Warrior Leadership Course (WLC) in Germany. These soldiers were chosen to attend the WLC because they were considered top-ranked in their units and showed the most leadership potential for advancement in the Armed Services They were also viewed as disciplined, accountable, adaptive, physically fit, mentally tough, and resilient. Further studies should examine a more diverse sample of AD Army soldiers

Specific Period of Time

The data for this study was collected from soldiers at one point in time. Participants completed the surveys two days before graduating from the Warrior Leadership Course (WLC). At other points in their military careers, they might respond differently.

Study Measures and Procedure

The collection of data was based exclusively on self-report measures which may reduce the validity of findings. In addition, the measures administered in this study were not normed on a military population, thus measures that are specific to military experiences may yield different results. Qualitative studies can also be especially helpful in understanding the opinions, feelings and experiences of participants, as qualitative data is collected through direct encounters, such as through interviews or observations. Researchers should also seek to collect longitudinal data to better understand potential changes in reasons for living over time, as well as examine the potential benefits of developing and incorporating suicide interventions that target and enhance reasons for living among AD Army soldiers during their military careers.

Confounding Variables and Response Bias

Only variables relevant to this study were included in the data analyses; however the relationship between reasons for living and suicidality may have been a reflection of other variables, separate from the variables of interest. Therefore, further research is needed to identify additional factors that may impact a soldier's decision to engage or not engage in suicidal behavior. In addition to confounding variables, soldiers may have underreported in certain areas or over-reported in others, thus obscuring relationships that may or may not exist. According to Miller et al. (2001), research participants are often unwilling to admit to suicidal behavior because of the negative stigma associated with suicidality.

Recommendations for Future Research

Despite the limitations in this study, the findings highlight the need for more research on AD Army high risk populations, in order to more fully understand reasons soldiers give for engaging in and not engaging in suicidal behavior should the thought arise. This research is intended to inform suicide intervention and prevention programs and policies, and encourage the incorporation of reasons for living into preexisting intervention and prevention programs. This study points out the need for researchers to examine ways to expand reasons for living as a suicide intervention and prevention strategy for all soldiers, particularly among African American soldiers who report high levels of suicidality. Although this study strongly supports the incorporation of reasons for living in treatment programs aimed at reducing distress suicidal behavior, depression, social support, and stress should continue to be a primary intervention focus as identified by the dissertation study results. Moreover, educational and training programs, and conferences and workshops can serve as a platform to reinforce the need to balance the research literature and treatment focus of suicidality to one that incorporates both risk and protective factors in the assessment of both clinical and nonclinical individuals who may be at risk for engaging in suicidal behavior.

Implications

Implications for the United States Army

The current study examined the relationship between reasons for living and suicidal behavior in an AD Army population. Stressful life events, depression, perceived social support, and demographics (rank, age, gender, ethnicity, MOS) were explored for

their unique contribution to both suicidal behavior and reasons for living. An understanding of these relationships is pertinent to the development of successful suicide intervention and prevention treatment programs. Determining how reasons for living is related to suicidal behavior, depression, social support, stressful life events, and demographics, in an AD Army population plagued by high rates of suicide, is critical to appropriately addressing the problem of suicidal behavior in today's military. The results of this study demonstrate the efficacy of using the RFLI with AD Army samples to identify suicidal from non-suicidal individuals, and demonstrates how reasons for living, compared to depression, social support, and stressful life events, may act as protective or risk factors for suicidal behavior. An interesting observation in this dissertation study was the groups of soldiers who endorsed high levels of reasons for living, as well as high levels of suicidal behavior.

In general, the consistent nature of these results with the results of other studies on high-risk populations, suggest that more research is warranted to understand the phenomenon of suicide. Developing or modifying the RFLI to be more specific to the unique experiences of military personnel might also be considered. In addition, interviewing actual military suicide attempters might be studied to gain greater insight into cognitive and behavioral processes employed when considering engaging in suicidal behavior.

Implications for Social Change

Conducting suicide research with the military. During the execution of this study, a commonly expressed belief by both civilian and military personnel was that 1) it

was virtually impossible for university research students to penetrate the military's system and conduct studies using soldiers as research participants; and 2) it was highly unlikely that a research student would obtain approval from the Army IRB to conduct such a sensitive study. This frame of mind may be a major limiting factor in the progress of research in suicide prevention with AD Army personnel. As demonstrated by this research, the Department of the Army, Headquarters, U.S. Army Medical Research and Material Command, Institutional Review Board (IRB) is dedicated to providing quality opportunities for all researchers interested in studying issues that may affect the readiness of the United States Army.

Clinical and nonclinical implications. Strengthening reasons for living in clinical and nonclinical populations might diminish known risk factors that contribute to suicidal behavior. Thus it may be useful for medical and mental health providers to periodically assess individual beliefs and expectations, and recommend or conduct treatment that focuses on beliefs not endorsed as important, or beliefs endorsed as important but have lost their protective power against suicidal behavior. These efforts may result in diminished suicides rates in military populations as individuals find purpose in life and reasons for not committing suicide should the thought arise.

Conclusion

The persistent increase in suicidal behavior among AD Army personnel has been a source of significant concern for the Department of Defense since 2008, when the Army's suicide rate surpassed that of the general U.S. population. Despite efforts to revamp military policies and programs, and the investment of millions of dollars in

research, the suicide rate among military personnel continues to be alarmingly high. Many factors contribute to a soldier's decision to engage in suicidal behavior, and a large volume of research is dedicated to identifying and eliminating risk factors. Recently, research has shifted its focus to identifying and understanding the impact of protective factors on suicidal behavior in the U.S. Army. Yet, very few studies have been dedicated to examining reasons why soldiers do not engage in suicidal behavior should the thought rise.

In 1983, Linehan et al. theorized that individuals can generate reasons for living when faced with significant life crisis. Linehan and her colleagues proposed that these reasons would fall within six domains of cognitive beliefs and expectations: survival and coping beliefs, responsibility to family, child-related concerns, fear of suicide, fear of social disapproval, and moral objections to suicide. Subsequently, researchers have supported Linehan's theory and confirmed the hypothesis that high levels of reasons for living were associated with a lower risk of engaging in suicidal behavior. However, researchers have also discovered that certain groups at high risk for engaging in suicidal behavior could also generate strong reasons for living when faced with significant life crisis (Flowers, 2011).

The results of this dissertation study is consistent with much of the research on reasons for living on suicidal behavior among high risk populations, and supports the claim in research that identifying reasons that deter individuals from committing suicide is clinically useful, and is a critical component to effective suicide prevention and intervention programs. The results also high the need to take a closer look at reasons why

African American soldiers endorse high levels of stress, low perceived social support, but also endorse strong reasons for living, compared to other participant groups, where suicidal behavior and reasons for living were inversely related. Depression, stressful life events, and perceived social support were significant factors related to suicidal behavior in this population of participants, and should continue to be an element of the assessment process as the U.S. Army seeks to better understand the problem of suicide among AD Army soldiers. Although the RFLI has been modified for use in both clinical and nonclinical settings, and to differentiate suicidal from nonsuicidal individuals in young adult college student populations, with ethnic minorities, and among adolescent and older adult high risk groups, considerable attention should be given to creating a RFLI military version that captures the unique experiences of individual serving on active duty.

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Appendix A: Demographic Data Sheet

Survey Packet Number _____

Today's Date: _____ Age: _____

Gender (please circle): Male Female

Marital Status: _____

Ethnicity:

1. Non-Hispanic Black
2. Non-Hispanic White
3. Hispanic
4. Asian
5. Native American
6. Other

Rank: _____

MOS (e.g., number and title): _____

Unit: _____

Time in Service: _____

No of Deployments: _____

Have you ever had thoughts of suicide, gesture, attempts? Yes/No

Have you ever had thoughts of homicide? Yes/No

Previous Inpatient Psychiatric Treatment (including childhood)? Yes/No

Previous Outpatient Psychiatric Treatment (including childhood)? Yes/No

Previous Inpatient Substance Abuse Treatment? Yes/No

Previous Outpatient Substance Abuse Treatment? Yes/No

Have you ever been Abused (e.g., physical, sexual, emotional, neglect)? Yes/No

If yes, please indicate what type of abuse _____

Trauma History Yes/No

Exposure to Childhood Trauma/Violence Yes/No

Educational Level (H.S., GED, AA, etc.): _____

Marital Status:

a. Single
b. Married
c. Divorced
d. Separated

Children? Yes/No

Conflict at home (partner, child, etc.)? Yes/No

Legal/UCMJ? (Past/Current): Yes/No

Financial Problems (Past/Current): Yes/No

Current Psychiatric Medications? Yes/No

Major Medical Issues? Yes/No

Physical Pain Today? Yes/No

If yes, circle mild, moderate or severe _____

History of concussions/TBI? Yes/No

Do you now or have you in the past, consumed alcohol? Yes/No

Do you now or have you in the past, used tobacco? Yes/No