

Psychological Well-Being and Functioning of Military Service Members
Following Exposure to Suicide within the Military Unit

by

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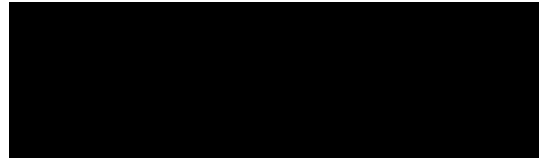
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July 31, 2017

ABSTRACT

Psychological Well-Being and Functioning of Military Service Members Following
Exposure to Suicide within the Military Unit

Kyna Pak, Doctor of Philosophy, 2018

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Background: Suicide remains a public health problem within the United States military. Suicide survivors are individuals left to grieve after a suicide loss. When a service member or veteran dies by suicide, members of their military unit are a subset of suicide survivors who are exposed to the loss. To date, the grief experiences, overall distress, and functioning of military unit members following a loss of one of their own have not been closely examined. **Purpose:** The study examined (1) whether exposure to a unit suicide (versus no exposure) was associated with higher levels of symptom distress, grief, and functional impairment; (2) factors most strongly associated with symptom distress, grief, and functional impairment among those exposed to military suicide; and (3) the military unit suicide survivor experience. **Methods:** A mixed-methods design was employed. An anonymous web-based survey ($N = 1,555$) was administered to those having served in the U.S. military. **Results:** Symptom distress was higher for those exposed to unit suicide (versus unexposed). Higher rank and greater perceived unit social support were associated with lower symptom distress and functional impairment.

Lifetime trauma types were associated with higher symptom distress and functional impairment. Greater perceived closeness was associated with more grief. Among those exposed to both military unit suicide and non-suicide deaths, grief associated with a suicide loss was significantly greater than non-suicide grief. **Discussion:** Research and practice recommendations were provided. Qualitative information provided by military unit survivors were examined in the context of future suicide postvention efforts.

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CHAPTER 1: INTRODUCTION

PUBLIC HEALTH SIGNIFICANCE OF SUICIDE

Fatal Suicidal Self-Directed Violence

Suicidal self-directed violence remains a significant global and national public health concern. According to the World Health Organization, suicide accounts for over an estimated 800,000 deaths each year worldwide, making it the fifteenth leading cause of death, with one person dying every 40 seconds (167). Notably, among 15 to 29 year olds, suicide is the second leading cause of death worldwide (167). According to the Centers for Disease Control and Prevention (CDC), suicide is the tenth leading cause of death in the United States (U.S.); it accounted for 41,149 deaths in 2013—a rate of one person dying every 13 minutes (36). Suicide has been the second leading cause of death for 17 to 41 year olds annually since 1999 (37), an age range representative of approximately 86 percent of the U.S. active duty military (59). Secondary to the loss of human life, suicidal self-directed violence incurs a significant economic cost. Suicides in the U.S. cost an estimated combined medical and work loss of \$25.5 billion for 17 to 41 year olds alone in 2010, an average lifetime work loss cost of nearly \$1.8 million per suicide (37). Across age groups, suicide costs about \$34.6 billion of combined medical and work loss annually (35).

Fatal Suicidal Self-Directed Violence in the United States Military

The U.S. military is currently a volunteer force drawn from the civilian population; therefore, many public health concerns affecting the general public are reflected in the military. Among active duty military service members, suicide has been the primary cause of death since 2012, the second leading cause of death since 2009, and among the top three causes of death since 1998 (12). Between 2000 and 2011, suicide accounted for 20 percent of military deaths

unrelated to war, and for the timeframe of 2008 to 2011, it accounted for approximately 26 percent of military deaths unrelated to war (11). Given the significance of the problem of suicide, the need for integrated surveillance has been well established.

To address this issue, since 2008, the Department of Defense (DoD) has required the systematic documentation of all fatal suicides and suicide attempts in the DoD Suicide Event Report (DoDSER) system within 60 days of the suicidal event. This system has increased the standardization of reporting data for suicidal self-directed violence within the DoD, presenting suicide counts and rates, demographics, suicide methods, psychosocial stressors, behavioral health diagnoses, and deployment-related information for each service branch. The DoDSER is currently the best source of available data in the DoD, although data quality remains variable. Based on this surveillance system, certain factors have been associated with a service member dying by suicide: male gender, White/Caucasian, non-Hispanic, under 30 years of age, junior enlisted status (E1-E4), and less education (*i.e.*, high school diploma or equivalent); additionally, having a mental health diagnosis, failed relationship, and administrative/legal problems were associated with suicides (124; 125; 142; 143).

The most recent DoDSER for calendar year 2015 reported suicide rates (per 100,000) of 20.5 for the Air Force, 24.4 for the Army, 21.2 for the Marine Corps, 13.1 for the Navy, and 20.2 for all branches of service combined (124). The Army (since 2005) and the Marine Corps (since 2007) suicide rates have exceeded the suicide rate of 22.7 per 100,000 for 17 to 41 year old U.S. males (37). Due to low numbers, only the 2012 DoD female suicide rate has been calculated at 11.7 per 100,000 (125). However, this number exceeds the rate for 17 to 41 year old (*i.e.*, 6.0 per 100,000) U.S. females (37).

Fatal Suicidal Self-Directed Violence among the United States Veterans

The transitional state from military service to veteran and/or civilian status has been postulated to increase suicide risk. Veterans represent a disproportionate number of suicides per year, accounting for 20 percent of U.S. suicides annually (93), despite comprising approximately seven percent of the U.S. population (150). Although the *percentage* of suicides identified as veterans has slightly decreased from 25 percent in 1999 to 22 percent 2010, the estimated *number* of veteran suicides has increased to approximately 22 each day in 2010, up from a low of 18 per day in 2007, with the majority of suicides occurring among veterans age 50 years or older (93). While these numbers must be interpreted with caution (data reported by only 21 states), they highlight the magnitude of the problem for the Department of Veterans Affairs.

Furthermore, empirical support for the elevated risk for suicide among recently separated service members has now been established. In a 2015 study (92) of over 1.2 million veterans who served on active duty between 2001 and 2007 (Iraq and Afghanistan wars), suicide mortality risk was 61 percent higher than the comparable U.S. general population, and 41 percent higher among veterans who had deployed compared to those who had not, with the first three years following separation as the period of highest risk for suicide. A recent analysis of mortality data from the Armed Forces Medical Examiner System and the National Death Index for the 3.9 million service members on active duty between October 7, 2001 and December 31, 2007 attributed 5,041 deaths by December 31, 2009 to suicide (130). Those with less than four years in the military or discharged without an honorable characterization were at particular risk. Regardless of deployment history, separation from service significantly increased the adjusted hazard ratio of suicide by nearly 60 percent.

SUICIDE SURVIVORS

The statistical figures provided in the earlier section demonstrate the gravity of the suicide problem currently being addressed by the World Health Organization, the CDC, the DoD, and the Department of Veterans Affairs. Each instance of suicide clearly results in a loss of life for the suicidal decedent, a loss of a loved one for the family, and an economic loss. Furthermore, suicide often results in a significant sense of loss within one's community and more broadly speaking, in society. Specifically, for each suicide death, a number of non-familial individuals who knew the decedent (*e.g.*, friends, co-workers) are left behind to cope with the loss.

Before moving forward with a discussion about the nature of suicide's impact on exposed individuals, a brief review of the literature on three topics is provided: (i) terminology associated with suicide loss and bereavement; (ii) theoretical models to explain the interaction between exposure to suicide death and subsequent impact; and (iii) national estimates of those exposed to suicide death and plans to mitigate risk.

Terminology for Suicide Loss

The most common term used in the suicidology literature to refer to an individual left behind following a suicide is a "suicide survivor." *Suicide survivor* is a term that has caused confusion as to who is the subject of the term: the individual surviving a suicide attempt, or someone close to a person who has died by suicide? In the U.S., the term describes a person who knows and may be affected by the suicide death of another individual (6). Internationally, the term, *bereaved by suicide*, is more commonly used to describe individuals who have suffered a loss due to suicide (66). Suicide survivorship can carry with it a heavy emotional and psychological impact on the "individuals left behind to grieve, who try to understand the reasons

for the death and who learn to carry on with their lives following a suicide death” (38). More recently, the terms *survivor of suicide loss* and *suicide loss survivor* have been adopted by suicide researchers to specify the bereaved status on the individual associated with the term (115). Nonetheless, *suicide survivor* continues to be used in research and in the survivor community. Terminology associated with suicide survivorship literature is presented in Table 1.

Theoretical Models to Best Understand Suicide Survivorship

Nested Model of Suicide Survivorship

Recently, a continuum of survivorship nomenclature utilizing a nested model has been proposed (42). In this model, all individuals who are bereaved and affected by suicide would be considered *exposed* to suicide. Yet, those who are exposed may not necessarily experience symptoms of grief or any loss of functioning. *Suicide affected* individuals are those who experience psychological distress from the suicide loss. *Suicide bereaved* includes those who have an “attachment relationship to the deceased” (42, p. 5), with family, partners, close friends and associates as types of relationships where the loss may carry significant ramifications. The bereavement responses may be categorized as *short-* or *long-term*, with suggested symptom duration of one year to differentiate between the timeframe categories.

This new suicide survivor continuum model may be an important framework for understanding suicide survivor research in the military (Figure 1). Fellow unit members of the decedent are subsumed by the definition of suicide (loss) survivor that is inclusive of friends, coworkers, and communities (38). Perceived closeness with the deceased has been found to be a key factor for those who identify as a suicide survivor (38; 129). When a service member dies by suicide, the ripple effect may be quite expansive, but only particular unit members may report feeling distressed about the death, and even a smaller subset may be bereaved. Even fewer may

self-identify as a suicide survivor due to the non-familial nature of the relationship with the deceased (38; 43). No current understanding exists as to how many individuals may fall into each of these survivor categories, and even less is known regarding the impact of suicide on the individuals of a military unit.

Diathesis-Stress Model

The diathesis-stress model is a well-established biopsychosocial theoretical framework that provides an explanation for the process in which a predisposed vulnerability (diathesis) interacts with a stressor, leading to the expression of a particular disease or condition. The terminology and model have originated from the literature on schizophrenia (22; 131), but it also has been applied to suicidal behavior (133; 158). Diatheses may be biological (*i.e.*, genetic, neurotransmitters) and environmental (*i.e.*, childhood abuse, sexual trauma). Stressors can be interpersonal (*i.e.*, relationship termination, job loss, social isolation) and situational (*i.e.*, poverty, natural disaster). In this model, diathesis and stress have an inverse and dynamic interaction, such that as some individuals carry higher levels of predisposition to a condition, less intense stress is necessary to initiate the expression of the disorder (158). Thus, for individuals with a high diathesis for suicidal behavior, even a relatively mild stressor may send that individual into a suicidal crisis. Applied to suicide bereavement, exposure to suicide may be a relatively mild stressor, but for those with a diathesis for depression, anxiety, and/or PTSD, the loss of an acquaintance to suicide may be a significant stressor.

National Data and Strategy for Addressing Suicide Survivorship

National Estimates of Suicide Survivorship

Edwin S. Schneidman, one of the pioneers in the field of suicidology and founder of the American Association of Suicidology, made a significant contribution as a writer and thinker in

the understanding of suicide survivorship. One of Shneidman's assertions was that every suicide affects six other individuals (138). By using the six per one ratio, an estimated 1.5 percent of the U.S. population (*i.e.*, approximately 5 million Americans) could be considered suicide survivors (64).

Recent research is now shedding light on Schneidman's earlier survivor estimate assertion as somewhat of an underestimate. For instance, a recent survey of self-identified survivors found that for each referenced suicide, about 5.13 family members are "intimately and directly affected" in addition to an estimated median of 14.5 extended family members, 19.9 friends, and 19.7 coworkers or classmates (21). Crosby and Sacks (51) estimated 425 individuals were exposed to each incident of suicide death in 1994 (4). Similarly, Cerel and colleagues (43) reported that nearly half of their respondents of a random-digit survey in Kentucky knew someone who died by suicide, and two thirds were non-relatives of the decedent. Finally, a new study by Cerel (*in press*) reported that an average of 115 people are exposed to each suicide; among these, approximately 25 reported the suicide was a "major disruption" in their lives, and 11 of these 25 indicated that the suicide had a "devastating effect" (41).

Also, it is important to emphasize that while exposure rates do not accurately capture rates of affected or bereaved individuals, one must consider whether more individuals may be affected than first assumed. In the Crosby and Sacks study (51), the relationship most commonly endorsed was "friend" or "acquaintance," as was the term "friend" in the Cerel and colleagues (43) study, which emphasized the need to increase outreach and postvention support to a broader population than targeted in the past. Thus, if one considers the expanded definition of the term *suicide survivor* that is inclusive of extended families, coworkers, peers, schools, and

communities (38), the six to one ratio that Shneidman proposed clearly underestimates the potential number of affected individuals.

Although suicide exposure prevalence rates have been calculated for the general U.S. population, similar rates for active duty service members are unknown. In a study of older veterans in Kentucky (median age = 64 years) found an estimated 47 percent of the sample reported lifetime exposure to at least one suicide, and approximately 65 percent of that group reported lifetime exposure to more than one suicide (45). In about 70 percent of cases, the exposure was to a non-relative suicide and in about a quarter of the cases, the exposure to suicide appears to have occurred during one's military career (45). It remains unknown whether this rate holds for the veterans of recent wars and whether these observed rates convey exposure to military-specific suicides. Future research is needed to produce reliable estimates of exposure to both fatal and nonfatal self-directed violence during one's lifetime and during one's military service in order to inform DoD and Veteran's Administration postvention programmatic efforts.

National Strategy to Address Suicide Survivorship

The *2012 National Strategy for Suicide Prevention* (151) identifies those bereaved by suicide loss as vulnerable to increased risk for suicidal behaviors. One primary goal of the *2012 National Strategy* is to "provide care and support to individuals affected by suicide deaths and attempts to promote healing and implement community strategies to help prevent further suicides" (p. 62; Goal 10). The National Action Alliance for Suicide Prevention's Research Prioritization Task Force also recognized survivors of suicide loss and veterans as high-risk groups warranting further research for improved intervention (114). The *2012 National Strategy* led to the formation of the Survivors of Suicide Loss Task Force in 2012.

In April 2015, the Survivors of Suicide Loss Task Force published a report, *Responding to Grief, Trauma, and Distress After a Suicide: U.S. National Guidelines*. The guidelines included goals and objectives, singularly focused on effectively supporting people bereaved by, or exposed to, suicide. Goals are divided into four strategic directions, specified by the scope of who is affected by suicide: (i) *universal* strategies that intervene on the entire population; (ii) *selective* strategies that intervene on behalf of individuals vulnerable to developing negative outcomes as a result of suicide exposure; (iii) *indicated* strategies that focus on individuals who are presently experiencing negative outcomes; and (iv) surveillance, research, and evaluation that aspired to increase the knowledge base to inform the development of effective treatment and its implementation. In addition, this report provided a rationale for developing and providing effective support to suicide survivors, followed the structure and worked in concert with the *2012 National Strategy*, and included principles and resources for different levels of organizations.

IMPACT OF SUICIDE ON SURVIVORS

Suicide impacts individuals, groups, and communities in different ways and varying levels of severity where some exposed individuals may be affected or bereaved by suicide, while others may remain unaffected (21; 38; 42; 43). The specific factors that contribute to overall impact (*i.e.*, who will be most affected) have not been well studied in the suicidology literature. However, data suggest that the likelihood that an individual will identify as a suicide survivor is associated with perceived closeness to the decedent (38; 42; 43; 129). In terms of impact, suicide survivorship has been linked to a number of negative outcomes such as stress reactions

and symptoms (*e.g.*, sadness, sleep disturbances, re-experiencing of the event, morbid thoughts) and a heightened risk for subsequent suicidal self-directed violence (91; 115; 122).

In the sections below, a review of the scientific literature pertaining to suicide loss is presented. First, biopsychosocial vulnerabilities and stressors that increase the risk for negative outcomes from suicide exposure are provided. Second, the impact of suicide on survivors is explained in relation to one's psychosocial functioning (*i.e.*, psychological, social/cultural, interpersonal, occupational/economic). Finally, differences between those exposed to deaths resulting from suicide versus deaths resulting from other causes are highlighted.

Biopsychosocial Vulnerabilities and Stressors for Suicide Survivors

Most individuals who are exposed, or even affected by suicide may not suffer from long lasting negative outcomes. However, certain conditions and factors increase risk for bereavement as well as unfavorable psychological and functional outcomes. These include factors such as kinship relationship to the deceased, perceived closeness, direct exposure to the death, perceived responsibility, perceived volition of the decedent, inability to make meaning of the death, insecure attachment style, pre-existing psychiatric or substance use disorder, previous exposure to suicidal behavior, personal history of suicidality, and perceived stigmatization and lack of support (115). These potential risk factors can mediate and moderate the effects of suicide exposure. They have been conceptualized as “nonmutable factors” and stressors by the National Action Alliance Research agenda aspirational goals 1, 4, and 11 (114).

Psychosocial Functioning of Suicide Survivors

Following a suicide, survivors may experience varying levels of disturbances to their psychosocial (*i.e.*, psychological, interpersonal, occupational/economic) functioning. The *Survivor Needs Assessment Survey* has been administered in a study of adult survivors (106) to

gather preliminary data on perceived areas of difficulty. Findings indicate that survivors' most endorsed difficulties include: (i) practical (*i.e.*, impairment in daily activities); (ii) psychological (*i.e.*, intense sadness and yearning for loved one, depression, guilt, and anxiety symptoms); and (iii) social (*i.e.*, talking about the suicide and sharing grief within the family). The sections below provide a more detailed examination of such difficulties.

Psychological and Physical Health

High levels of distress due to the surprising and traumatic nature of the exposure mark suicide survivors' psychological functioning after a suicide. This distress typically takes the form of a grief reaction. The fifth and latest edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM-5) has provided the diagnosis of Persistent Complex Bereavement Disorder (PCBD) as a condition for further study (7). The "traumatic bereavement" specifier may be used if the bereavement is the result of a suicide, and the person experiences distressing preoccupation with the traumatic nature of the death.

Traumatic bereavement has been reported to be associated with lower social functioning, lower scores on mental health measures, and reduced energy levels, above and beyond the impact of a Major Depressive Disorder (MDD) and Posttraumatic Stress Disorder (PTSD) (140). Additionally, suicide exposure may identify individuals at risk for developing a mental health diagnosis. For example, veterans with suicide exposure compared with those without are nearly twice more likely to have a depression diagnosis and nearly 2.5 times more likely to have an anxiety diagnosis (45). In a study of PTSD onset following bereavement, 25 percent of those experiencing a suicide loss meet criteria for PTSD two months after the loss (168).

While higher levels of depression and distress are consistently among the reported psychological sequelae following a suicide (55; 80; 164), the most concerning response to

suicide is the heightened risk for suicidal behaviors among survivors themselves (3; 51; 135; 164). For instance, complicated grief symptomology among adult survivors of suicide (exposed to the suicide of a family member, significant other, friend, or coworker) is predictive of suicide ideation even after controlling for depression (109). Complicated grief has been associated with a significant increase in suicide risk in adults, even after controlling for MDD and PTSD (99).

Perceived closeness to the suicide decedent appears to play a role in the intensity of impact experienced by suicide survivors such that those who report feeling closer to the decedent are more likely to identify as a suicide survivor (38) and more likely to be greatly impacted by the suicide (43). Another study (110) found an increase in depression and anxiety and a decrease in mental health quality of life for suicide survivors who experienced a loss in a *close* relationship (*i.e.*, spouse, parent, children, sibling) versus a *distant* one (*i.e.*, friends/coworkers, in-laws, nieces/nephews), although no significant difference in physical health quality of life has been found. As perceived closeness increases, odds of PTSD, anxiety, depression, and prolonged grief reactions all appear to increase (45).

In addition to psychological disturbances, suicide survivors report poorer physical health within the first three months following a suicide loss (55) and this may be partially or fully due to the psychological impact of exposure to suicide. Some survivors may use unhealthy coping behaviors to manage their emotions after a suicide. For instance, survivors may increase their use of alcohol as a means to cope with the loss (80), which can subsequently result in substance related disorders as well as overall health problems. Children exposed to family suicide (attempts and deaths) in the past year versus those without such exposure exhibit more risky behaviors (*i.e.*, cigarette and marijuana use, alcohol misuse, fighting, self-directed violence and suicidal ideation) (44). Likewise, surviving children of a parental suicide versus those with

parents living or those exposed to a relative's death show a greater prevalence of depression and substance abuse (27).

Interpersonal Functioning

Surviving a suicide may contribute to problems in interpersonal functioning. For instance, many suicide survivors report a sense of stigmatization and rejection by others, self-stigmatization through interpretation of others' behaviors, and social withdrawal (90). These beliefs and perceptions from survivors may increase depressive symptoms while simultaneously reducing perceived or actual social support. Additionally, emotions such as shame, embarrassment, and responsibility are more common among suicide survivors (16), suggesting a perceived social role failure. Indeed, data have shown that parents often report feeling as though they "failed" in their role when a child dies by suicide (145). A change in one's interpersonal relationships and functions may result in a sense of isolation and lack of belongingness. Not surprisingly, suicide survivors report higher levels of loneliness than survivors of natural deaths (55).

In addition to interpersonal functioning problems experienced by a suicide survivor, families that survive a suicide appear to develop more disturbed interpersonal behaviors such as distancing, conflict, poorer communication patterns, and increased suicidality (46). Adolescent children may experience diminished parent-child and/or family connectedness (44). Suicide is an event that appears to disrupt *social systems*, not just the individuals in the system.

Occupational Sequelae

Suicide survivors also may experience a number of difficulties in their occupational functioning. For instance, parents who have lost a child to suicide in comparison with those with living offspring are significantly more likely to have outpatient psychiatric visits, hospitalizations

due to somatic illness, disability pension, and over 30 sickness absence days (164). Extended absences from work are likely to contribute to negative professional, financial, and interpersonal repercussions. In certain professions (*e.g.*, healthcare, military, law enforcement), colleagues may spend 8 to 12 hours a day or more working in close proximity, increasing the opportunity for developing close professional as well as personal relationships. When a coworker dies by suicide, affective reactions from surviving colleagues are similar to those seen among family members (107); anxiety, grief, and disbelief are common responses among coworkers of the decedent (103). In a study of suicides in small (fewer than a hundred people) Stockholm workplaces (81), exposure to suicide has shown to significantly increase the risk of suicide death for men ($OR = 3.50$).

Further complicating the grief process at the workplace is the fear of punishment or reprisal for disrupted work patterns (48). Managers, healthcare providers, and leaders in organizations may experience self-doubt in one's professional skills and competency as well as fear legal repercussions or blame (34; 156). A delicate balance must be struck between respecting the privacy of decedent's family while providing appropriate information and support to staff. Responding poorly in a crisis can diminish trust and confidence in leaders, harm workplace cohesion, and may exacerbate risk in individuals vulnerable to their own suicidal or self-destructive behaviors (34). Unlike family members, coworkers do not typically receive bereavement time off after a coworker suicide (103). Coworkers may feel angry at the decedent, the organization, or other colleagues (54). Observing anger in the workplace may restrict cognitive processing, important for performing complex tasks, while feeling empathy for the angry person or the target of anger can bolster the negative emotions experienced by the observer (108).

How Does Suicide Loss Differ from Other Losses?

Systematic reviews of suicide bereavement have found evidence that suicide survivors experience higher levels of grief symptomology than survivors of other types of loss (90; 91). Traumatic grief is characterized by having both a trauma response (*e.g.*, avoidance, detachment, numbness, anger) in conjunction with separation distress (*i.e.*, intrusive preoccupation with the deceased) resulting from the loss (123). Affective responses to suicide often include shock, disbelief, and a combination of unpredictability and sense of responsibility over the death (16; 46; 90). Grief-related themes common among adult (46) as well as college student suicide survivors (16) include unfinished business, wasted life, disbelief, questions of “why,” and “how,” and crisis of values. Complicated grief has been found to be higher among suicide survivors when compared to survivors of natural death (55).

The unique nature and course of bereavement that is experienced by suicide survivors has been questioned. There are several systematic reviews that argue suicide bereavement is no different from that of any other type of loss, especially a traumatic death and a death occurring after a prolonged process, such as illness (47; 105; 157). By contrast, Jordan’s (90) review of the literature supports the notion that suicide impacts survivors differently than other types of death. Knieper (94) also argues that suicide bereavement is a uniquely different experience compared with bereavement by other causes of death.

Specifically, suicide survivors tend to struggle more with the psychological repercussions of the loss than other loss survivors. For instance, repercussions following a suicide death include difficulty with meaning-making, and an increase in unique negative feelings such as guilt, blame, relief, responsibility, rejection, abandonment, and/or anger toward the deceased (91; 115; 120). For the majority of survivors, suicide is a surprising or unexpected event. In a study

of suicide survivor group members, only about 27 percent report having “clearly” or “somewhat” expected the suicide (32), which is nearly identical to another study’s findings (134). Stigma is one of the differentiating elements of suicide bereavement in contrast to other forms of bereavement (53; 94; 137), due to societal, moral, and legal approaches to suicide. In addition, legal processes (*e.g.*, inquest, coroner’s investigation) can elevate distress, especially if interactions are negative (80). Thus, while the quantitative data may suggest minimal differences between suicide and other types of bereavement, survivors and clinicians addressing the suicide survivors’ unique needs appear to suggest a qualitatively different experience (10).

IMPACT OF SUICIDE ON MILITARY UNIT SURVIVORS

Although exposure rates to suicide deaths during one’s military service remain unknown, military personnel at some point during their service may be exposed to the suicide death or attempt of a fellow unit member. Based on a review of the scientific literature on survivorship, military suicide may have an even greater impact on an individual service member than bereavement experienced in most workplace relationships due to the proximity and intimacy required for a unit to operationally function and to maintain optimal mission readiness. Military relationships may develop a high level of intimacy due to the many hours of exposure and interaction during training, workups for deployment, cohabitating in barracks or during deployments, and necessary interdependence to accomplish missions. It is not uncommon for service members to refer to one another as ‘brother,’ ‘sister,’ ‘brother-in-arms.’ This notion of interdependence, camaraderie, and brother- or sisterhood is integral to team building, morale, and ultimately mission success.

Social cohesion in a military context is the emotional bond between service members. Wong and colleagues (165) found that social cohesion is a crucial motivator for engaging in combat. By conducting interviews of Iraqi enemy prisoners of war, U.S. soldiers, and American journalists embedded in infantry units, these researchers report that cohesion plays a twofold role: it encourages service members to contribute to the group mission, and it drives service members to protect each other from harm. Furthermore, the lives of unit members are interdependent in combat theater – where unit peers play an integral role in one another’s safety (33). When a service member dies by suicide, unit peers and others who knew and worked with the decedent may internalize failure in two ways: (i) having allowed harm or death to come to their combat-brother or sister; and (ii) having failed their mission to bring the unit home to their families.

Navy Psychiatrist and Chief of Psychiatry at Walter Reed National Military Medical Center, Commander Russell Carr’s (33) idiographic study describes suicide’s deleterious impact on multiple levels of the military organization. In the case of a soldier’s suicide in Iraq, unit members, healthcare providers, and the Combat Stress Control Team each are described to have exhibited acute and long-term effects. Post-suicide reactions that have been described in this published case example include a rapid deterioration of mental health in the troops, decreased confidence in clinical decision-making, erosion of unit morale, and even suicide-related behaviors (74).

Following a suicide within a military unit, a number of emotions are likely to be experienced by surviving unit members. For example, an intense anger response may contribute to the deterioration of morale and the mistrust of leadership. The Army, in particular, has championed the idea that good leadership is crucial to suicide prevention (102; 153; 154). The

occurrence of suicide within the ranks may result in strong emotions such as anger, blame, and an overall sense of mistrust where leadership quality may come into question. Indeed, one study conducted among Army captains found leadership to be the most influential factor in perception of psychological climate, which fully mediates the relationship between morale, affective commitment, and intent to stay in the Army (97). Trust, in peers and leaders, has been described as essential to mission success (23), and exposure to suicide within one's military unit may result in a lack of trust and confidence in the health and functional status of the unit, or the individual unit member's relationship to the organization.

RESEARCH GAPS IN UNDERSTANDING MILITARY UNIT SUICIDE SURVIVORSHIP

Despite the clear psychological toll suicide takes on military survivors, the extent to which a military suicide affects an individual unit member's psychological well-being, occupational functioning, and unit mission readiness remains unknown. In fact, the Army (57) has alluded to this research gap in military suicide research: "...the psychological effects of suicide affect those Soldiers left behind after the suicide, how suicides degrade unit performance, how it impacts the leadership, and the contagion effect towards impacting other high-risk behavior" (p. 63). In other words, the impact of suicide on a military unit and its individual members remains understudied across the DoD, and suicide's impact may have implications on functioning and readiness.

Since the mid 20th century, suicidologists and thanatologists have coined the terms *suicide survivor* as a means to explain the relationship between those left behind to suffer a suicide loss, and *postvention* as the series of support activities and strategies that aim to ameliorate the bereavement process. While much progress has been made in recent years in the

scientific exploration of suicide survivorship and postvention in general, there is a notable gap in our understanding of suicide survivorship in the context of a military unit. What remains yet to be established is an accurate understanding of the unique cultural environment of the U.S. armed forces, and the nature of suicide bereavement as it is encapsulated in this cultural context.

To date, only two published articles have discussed the impact of a suicide death on service members who knew or interacted with the decedent. In a case report, Carr (33) described the powerful aftereffects (*i.e.*, shock, disbelief, guilt, grief, insomnia, acute stress, suicidal ideation, exhaustion, self-doubt) indicated by different units exposed to a soldier's suicide in a deployed setting. Ursano and colleagues (155) studied enlisted soldiers who had attempted suicide in the past year. They found the odds ratios for soldiers attempting suicide increased from 1.4 (95% CI: 1.3-1.6, $p < .001$) with one unit suicide attempt in the past year, to 2.4 (95% CI: 1.9-2.8, $p < .001$) with five or more unit suicide attempts in the past year. Taking these studies together, evidence suggests that military unit suicide deaths or attempts contribute to psychological distress and perhaps suicidal behavior among the surviving unit members.

It is yet to be determined how service members experience the suicide loss of a fellow unit member while in service and even after termination of their service. To advance scientific knowledge in the area of military postvention, we need to first fully understand the short- and long-term reactions following exposure to suicide within one's military unit and the subsequent psychosocial as well as functional impairments.

PURPOSE OF THE DISSERTATION STUDY

Andriessen and Krynska (10) recommend three important issues to be addressed in postvention research: (i) an operational definition of suicide survivor and postvention;

(ii) methodologically sound identification of the needs and experience of those affected by suicide with a focus on specific demographic groups (*e.g.*, age, gender, closeness to deceased, culture); and (iii) effectiveness studies of postvention interventions with a public health and health economics focus. This dissertation aimed to address the second point, which endorses research on the needs and experiences of those affected by suicide with a focus on a specific and potentially vulnerable sub-group: military unit members.

Next, this dissertation assessed the suicide survivor experience through the lens of a military unit member, in an effort to better understand the interplay among exposure-related factors, relationship with suicide decedent, perceptions about the unit and leadership response, and the suicide bereavement reactions as well as functional impact (Figure 2). Finally, the proposed dissertation study queried those who have experienced the loss of a military unit member to describe their experience following the unit suicide and what needs were met, and which were left unmet. In summary, to address the limited understanding of how a unit member suicide affects military service members, this study broadly investigated the psychological well-being and overall functioning of surviving unit members via a mixed methods design.

MILITARY SIGNIFICANCE OF THE DISSERTATION STUDY

Shneidman (138) coined the term, *postvention* to describe “activities which occur after a suicidal event” that aim “primarily at mollifying the psychological sequelae of a suicidal death in the survivor-victim.” Even though some have argued there is a lack of consistency in the use of the term (9), there appears to be a general consensus that postvention is made up of three main components: (i) Timing: postvention occurs after a

suicide; (ii) Target population: individuals and/or communities affected by the suicide; (iii) Purpose: the mitigation of harmful effects¹, including possible subsequent suicide attempts by the suicide survivors. In the DoD, postvention is considered an important phase of the Event Cycle and Care Continuum (13). This phase targets associated high-risk behaviors following an event. DoD Directive 6490.14 defines the purpose of postvention as twofold: “to assist survivors cope with their grief and to prevent additional suicides” (58).

The research was viewed as an important foundational step toward developing evidence-informed and targeted postvention programs for dissemination across the DoD and the Veteran’s Administration for service members exposed to suicide within one’s military unit. Postvention programming, without first understanding the scope and the nature of the problem of military suicide survivorship, appears premature and possibly problematic in terms of overall effectiveness and cost-efficacy. A report released by the Center for Military Health Policy Research and the RAND Corporation (127) concluded that although each branch of service has had at least one suicide prevention initiative, “no formal postvention policies exist” (p. 83). More recently, the 2015 RAND report on DoD Suicide Postvention (128) found DoD suicide survivor services are aimed at “family and next of kin, but not fellow service members” (p. 35). The Institute of Medicine’s Committee on the Assessment of Resiliency and Prevention Programs for Mental and Behavioral Health in Service Members and Their Families has found that no formal program evaluations have been conducted on the efficacy of DoD suicide prevention programs in the reduction of stress outcomes or increase in feelings of support after a suicide (56). As evidenced, research in the area of suicide postvention has been extremely

¹ One of the goals of postvention is to mitigate the potential for the *contagion effect* – i.e., the increased risk for suicidal self-directed violence among others exposed to a suicide (43).

limited. This dissertation project was supported by the United States Navy Suicide Prevention Program with the aim to address an important gap in the area of military suicide postvention: how does exposure to unit suicide impact the surviving unit members?

SPECIFIC AIMS AND HYPOTHESES

The specific aims and hypotheses of the dissertation were as follows:

Research Question 1: Is exposure to military unit suicide associated with higher symptom distress and lower functioning?

Aim 1: To examine between-group differences on symptom distress and functioning for military personnel and veterans with and without exposure to military unit suicide.

Hypothesis 1a. Military personnel and veterans with exposure to military unit suicide in comparison to those without would demonstrate significantly higher *symptom distress* (i.e., total symptom distress score, somatic complaints, depression, anxiety, and grief).

Hypothesis 1b. Military personnel and veterans with exposure to military unit suicide in comparison to those without would demonstrate significantly lower *functioning* (i.e., overall functional impairment score as well as physical, occupational, social, and personal domain scores).

Analyses statistically adjusted total lifetime number of suicide exposures, total lifetime number of death exposures, and total lifetime trauma types.

Research Question 2: For those exposed to military unit suicide, what factors associated with higher symptom distress and lower functioning?

Aim 2: To determine the demographic, relational, and unit social support factors associated with poor outcomes among military personnel and veterans with exposure to military unit suicide.

Hypothesis 2a.1. Male sex, younger age, and enlisted status (as demographic factors) would be significantly associated with higher symptom distress.

Hypothesis 2a.2. Male sex, younger age, and enlisted status (as demographic factors) would be significantly associated with lower functioning.

Hypothesis 2b.1. Higher perceived closeness, and closer temporal proximity to working with suicide decedent, suicide death date, and last contact with decedent (as relational factors) would be significantly associated with higher global symptom distress score.

Hypothesis 2b.2. Higher perceived closeness, and closer temporal proximity to working with suicide decedent, suicide death date, and last contact with decedent (as relational factors) would be significantly associated with lower overall functioning.

Hypothesis 2c.1. Lower unit social support would be significantly associated with higher symptom distress.

Hypothesis 2c.2. Lower unit social support would be significantly associated with lower functioning.

Analyses statistically adjusted for total lifetime number of suicide exposures, total lifetime number of death exposures, and total lifetime trauma types.

Exploratory Aim 1: To review qualitative data, collected from the suicide exposed military personnel and veterans, and to capture recommendations for military postvention practices.

Exploratory Aim 2: To explore differences in psychological distress, grief, and functioning across the following subgroups: (i) by level of perceived closeness; (ii) participants exposed to only military unit suicide (Suicide Alone) versus non-suicide death (Death Alone) or both military unit suicide and non-suicide deaths (Both Exposed); and (iii) actively serving (*i.e.*, active duty, Reservists, and National Guard) versus veteran/retirees.

CHAPTER 2: METHODS

OVERVIEW OF STUDY AND EXPERIMENTAL DESIGN

This study employed a cross-sectional retrospective design involving the administration of an anonymous web-based survey. The study utilized quantitative methods for the primary aims. Qualitative data were coded for exploration of the military unit suicide survivor experience by measuring frequencies of common themes or responses.

Potential participants were provided two initial eligibility-screening items followed by an online consent form. Participants who qualified for study inclusion were presented with a series of questionnaire items to complete online at their convenience. Participants were asked whether they had experienced a suicide or non-suicide death of a military unit member. The responses provided to questionnaire items were used to classify participants into two groups: (i) exposed to military unit suicide, or (ii) unexposed to military unit suicide. Participants who endorsed exposure to a unit suicide and/or unit non-suicide death were asked to complete additional items pertaining to their relationship with the deceased unit member, and their personal response to the exposure.

Inclusion and Exclusion Criteria

Participants included adult (age 18 years and older) active duty, Reserves, National Guard, and veteran members of the U.S. military from the Air Force, Army, Coast Guard, Marine Corps, and Navy. The enrollment criteria were intentionally broadly inclusive given the lack of scientific literature on the topic and the importance of advancing the research agenda on postvention. Persons under the age of 18 years or without a history of military service were excluded from the study.

DATA COLLECTION

Questionnaire Design for Screening Form and General Demographics

The screening items were administered immediately prior to the informed consent page to determine participant eligibility for the study. One question assessed the participant's age at the time of participation and one question inquired about military service history. If the participant responded affirmatively to both items (*i.e.*, age 18 or older with military service history), they viewed the Informed Consent page. If they did not agree to participate or selected "I DO NOT agree," the survey ended. If they selected "I agree," their participation continued.

Next, participants were presented with a series of items to assess demographic and study categories. First, general demographics items included questions related to personal demographics (*i.e.*, sex, race, ethnicity, education, marital status). These items were followed by questions pertaining to military service history (*i.e.*, service branch, rank, time in service, occupation field, era of military service, number of deployments).

Finally, participants were presented questions pertaining to total lifetime exposures to suicides and deaths outside and within their military unit. If participants responded affirmatively to having been exposed to a unit suicide and/or non-suicide death, they were presented with the abbreviated Grief Experiences Questionnaire (GEQ). Two versions of instructions of this measure were available for each type of death, one for unit suicide exposure (GEQ-suicide) and one for unit non-suicide death exposure (GEQ-death), respectively. Aside from the GEQ, all other measures were presented uniformly to all participants.

Questionnaire Design for Qualitative Items

Qualitative items followed the demographics section of the questionnaire. This portion focused on the actions and events that occurred following the suicide death to collect data for

Exploratory Aim 1. Participants exposed to unit suicide were specifically queried about their “survivor experience.” That is, they were asked how they learned about the suicide (communication method), their immediate reactions (*i.e.*, affective, cognitive, behavioral, and physiological), who they spoke to or who reached out to them (actions), what services they utilized (services), what they found helpful/unhelpful, and any services they wished were offered to them in the aftermath of the suicide, their religiosity, and the coping strategies they utilized. The question format was open-ended to enhance opportunity to express a divergent range of experiences. Additionally, open-ended questions have been found to have good reliability and validity (160).

MEASURES

Table 3 provides a summary of the measures and the approximate administration length. In this section, study-related measures are presented alphabetically and described in terms of constructs measured and psychometric properties.

Exposure to Suicide

Exposure to suicide served as the independent variable. When participants reached items 20 and 21 on the questionnaire, they responded to items inquiring how many (number) of unit members they knew who had died. Item 20 asked: “Approximately how many unit member suicide deaths have personally affected you?” Item 21 asked: “Approximately how many unit member non-suicide deaths have personally affected you?” If the respondent answered with a 0 on both of these items, they were categorized into the unexposed group. If the respondent answered with any number greater than 0 on the unit suicide item, they were categorized into the suicide exposed group.

Brief Symptom Inventory-18 (BSI-18)

The BSI-18 (60) is an 18-item, self-report measure of *global symptom distress* that includes three clinical subscales: somatization, depression, and anxiety. The instrument takes less than five minutes to complete. Each subscale consists of six items, with scores falling in a range from 0 to 4, with lower numbers indicating less psychological distress. Additionally, the Global Severity Index can be calculated by taking the sum of scores on all 18 items. BSI-18 raw scores range from 0 to 72. Raw scores are converted to standardized T-scores, with T-scores greater than 63 falling in the clinical range (60). T-scores can range from 33 to 81. In a recent study with veterans, the BSI-18 subscales demonstrated strong internal consistency, with Cronbach's alphas ranging from .83 to .97 (26).

Deployment Risk and Resilience Inventory-2 (DRRI-2): Section J (Unit Social Support)

The DRRI-2 (161) is a series of 17 scales, developed to assess deployment-related risk and resilience factors. Each of the scales contained in the DRRI-2 can be used as a stand-alone instrument. Section J, entitled "Unit Social Support," is a 12-item module that measures individual *perceptions of support from unit members and leaders*. Completion time for this module is less than five minutes. Item response format uses a five-point Likert-scale (1 = strongly disagree, 5 = strongly agree). The sum of item scores can range from 12 to 60, with higher scores indicating greater perceived social support from the unit. The measure was validated using two national samples of Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) veterans, and it was found to have high internal consistency and validity. Specifically, the Unit Social Support scale had the highest measure of internal consistency of the scales with a Cronbach's alpha of .96 (161).

Grief Experience Questionnaire (GEQ)

The only bereavement measure specifically designed for use with suicide loss survivors, the Grief Experience Questionnaire (GEQ) is a 55-item, self-report measure of *grief* (17). Due to participant burden and fatigability concerns, a 16-item abbreviated version of the GEQ employing the top two items in each factor loading from the original measure (70; 71) was administered in this study. The items are scored on a five-point Likert-scale, ranging from 1 (“never”) to 5 (“almost always”). The total grief reaction score is derived from the sum of the 16-items. The full measure has been used to assess grief in a variety of relationship-types, including spouses (18), family members and friends (80), and undergraduate classmates (16; 139), but it has not yet been used in a military sample. The abbreviated measure has been used with parents who have lost a child to suicide or another cause of death.

Based on responses to military unit death exposure items earlier in the questionnaire, participants could have received two different versions of instructions for the GEQ. If they endorsed exposure to a unit suicide, they were provided these instructions: “You indicated that at least one member of your unit died by suicide. We would like to ask some questions pertaining to your experience of the unit suicide that PERSONALLY AFFECTED you MOST.” If they endorsed exposure to a unit non-suicide dead, the instructions were changed to read: “You indicated that at least one member of your unit died for a reason other than by suicide. We would like to ask some questions pertaining to your experience of the unit death that PERSONALLY AFFECTED you MOST.” If they endorsed exposure to both, they saw both sets of instructions and measures, one for each type of death exposure.

Walter Reed Army Institute of Research Functional Impairment Survey (FIS)

The FIS (82) consists of 14 items that assess service members' *functional impairment* in four domains: physical, social, occupational, and personal. Completion time is less than ten minutes. This measure was developed for use and validated in a sample of U.S. soldiers ($N = 3,380$, 10% female, 6.6% officers). Scores range from 1 ("no difficulty at all") to 5 ("extreme difficulty"). Total scores can range from 14 to 70, with higher total scores representing greater subjective reporting of functional impairment. Cronbach's alpha was strong ($\alpha = 0.92$), indicating good internal consistency. Self-report of performance has shown good reliability with objective measures (2), thus this questionnaire is presumed to be low in systematic bias.

Lifetime Events Checklist for DSM-5 (LEC-5)

The LEC-5 (163) consists of 17 items that assess exposures to different types of traumatic events over a person's lifetime, which may lead to significant distress or development of PTSD. Events include such items as assault, sexual assault, accident, captivity, combat experience, among others. Respondents indicate whether the event "happened to me," "witnessed it," "learned about it," was "part of my job," "not sure," or "doesn't apply." This measure was scored such that "happened to me" was given a score of 1, while all other options were scored as 0, and the sum served to indicate *different types of personal trauma experiences* for participants in the study. This dichotomized scoring method has been validated with the Traumatic Life Events Questionnaire (95) as a measure of direct trauma exposure (77).

Although psychometric properties of the LEC-5 have yet to be established, the measure was not substantially changed from the previous version and was expected to perform similarly. The original LEC has established convergence to measures of trauma-specific psychopathology (*i.e.*, Clinician-Administered PTSD Scale (CAPS), the PTSD Checklist-Military version (PCL-

M), and the Mississippi Scale) within undergraduate and combat veteran samples (77).

Reliability was adequate with a mean kappa of .61 over the entire measure, and a strong retest correlation ($r = .82, p < .001$) in a one-week interval.

Exposure to Non-unit Death and Suicides

Respondents were asked to count the number of suicide and non-suicide deaths they had been exposed to, using three categories: family, non-military friend, and non-military “other.” These three categories were summed to obtain total lifetime exposure to suicides and deaths outside the military unit. Total lifetime exposure counts were treated as possible covariates in all data analyses as a continuous variable.

PROCEDURES

Survey development followed many recommendations from Dillman’s Tailored Design Method (61; 62). This method outlines four stages of designing questionnaires for research: (i) review by knowledgeable colleagues/analysts, (ii) interviews to evaluate cognitive and motivational qualities, (iii) small pilot study, and (iv) final check. Stage one of survey development occurred as the researcher and her advisor collectively generated items meant to capture specific details necessary for understanding the sample’s demographic characteristics.

Pretesting

Stage two of survey development involved the members of *The Laboratory for the Treatment of Suicide-Ideation and Behavior*. Research assistants and psychologists conducted pilot pretesting of study materials, self-recording their time spent participating. Item-by-item review as a collective group allowed for revisions to wording to enhancing coherence, and trimming unnecessary or redundant items to minimize participant burden.

Stage three involved beta testing (small pilot) with volunteer military students at the Uniformed Services University (USU) to ensure cultural appropriateness of survey items. After additional revisions were made, another check was completed (Stage four). The finalized version of the questionnaire was submitted to the Dissertation Committee at the dissertation proposal, and lastly, USU Institutional Review Board (IRB). Once the USU IRB approved the final version, the study began recruiting participants in early July 2016. Data from the first 26 completed surveys were used to recalculate the necessary sample size via power reanalysis. While this analysis was being conducted, the survey paused recruitment for approximately two days, after which recruitment efforts resumed.

Sampling Method

This project employed multiple nonprobability sampling methods. The majority of participants were recruited via convenience sampling, purposive sampling, and snowball sampling (160). Due to the broad recruitment strategy that was used in order to obtain an adequate number of both suicide exposed and unexposed participants, a portion of the sample was invited to participate or learn about the study via posted flyers or websites. Next, purposive sampling was used to target suicide exposed service members to participate in the study. This strategy involved selecting members of a particular subgroup in a population. Finally, snowball sampling was used; study materials were forwarded to other individuals who may have been interested or were of the targeted population.

RECRUITMENT STRATEGIES

Subject recruitment occurred through several mechanisms as described below. Existing collaborations between the *Laboratory for the Treatment of Suicide-Related Ideation and*

Behavior, the Defense Suicide Prevention Office (DSPO), and the Suicide Prevention Offices of the respective military service branches were used to disseminate study-related recruitment information. An IRB-approved study recruitment flyer (see Appendix B) was posted at the USU campus, distributed on list serves and social media websites (*e.g.*, Facebook pages), and participants were asked to further distribute the study link to others who may be eligible. The American Association of Suicidology, the Tragedy Assistance Program for Survivors, Division 19 (Military Psychology) of the American Psychological Association, and colleagues at Veterans Affairs Medical Centers and the Military Suicide Research Consortium were contacted and asked to disseminate study-related information to their members.

Potential participants also received an invitation via email to participate in this web-based study. An IRB-approved study email and recruitment letter was sent out to professional contacts in various organizations (*e.g.*, military chaplains, behavioral health providers), and these contacts were invited to forward the study materials to their respective commands and/or contacts.

Length of Data Collection Period

Recruitment for the study ran continuously from July 9, 2016 to December 21, 2016, minus approximately seven total days when troubleshooting technical issues and power reanalysis were addressed. The six-month window provided adequate time to disseminate the questionnaire and collect additional participants once incomplete surveys and outliers were removed.

HUMAN SUBJECTS PROTECTION

The USU IRB conducted a full-board review of the study to ensure protection of human research participants. Online survey administration was anonymous, thus eliminating the risk for

identification. The consent form was presented with a dropdown-menu option to consent rather than a write-in signature, further protecting participants' anonymity. Additionally, some questions were expected to cause some distress to participants, but this study was expected to involve minimal risk to the individual. The informed consent outlined these minimal risks, and explicitly stated that participation is voluntary. An additional item at the conclusion of the survey querying the level of distress after taking the survey served as an outlet for the emotional reactions to the material, as well as to give researchers a better understanding of these reactions.

SurveyGizmo® is an online survey tool that was used to build, distribute, host, and collect data for the duration of the dissertation project. SurveyGizmo® was selected due to its enhanced security features, including anti-hacking measures, security scans, and Health Insurance Portability and Accountability Act (HIPAA) compliance. These enhanced security features assured that survey data would remain anonymous, and any identifying information (*i.e.*, email address) would be protected. Data will be destroyed ten years after the conclusion of the dissertation.

CHAPTER 3: DATA ANALYTIC PLAN

SURVEY RESPONSE INCLUSION/EXCLUSION STRATEGY

Figure 3 presents an overview of study participation and the determination process for the final included sample in the study analyses. A total of 2,913 individuals responded to the two screening items for the survey prior to being presented with the study consent form.

Approximately 2% ($n = 48$) of these individuals were ineligible to move forward based on their responses to the two screening items, resulting in a total of 2,865 individuals being presented with the study consent form. Overall, 1% ($n = 33$) of those invited to participate declined which resulted in a total of 2,832 individuals consenting to be included in the study. Of these, 45% ($n = 1,277$) were further excluded due to the following reasons: (i) a total of 1,236 participants did not answer any items after consenting to the survey; (ii) a total of 37 submitted partial surveys where they left the website and never returned to complete the measures; and (iii) a total of 4 had submitted duplicate surveys. This resulted in a total of 1,555 completed surveys included in the study analyses.

PARTICIPANTS

Participants were on average 54.1 years old ($SD = 18.6$), male (89.3%), married (64.2%), with some college education (32.5%), White (86.6%), and non-Hispanic (94.4%). Over one-third of the sample had earned at least a bachelor's degree (35%), while one fifth-had a high school diploma or equivalent (20.1%). Most participants did not endorse having been diagnosed with a mental health or substance use condition during their lifetime (76.2%).

In terms of military demographics, the average time in service was 10.4 years ($SD = 8.8$). About half endorsed having exposure to a military unit member suicide (52.4%), and a vast majority endorsed having experienced a military unit member non-suicide death (82.5%).

Most participants were currently serving or had previously served in the Army (32.4%), Navy (21.1%), and Air Force (20.4%). The majority identified as veterans or separated from service (74.4%), or currently active duty (19.6%). Over half the sample identified their rank as E4-E6 (53.3%), and one-fifth identified as officers (W1-O9 = 20.2%). Nearly three-quarters of the sample were veterans or retirees (74.4%) while 19.6% were active duty. Over a third of the sample endorsed having served since September 11, 2001 (38.2%), and over half served in the Vietnam War (early-Vietnam = 6.3%, late-Vietnam = 52.1%). Most had served on at least one noncombat deployment (76%), at least one combat deployment (72.4%), and only about a quarter had served on at least one humanitarian deployment (26.6%). For those exposed to unit suicide, 46.3% reported the suicide occurred between 0 to 6 years ago, and 49.5% of last contact occurred in that timeframe as well. For those exposed to unit death, 31.4% reported the suicide occurred between 0 to 6 years ago, and 30.7% of last contact occurred in that timeframe. See Table 5 for a summary of demographic data organized by total sample, suicide unexposed and exposed participants.

DATA MANAGEMENT

Data for this study was analyzed using SPSS version 24 and Microsoft Excel 2013.

Missing Data

The scoring instructions for each of the selected study-related measures were first reviewed to consider how to best handle missing data. Overall, validated measures consisting of

20% or more missing items for a participant were considered incomplete and not included in the final analyses for the study. Although single imputation techniques are considered a last-resort methods of handling missing data (68; 76) due to inflation of reliability estimates and reduction in variability, mean imputation was found to not seriously bias interpretations on clinical measures (25). Downey & King (63) found it to be a good reflection of original data when less than 20% of items were missing, and fewer than 20% of subjects had missing data. For validated measures consisting of fewer than 20% missing items for a participant, person-mean imputation was used for missing items to calculate the total score as well as the subscales of the BSI-18, GEQ, and FIS. Overall, the percentage of cases where means were imputed were relatively small, accounting for 5% of cases for GEQ-suicide, 7.8% for GEQ-death, 7.3% for FIS-occupational, 5.4% for FIS total, 6% BSI total, 2.2% BSI-depression, 2.6% BSI-anxiety, 1.4% BSI-somatization, and 4.5% DRRI:J. Given that SPSS removes cases with missing data, the current dataset was considered appropriate for person-mean imputation according to Downey & King's criteria (63).

Low Counts and Outliers

Categorical variables

Gender was recoded to include only males versus females due to the low number of “other” and “prefer not to answer” responses in the two groups. With regard to marital status, “divorced,” “separated,” and “widowed” were combined to a new category (“previously married”) due to low counts in these categories. With regard to branch of service, Coast Guard and “multiple” branch of service responses were removed from analyses due to low counts using a “Select cases if” filter on SPSS.

Continuous variables

“Lifetime trauma types” was based on the sum score of “happened to me” on the LEC-5. Lifetime death- and suicide-exposure counts were calculated from the sum of three questions inquiring about the participant’s experience with deaths and suicides of non-military family members, friends, and others. Boxplots were used to identify extreme outliers, as indicated by a value in excess of three standard deviations from the end of the box. Boxplots were also used to identify extreme outliers for Time in Service. Once these data were identified, they were treated as missing (*i.e.*, deleted).

Ordinal variables with more than three levels (*i.e.*, education, rank) were treated as continuous variables. With regard to education categories, “master’s degree” and “doctoral degree” were combined into a single group (“graduate degree”) due to low counts. Rank was recoded due to low counts in warrant officers (W1-W3 and W4-W5) and flag officers (O7-O9). Warrant officers were combined with junior officers (O1-O3) to a new category (junior officer/warrant W1-O3), and flag officers were combined with senior officers (O4-O7 to O4-O9). Cadets/midshipmen were excluded due to low counts by using a “Select cases if” filter on SPSS. Due to rank being a variable of interest in hypotheses 2b1. and 2b2., it was dummy-coded and inserted as a categorical variable in the hierarchical regression.

DATA ANALYTIC APPROACH

Aim 1: To examine between-group differences on symptom distress and functioning for military personnel and veterans with and without exposure to military unit suicide.

Hypothesis 1a. Military personnel and veterans with exposure to military unit suicide in comparison to those without would demonstrate significantly higher *symptom distress* (i.e., total symptom distress score, somatic complaints, depression, anxiety, and grief).

Hypothesis 1b. Military personnel and veterans with exposure to military unit suicide in comparison to those without would demonstrate significantly lower *functioning* (i.e., overall functional impairment score as well as physical, occupational, social, and personal domain scores).

Statistical Analyses for Aim 1

First, analysis of variance (ANOVA) was conducted using SPSS to test for between-group differences in symptom distress and functioning by suicide exposure group. The predictor variable was Group: unexposed or exposed to military unit suicide. Participants were divided into these groups based on responses to items asking about the total number of unit suicides and non-suicide deaths the individual personally experienced. The outcome variables were BSI scores (total score [general distress], depression, anxiety, somatization), and FIS (total score [overall impairment], physical, occupational, social, personal). If a significant group difference was indicated by ANOVA, an analysis of covariance (ANCOVA) was conducted to test for between-group differences on the outcome variables while controlling for covariates. Separate ANCOVAs were conducted for the outcome variables. Analyses statistically adjusted for total lifetime number of suicide exposures, total lifetime number of death exposures, and total lifetime trauma types.

Aim 2: To determine the demographic, relational, and unit social support factors associated with poor outcomes among military personnel and veterans with exposure to military unit suicide.

Hypothesis 2a.1. Male sex, younger age, and enlisted status (as demographic factors) would be significantly associated with higher global symptom distress score.

Hypothesis 2a.2. Male sex, younger age, and enlisted status (as demographic factors) would be significantly associated with lower overall functioning.

Hypothesis 2b.1. Higher perceived closeness, and closer temporal proximity to working with suicide decedent, suicide death date, and last contact with decedent (as relational factors) would be significantly associated with higher global symptom distress score.

Hypothesis 2b.2. Higher perceived closeness, and closer temporal proximity to working with suicide decedent, suicide death date, and last contact with decedent (as relational factors) would be significantly associated with lower overall functioning.

Hypothesis 2c.1. Lower unit social support would be significantly associated with higher global symptom distress score.

Hypothesis 2c.2. Lower unit social support would be significantly associated with lower overall functioning.

Statistical Analyses for Aim 2

For these series of analyses, data from only the suicide-exposed group were used. Gender was dichotomous, which did not require dummy-coding. Marital status was dummy-coded. Ordinal variables with more than three levels on the scale (*i.e.*, education, rank, perceived closeness, and time since death/last contact/worked with decedent) were treated as continuous.

Three hierarchical multiple regressions were conducted using SPSS, one for each outcome variable (*i.e.*, symptom distress, grief, and functioning). These analyses utilized four blocks. The first block contained the covariates: lifetime number of suicide and death exposures, education, and LEC-5 score. The second block contained the demographic factors: gender, age,

and rank. The third block contained the relational factors: perceived closeness, time since last contact, time since last worked together, and time since suicide death date. The fourth block contained unit social support (DRRI-2:J) score. Analyses statistically adjusted for total lifetime number of suicide exposures, total lifetime number of death exposures, and total lifetime trauma types.

Exploratory Aim 1: To review qualitative data, collected from the suicide exposed military personnel and veterans, to capture recommendations for military postvention practices.

Statistical Analyses for Exploratory Aim 1

Participants who endorsed having experienced the suicide death of a unit member (Exposed) were asked a series of eight open-ended questions about their personal experiences following the loss. To clean and code the data, research assistants with at least a bachelor's degree reviewed the responses from the participants and identified responses with answers that could fall into multiple categories. For example, if a participant responded with "sad, angry, guilty" to the item asking for emotions experienced immediately following the suicide, the research assistants identified this single response into three codes. Content analysis of the qualitative data looked for common themes. After a discussion with the project's primary advisor, a decision to classify based on existing scientific literature was made. Following this decision, a research assistant with a master's degree met with the student primary investigator to code responses according to the categories listed below. When a response did not clearly fit into any one category, consensus was established via discussion between the two coders.

The first four items asked about the respondents' immediate reactions to the news of the suicide. Item one queried about the emotional response to the suicide. Responses were categorized into eight emotion codes identified in the *Survivors of Bereavement by Suicide* (146):

(i) despair, depression, and sadness; (ii) shock and disbelief; (iii) anguish, longing, and searching; (iv) anger; (v) numb or no reaction; (vi) guilt; (vii) relief; (viii) fear or anxiety.

Responses to item two (behaviors) were coded into one of Weiten's (110) three coping strategies: (i) emotion-focused, (ii) problem-focused, and (iii) appraisal-focused. Emotion-focused coping involves attempting to alter one's undesired or unpleasant emotions. Problem-focused coping involves a change in behavior to actively address the situation. Appraisal-focused coping involves using cognitive strategies to alter one's perspective of the situation.

Responses to item three (thoughts) were coded according to Worden's (166) four categories of cognitions common in the suicide bereaved: (i) preoccupation with the deceased, (ii) disbelief/confusion, (iii) avoidance, and (iv) an "other" category was created for responses that did not fit this classification system.

Responses to item four (bodily reactions) were coded according to Bonanno's (24) research on somatic reactions in grief, as well as the Survivors of Bereavement by Suicide (146): (i) lack of energy, (ii) stomach pain, (iii) palpitations, (iv) tightness in chest, (v) disturbed sleep, (vi) loss of appetite, and (vii) an "other" category was created for responses that did not fit this classification system.

Item five asked the participant who spoke to them after the suicide, as well as the types of services and/or support they directly sought following notification of the suicide. Codes were established *a priori* by the primary investigator based on common military assets used to respond to a death (*i.e.*, leadership, chaplains, behavioral health providers), as well as informal resources (*i.e.*, friends and family) and resources outside of the military structure.

Items six and seven inquired about the helpfulness of resources or actions after the suicide. After reviewing the responses, codes were established *post hoc* by the primary

investigator as to what approach participants tended to report: (i) taking matter into one's own hands, (ii) participating in a formal postvention effort, (iii) avoiding the loss altogether, or (iv) an "other" category was created for responses that did not fit this classification system. Some indicated that nothing was helpful or unhelpful, and this was established as another code.

Item eight asked participants to provide any recommendations they have for the military with regard to its response in the aftermath of a unit member suicide. Responses to these items can be found in the Appendix C. The data were coded, then frequency counts were determined on Microsoft Excel by adding the number of responses falling into each code and dividing by the number of participants who provided a response to that item.

Exploratory Aim 2: To explore differences in psychological distress, grief, and functioning across the following subgroups: (i) by level of perceived closeness; (ii) participants exposed to only military unit suicide (Suicide Alone) versus non-suicide death (Death Alone) or both military unit suicide and non-suicide deaths (Both Exposed); and (iii) actively serving (*i.e.*, active duty, Reservists, and National Guard) versus veteran/retirees.

Statistical Analyses for Exploratory Aim 2

An ANCOVA was conducted for GEQ-suicide to detect for significant differences based on perceived closeness (ordinal) to the military unit suicide decedent. Next, ANCOVA was conducted for GEQ-suicide with Suicide Alone and Both Exposed groups, and a comparison of GEQ-suicide and GEQ-death for the Suicide Alone and Death Alone groups, respectively. Furthermore, it became apparent with the overwhelmingly large numbers of Vietnam era and veteran participants, subgroup analyses would be necessary to address confounds (*i.e.*, history effect, cohort effect, and group differences on specific independent variables). By using the Split

File function on SPSS, active duty and veteran hierarchical regressions were analyzed separately to determine the variables significantly associated with distress, grief, and functioning.

POWER ANALYSIS

An *a priori* power analysis was conducted using G*Power (69) to estimate the required sample size to adequately power Aim 2 of the study. Due to lack of data on suicide survivors' BSI-18 and FIS scores, an estimated R^2 increase (modest) of five percent for each block of the hierarchical regression was used to calculate a small effect size ($f^2 = .0526$). With an error probability of .05, 80 percent power, four tested predictors with a total of ten predictor variables, a sample size of 232 was determined using G*Power. An equal sample size ($n = 232$) was targeted for Group 2, for a preliminary recruitment goal of 464 total participants. However, this was a more conservative estimate when compared to Green's (78) proposed sample size minimum of 117 participants to achieve power of .80 with a medium effect size ($f^2 = .15$) using Cohen's (49) conventions.

Pilot testing the survey permitted more accurate sample size estimation by using actual data from the sample population. After a total of 30 participants completed the survey, their data were used to calculate means and standard deviations for the dependent variables (GEQ, BSI-18, and FIS) and separated by the independent variable (Group). Next, the effect sizes were calculated to determine the differences between groups on the dependent variables. This effect size then helped establish the largest sample size necessary to adequately power analyses would be a total of 104 participants. More participants were recruited due to the likelihood of attrition and missing or inadequate data.

CHAPTER 4: RESULTS

AIM 1

ANOVA for Between-Group Differences

ANOVAs were conducted to determine if psychological distress (BSI-18 and its subscales), grief (GEQ-death and GEQ-suicide), and functioning (FIS and its subscales) were different for groups based on unit suicide exposure (unexposed vs. exposed). Visual inspection of boxplots indicated no extreme outliers on the BSI-18 and its subscales, one extreme outlier on GEQ-death, and four extreme outliers on FIS-personal (exceeded criterion of ± 3 standard deviations from end of box). The outliers were retained, and Kruskal-Wallis test was used to compare to results from the ANOVAs. ANOVA is robust to violations of normality, especially with larger samples. When Levene's test for homogeneity of variances was significant, Welch's statistic was presented instead.

Table 6 presents unadjusted means and standard deviations by Group. A statistically significant difference was found for somatization, Welch's $F(1, 411.92) = .81, p = .004$ with the unexposed group reporting higher scores ($M = 52.04, SD = 10.51$) than the exposed group ($M = 49.22, SD = 9.50$); physical impairment, $F(1, 415) = 20.07, p < .001$ with the unexposed group reporting higher scores ($M = 5.71, SD = 2.78$) than the exposed group ($M = 4.54, SD = 2.55$); occupational impairment, $F(1, 404) = 5.45, p = .020$ with the unexposed group reporting higher scores ($M = 10.77, SD = 5.62$) than the exposed group ($M = 9.51, SD = 5.17$); and FIS total, $F(1, 398) = 6.43, p = .012$, with the unexposed group reporting higher scores ($M = 26.3, SD = 11.01$) than the exposed group ($M = 23.52, SD = 10.90$). BSI-18 total trended toward significance, $F(1, 412) = 3.69, p = .055$, with higher scores in the unexposed group ($M = 50.94, SD = 12.37$) than the exposed group ($M = 48.64, SD = 12.04$). No significant between-group

differences were found for GEQ-death, depression, anxiety, social impairment, and personal impairment. Kruskal-Wallis test confirmed median differences in GEQ-death, ($\chi^2(1) = .12, p = .725$) and personal functioning ($\chi^2(1) = 2.19, p = .139$); scores were not significant between groups. See Table 7 for ANOVA results.

Covariate Determination

Lifetime trauma types (*i.e.*, LEC-5), lifetime suicide exposure, and lifetime death exposure were theorized as potential variables that could influence results on the outcome variables. Exploratory analyses were conducted of potentially significant demographic factors (age, gender, marital status, education, time in service, and rank), which were entered into separate simple linear regressions with FIS total as the dependent variable. Of the variables listed, all were significantly related to FIS total score except time in service, and were thus kept constant across all ANCOVAs (see Table 8).

ANCOVA for Between-Group Differences

One-way between-group ANCOVA was performed to compare the differences between Groups (unexposed vs. exposed) on all outcome measures, demonstrating significance in the initial ANOVA analyses: BSI-18 total, somatization, FIS total, physical functioning, and occupational functioning. ANCOVAs were not conducted on outcome measures lacking differences between groups in the initial ANOVA (*i.e.*, depression, anxiety, GEQ-death, social impairment, and personal impairment). Age, gender, marital status, education, rank, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure served as covariates.

Assumptions of ANCOVA

The first assumption of ANCOVA that was checked was linearity between the covariates and the outcome variable for each group. This was established by visual inspection of the

scatterplot for continuous variables. Next, homogeneity of regression slopes were assessed by ANOVA with interaction terms of each covariate and Group for significance. No significant interactions were found. Assumption of normality of standardized residuals was assessed by Shapiro-Wilk's test. Homoscedasticity was assessed by visual inspection of the standardized residuals plotted against the predicted values. Levene's test for equality of variances was used to assess for violations of the assumption of homogeneity of variances. Outliers were determined by cases with standardized residuals greater than ± 3 standard deviations. Violations of assumptions are presented with the analysis in which it occurred.

Hypothesis 1a. – Symptom Distress

The hypothesis suggests that if the groups are relatively equivalent on background variables (*i.e.*, covariates), differences in BSI-18 total and its subscale scores could be due to exposure to unit member suicide. For BSI-total, unadjusted T-scores were higher for the unexposed group ($M = 50.94$, $SD = 12.37$) than the exposed group ($M = 48.64$, $SD = 12.04$). Given this difference, an ANCOVA was conducted on BSI-18 total and somatization T-scores to detect differences based on Group. No violations of assumptions of ANCOVA were detected for BSI-18 total. After adjusting for age, gender, marital status, rank, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure, there was a statistically significant difference in BSI-18 total T-score between groups, $F(1, 284) = 4.08$, $p = .044$, $partial \eta^2 = .014$. Post hoc analysis indicated the unexposed group ($M = 50.16$, $SE = 1.08$) scored higher than the exposed group ($M = 47.41$, $SE = 1.10$), $M_{diff} = 2.75$, $95\%CI [.07, 5.43]$, $p = .044$ (Table 9).

For somatization, unadjusted T-scores were higher for the unexposed group ($M = 51.86$, $SD = 10.48$) than the exposed group ($M = 48.45$, $SD = 8.94$). Shapiro-Wilk's test of normality indicated violations of normality of standardized residuals for each group and the overall model:

unexposed, ($p = .017$), exposed ($p = .005$), overall model ($p < .001$). However, visual inspection of normal Q-Q plots of the standardized residuals suggested normality, and ANCOVA is robust against violations of normality with larger sample sizes. Levene's test was significant ($p = .019$), indicating a violation of homogeneity of variances. There was one outlier in the data, which was retained to unlikelihood for data entry or measurement error causing the outlier. After adjusting for age, gender, marital status, rank, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure, there was no statistically significant difference in somatization T-score between groups, $F(1, 284) = 1.48, p = .225, \text{partial } \eta^2 = .005$ (Table 10).

Hypothesis 1b. – Functional Impairment

The hypothesis suggests that if the groups are relatively equivalent on background variables (*i.e.*, covariates), differences in FIS total, physical, and occupation scores could be due to exposure to unit member suicide. For FIS total, unadjusted scores were higher for the unexposed group ($M = 25.83, SD = 11.26$) than the exposed group ($M = 22.93, SD = 10.77$). Shapiro-Wilk's test of normality was significant for each group and the overall model: unexposed, ($p < .001$), exposed ($p < .001$), overall model ($p < .001$). Four outliers ($> +3$ standardized residuals) were retained. After adjusting for age, gender, marital status, rank, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure, there was no statistically significant difference in FIS total score between groups, $F(1, 280) = .02, p = .897, \text{partial } \eta^2 = .000$ (Table 11).

For physical impairment, unadjusted was higher for the unexposed group ($M = 5.34, SD = 2.83$) than the exposed group ($M = 4.39, SD = 2.53$). Shapiro-Wilk's test of normality was significant for the exposed group ($p = .005$), overall model ($p = .034$). After adjusting for age, gender, marital status, rank, lifetime suicide and death exposures, and lifetime trauma types,

there was no statistically significant difference in physical impairment scores between groups, $F(1, 286) = .85, p = .358, \text{partial } \eta^2 = .003$ (Table 12).

For occupational impairment, unadjusted scores were higher for the unexposed group ($M = 10.45, SD = 5.53$) than the exposed group ($M = 9.17, SD = 5.10$). Shapiro-Wilk's test of normality was significant for both groups and the overall model: unexposed ($p < .001$), exposed ($p < .001$), overall model ($p < .001$). Six outliers (greater than +3 standardized residuals) were retained. After adjusting for age, gender, marital status, rank, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure, there was no statistically significant difference in physical impairment scores between groups, $F(1, 280) = .001, p = .970, \text{partial } \eta^2 = .000$ (Table 13).

AIM 2

Three hierarchical regressions were conducted on participants who endorsed exposure to unit suicide (*i.e.*, Group = exposed). Regressions were used to assess the ability of demographic, relational, and unit social support factors to predict levels of symptom distress (BSI-18 total, GEQ-suicide), and functional impairment (FIS) after controlling for covariates. In each regression, Block 1 of the model consisted of covariates: marital status (dummy-coded with “married” serving as the reference group), education, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure. Block 2 of the model included demographic variables: gender (binary), rank (dummy-coded with NCO [E4-E6] serving as the reference group and excluded from the model), and age. Block 3 consisted of perceived closeness, time since deceased unit member's death, time since worked with unit member, and time since last

communicated with unit member. Block 4 consisted of unit social support (DRRI-2:J) score. Unadjusted and adjusted coefficients of multiple determination (R^2) are presented together.

Assumptions of Multiple Regression

First, a Durbin-Watson test was used to determine independence of residuals. According to Field (72), statistic of 2 is desirable, but a range of 1 to 3 is acceptable. Assumptions of normality were checked via visual inspection of histogram and normal P-P plot of the regression standardized residuals. Linearity and homoscedasticity were checked by visual inspection of partial regression scatterplots, and of the studentized residuals to the unstandardized predicted value. Multicollinearity was checked via tolerance (less than .10), VIF (greater than 10), and correlations between independent variables (greater than .70). Casewise diagnostics of standardized residuals (± 3 SDs or more), leverage points (greater than 0.20), Cook's Distance (greater than 1), and studentized deleted residuals (± 3 SDs or more) were the criteria used to detect outliers, high leverage points, and highly influential points. None of the participants violated all four criteria; therefore, all participants were retained. The data suggested no notable violations of the assumptions of multiple regression.

Hypothesis 2a. – Symptom Distress

A hierarchical regression was performed on BSI-18 with four blocks (Table 14). The full model (Block 4) was statistically significant: $F(17, 122) = 4.72, p < .001$. The covariates entered into Block 1 explained 27.4% (adj. $R^2 = .241$) of the variance in BSI-18 total T-score, $F(6, 133) = 8.37, p < .001$. Lower education and more lifetime trauma types were significantly associated with higher distress.

The addition of demographic variables in Block 2, the total variance explained by the model was 32.6% (adj. $R^2 = .263$), explained an additional 5.2% of the variance in distress

beyond the covariates, not a significant R^2 increase, $F(6, 127) = 1.65, p = .140$. More lifetime trauma types were significantly associated with higher distress, while ranks of senior officer and junior officer/warrant were associated with lower distress compared to NCOs.

Entry of the relational factors into Block 3, the total variance explained by the model was 35.1% (adj. $R^2 = .267$), explained an additional 2.5% of the variance in BSI-18 total beyond the demographic variables, also not a significant increase in R^2 , $F(4, 123) = 1.17, p = .330$. Greater lifetime trauma types were significantly associated with higher distress, while ranks of senior officer and junior officer/warrant were associated with lower symptom distress compared to the NCOs.

Lastly, the addition of unit social support into Block 4 explained a total of 39.7% (adj. $R^2 = .313$) of the variance in BSI-18 total, a significant R^2 increase by 4.6%, $F(1, 122) = 9.29, p = .003$. In this final model, junior officer/warrant ($B = -6.03, p = .035$), senior officer ($B = -6.16, p = .032$), unit social support ($B = -.27, p = .003$), and lifetime trauma types ($B = 1.11, p = .002$) were significantly associated with BSI-17 total T-score. Being an officer and reporting higher levels of unit social support was associated with lower distress, while higher lifetime trauma types score was associated with higher distress.

Hypothesis 2b. – Suicide Grief

A hierarchical regression was performed on GEQ-suicide with four blocks (Table 15). The full model (Block 4) was statistically significant: $F(17, 122) = 2.43, p = .003$. The covariates entered into Block 1 explained 14.6% (adj. $R^2 = .108$) of the variance in GEQ-suicide score, $F(6, 133) = 3.79, p = .002$. Having experienced more lifetime trauma types was significantly associated with higher grief.

The addition of demographic variables in Block 2, the total variance explained by the model was 20.4% (adj. $R^2 = .129$), explained an additional 5.8% of the variance in distress, which was not a significant R^2 increase, $F(6, 127) = 1.54, p = .170$. Only junior officer/warrant status was significantly associated with lower grief, compared to the NCO group.

Entry of the relational factors into Block 3, the total variance explained by the model was 25.1% (adj. $R^2 = .154$), explained an additional 4.7% of the variance in GEQ-suicide score, also not a significant R^2 increase, $F(4, 123) = 1.95, p = .107$. Higher perceived closeness was associated with higher grief.

Lastly, the addition of unit social support into Block 4 explained a total of 25.3% (adj. $R^2 = .149$) of the variance in GEQ-suicide, not a significant R^2 increase of .20%, $F(1, 122) = .30, p = .586$. In the final model, only perceived closeness ($B = 2.58, p = .020$) was significantly associated with GEQ-suicide score. Higher perceived closeness was associated with higher grief.

Hypothesis 2c. – Functional Impairment

A hierarchical regression was performed on FIS with four blocks (Table 16). The full model (Block 4) was statistically significant: $F(17, 120) = 4.01, p < .001$. The covariates entered into Block 1 explained 21.1% (adj. $R^2 = .175$) of the variance in FIS total score, $F(6, 131) = 5.83, p < .001$. Lower education and more lifetime trauma types were associated with higher functional impairment.

The addition of demographic variables in Block 2, the total variance explained by the model was 27.7% (adj. $R^2 = .208$), explained an additional 6.6% of the variance in distress, which was not a significant R^2 increase, $F(6, 125) = 1.91, p = .084$. Senior officers and senior

NCO status was associated with lower functional impairment compared to NCOs, while more lifetime trauma types was associated with higher functional impairment.

Entry of the relational factors into Block 3, the total variance explained by the model was 29.5% (adj. $R^2 = .202$), explained an additional 1.8% of the variance in FIS score, also not a significant R^2 increase, $F(4, 121) = .765, p = .550$. Senior officer rank was associated with lower functional impairment compared to NCOs, while more lifetime trauma types was associated with higher functional impairment.

Lastly, the addition of unit social support into Block 4 explained a total of 36.2% (adj. $R^2 = .272$) of the variance in FIS, a significant R^2 increase, $F(1, 120) = 12.69, p = .001$. In the final model, senior NCO ($B = -6.05, p = .020$), unit social support ($B = -.31, p = .001$), education ($B = -2.85, p = .029$), and lifetime trauma types ($B = -.93, p = .006$) were significant. Higher unit social support score, senior NCO rank, and higher education were associated with lower functional impairment, while more lifetime trauma types was associated with higher functional impairment.

EXPLORATORY AIM 1

Immediate Reactions to Suicide

Participants who endorsed having experienced the suicide death of a unit member (Exposed) were asked a series of eight open-ended questions about their personal experiences following the loss. A total of 328 participants responded to at least one of the open-ended items in this series. Participants may have provided multiple responses to an item that could be categorized into different codes.

Table 17 presents immediate reactions to the suicide. The first four items asked about the respondents' immediate reactions to the news of the suicide. Item one queried about the *emotional* response to the suicide (Table 17). Items were categorized into eight emotion codes according to the Survivors of Bereavement by Suicide (146). A total of 319 participants responded and provided 376 responses. The most frequent emotion expressed was despair/depression/sadness (49.38%), followed by shock and disbelief (30.94%), anguish/longing/searching (15.00%), anger (11.56%), numb (4.69%), guilt (4.69%), relief (.94%), and fear/anxiety (.31%).

Next, item two queried the participant on their *behavior* following the suicide. A total of 307 participants responded to this item and provided 318 responses. Responses were coded into one of Weiten's (110) three coping strategies: emotion-focused, problem-focused, and appraisal-focused. Nearly half (47.56%) reported using emotion-focused coping (*e.g.*, cried, talked to others), problem-focused coping (27.04%; *e.g.*, provided support to others), appraisal-focused coping (14.98%; *e.g.*, accept, reflect), and 14.01% reported having done "nothing" afterward.

Item three asked about *thoughts* immediately following the suicide. A total of 290 participants provided 300 responses. Responses were coded into Worden's (166) four categories of cognitions: preoccupation with the deceased, disbelief/confusion, and avoidance and a category was created for responses that did not fit this classification system ("other"). Most responses reported cognitions that involved preoccupation with the deceased (66.90%), disbelief/confusion (9.66%), "nothing" (3.79%), or avoidance (1.72%). One-fifth of the responses fell into the "other" category, including emotions (*e.g.*, sad, angry) and other non-cognitions (*e.g.*, "I don't remember").

Item four asked about *bodily reactions* following the suicide. A total of 284 participants provided 309 responses. Responses were coded according to Bonanno's (24) research on somatic reactions in grief, as well as the *Survivors of Bereavement by Suicide* (146): lack of energy, stomach pain, palpitations, tightness in chest, disturbed sleep, loss of appetite, and a category was created for responses that did not fit this classification system ("other"). The highest proportion of responses fell into the "other" category (40.14%), followed by "nothing" (37.32%), stomach pain (9.51%), palpitations (8.10%), and lack of energy (7.75%), tightness in chest (2.46%), disturbed sleep (2.46%), and loss of appetite (1.06%).

Aftermath of Suicide

Table 18 presents information about *postvention* circumstances after the suicide. More specifically, a question asked who spoke with the participant after the suicide, and the types of services and/or support the participant directly sought following notification of the suicide. A total of 208 participants provided 266 responses. The most frequent source of postvention that participants interfaced with were their social support network (35.58%; *e.g.*, friends, family, unit members), followed by command leadership (26.44%), chaplain (16.83%), behavioral health professionals (10.58%), "other" (8.17%), and non-military resources (3.37%). Over a quarter of participants (26.92%) reported "no one" spoke to them, or they spoke to "no one."

Items six and seven inquired about the helpfulness of resources or actions after the suicide (Table 19). Item six asked what the participant found to be *most* helpful in the aftermath. A total of 205 participants provided 212 responses. Taking individual actions (61.46%; *e.g.*, exercise, keeping busy), "other" (19.02%; *e.g.*, moping, social media, time), doing nothing (10.24%), active postvention interventions (7.80%; *e.g.*, counselors, chaplains, suicide prevention briefs), and withdrawal/avoidance (4.88%) were reported to be most helpful.

Item seven asked what the participant found to be *least* helpful in the aftermath of the suicide (Table 20). A total of 182 participants provided 189 responses. “Other” factors (42.86%; *e.g.*, moping, social media, time), taking individual actions (22.53%; *e.g.*, exercise, keeping busy), active postvention interventions (15.38%; *e.g.*, counselors, chaplains, suicide prevention briefs), doing nothing (14.29%), and withdrawal/avoidance (8.79%) were reported to be least helpful.

Item eight asked the participants to provide any recommendations they have for the military with regard to its response in the aftermath of a unit member suicide. Responses to these items are outlined in Appendix C.

EXPLORATORY AIM 2

Perceived Closeness and Grief

Unadjusted means for GEQ-suicide score were higher among participants reporting “extremely close” perceived closeness to the unit member who died by suicide ($M = 37.75$, $SD = 12.68$, $n = 58$) compared to “somewhat close” ($M = 33.00$, $SD = 10.48$, $n = 130$), “not particularly close” ($M = 25.71$, $SD = 7.59$, $n = 65$), and “not close at all” ($M = 25.55$, $SD = 11.62$, $n = 30$). ANOVA indicated there was a significant difference in GEQ-suicide score between levels of perceived closeness, Welch’s $F(3, 97.34) = 18.87$, $p < .001$.

ANCOVA was conducted to detect differences between levels of perceived closeness on GEQ-suicide after adjusting for age, gender, education, marital status, rank, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure. Suicide closeness was a significant contributor to the model, $F(3, 132) = 3.32$, $p = .022$. *Post hoc* analysis with a Bonferonni correction indicated that participants reporting “extremely close” perceived closeness ($M =$

34.75, $SE = 2.09$) scored significantly higher on the GEQ-suicide than participants reporting feeling “not particularly close” ($M = 26.08$, $SE = 1.85$), $M_{diff} = 8.14$, 95% $CI [1.07, 15.22]$, $p = .015$. Perceived closeness to the unit member who died by suicide did not predict BSI-18 or FIS scores, or any of their respective subscales (Table 21).

Exposure Type and Grief

Participants were subdivided into four groups based on exposure types: (i) no unit exposure to suicide or death (No Exposure), (ii) unit suicide exposure only (Suicide Alone), (iii) unit non-suicide death exposure only (Death Alone), and (iv) both unit suicide and non-suicide death exposure (Both Exposed). This allowed for between-group comparisons of Suicide Alone versus Both Exposed on GEQ-suicide, Both exposed on GEQ-suicide, and Suicide Alone’s GEQ-suicide score versus Death Alone’s GEQ-death score.

An independent samples t -test was conducted to determine whether Suicide Alone and Both Exposed groups were different on level of grief from military unit suicide. The GEQ-suicide score was higher for the Both Exposed group ($M = 32.51$, $SD = 11.70$, $n = 217$) than the Suicide Alone group ($M = 28.55$, $SD = 9.85$, $n = 71$), which was a statistically significant difference, $t(139.80) = 2.80$, $p = .006$, equal variances not assumed. An ANCOVA was conducted to determine if the differences remained significant after adjusting for age, gender, education, rank, marital status, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure. No significant difference was found between the Suicide Alone ($M = 29.63$, $SE = 1.72$) and Both Exposed ($M = 29.80$, $SE = 1.25$), $F(1, 138) = .01$, $p = .930$ (Table 22). After adjusting for age, gender, education, rank, marital status, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure, those exposed to both unit suicide and death did not score significantly higher in grief than those exposed to unit suicide alone.

A paired-samples *t*-test was conducted to determine if a difference existed for suicide grief and death grief within the Both Exposed subgroup. The GEQ-suicide score was higher ($M = 30.66$, $SD = 11.14$, $n = 133$) than the GEQ-death score ($M = 26.84$, $SD = 10.77$, $n = 133$), which was a statistically significant difference, $t(132) = 5.88$, $p < .001$. Suicide was associated with a higher level of grief than a non-suicide death within the sample that had experienced both.

Finally, an ANCOVA was conducted to determine if there was a significant difference between the Suicide Alone versus the Death Alone groups on their reported levels of grief. After adjusting for age, gender, education, rank, marital status, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure, a significant difference was found. The Suicide Alone GEQ-suicide scores ($M = 30.20$, $SE = 1.67$) were higher than the Death Alone GEQ-death scores ($M = 26.08$, $SE = 1.06$), $F(1, 171) = 5.70$, $p = .018$, $M_{diff} = 4.12$, $95\%CI [.714, 7.53]$ (Table 23). After adjusting for age, gender, education, rank, marital status, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure those exposed to unit suicide reported higher levels of grief than those exposed to unit death. Military unit suicide appears resulted in higher grief reaction scores compared to a unit non-suicide death.

Active Service versus Veterans/Retirees

Analyses in this exploratory aim sought to determine whether being actively engaged in the military or having left the service changed results on the outcome measures. The sample was split by duty status: active duty versus veteran/retiree. Due to low counts for National Guard and Reservists, these participants were included with the active duty, and this combined group is called “Active Service.” Three multiple regressions were conducted to determine if suicide exposure significantly predicted BSI-18 total T-score, GEQ-suicide score, and FIS separately for Active Service participants versus Veteran/retiree participants (Tables 24-26).

Active Service

Multiple regression analyses were run to predict outcomes from age, gender, marital status, education, rank, lifetime trauma types, lifetime suicide exposure, lifetime death exposure, perceived closeness, time since unit member's suicide/last worked together/last contacted, and unit social support. The model predicted BSI-18, $F(17, 48) = 3.04, p = .001, \text{adj } R^2 = .348$. Lifetime trauma types ($B = 1.33, p = .015$), senior NCOs ($B = -10.24, p = .033$), perceived closeness ($B = -3.62, p = .028$), time since last worked with the unit member who died by suicide ($B = 2.84, p = .021$), and unit social support ($B = -.34, p = .004$) were significant. Senior NCOs were less distressed compared to NCOs, as were those reporting being closer to the decedent, and those with more unit social support. Greater lifetime trauma types and more time since they last worked with the unit member were associated with more distress.

The model for GEQ-suicide was significant, $F(17, 49) = 2.26, p = .013, \text{adj } R^2 = .245$. Perceived closeness ($B = 3.51, p = .010$) and time since last contact with the unit member who died by suicide ($B = -3.60, p = .004$) were significant. Those who were higher in perceived closeness and who reported more time since last contact with the unit member reported higher grief.

The model for FIS total was significant, $F(17, 48) = 3.35, p = .013, \text{adj } R^2 = .380$. Age ($B = .36, p = .027$), lifetime trauma types ($B = 1.18, p = .021$), senior NCO ($B = -13.04, p = .004$), junior enlisted ($B = -16.20, p = .015$), time since last worked with unit member ($B = 2.26, p = .049$), and unit social support ($B = -.44, p < .001$) were significant. Higher age, trauma, more time since last worked with the unit member, and lower unit social support were associated with higher functional impairment. Senior NCOs and junior enlisted ranks reported less impairment than NCOs.

Veterans/Retirees

Multiple regression analyses were run to predict outcomes from age, gender, marital status, education, rank, lifetime trauma types, lifetime suicide exposure, lifetime death exposure, perceived closeness, time since unit member's suicide/last worked together/last contacted, and unit social support. The model BSI-18 was significant, $F(17, 52) = 2.36, p = .001, \text{adj. } R^2 = .251$. Lifetime trauma types ($B = 1.16, p = .029$) was the only significant individual variable. More lifetime trauma types was associated with more distress.

The model did not significantly predict GEQ-suicide, $F(17, 51) = 1.46, p = .150, \text{adj. } R^2 = .102$. The model for FIS total was significant, $F(17, 50) = 2.17, p = .018, \text{adj. } R^2 = .228$. Lifetime trauma types ($B = 1.27, p = .013$) and time since last worked with unit member ($B = -2.92, p = .044$) were significant individual variables. More lifetime trauma types and less time since the participant last worked with unit member were associated with more distress.

CHAPTER 5: DISCUSSION

STUDY FINDINGS

The purpose of this study was to gain a better understanding of U.S. service members and veterans who have been exposed to a military unit suicide and those who have not. An anonymous, web-based survey was used to collect information from military service members and veterans on three outcomes: (i) psychological distress (or well-being), (ii) grief, and (iii) functional impairment.

Aim 1 examined between-group differences on symptom distress (including grief) and impaired functioning for military service members and veterans with and without exposure to military unit suicide. Adjusting for demographic factors (*i.e.*, age, gender, marital status, education, rank, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure), no significant between-group differences were found on measures of grief and functioning. However, a significant difference was found in overall distress, such that those unexposed to suicide demonstrated higher overall distress than those exposed to military unit suicide. The findings on Aim 1 were contrary to expectations. In fact, the overall trend in the study was to observe higher mean scores on psychological distress, grief, and functional impairment among suicide unexposed versus suicide-exposed individuals. This may be due to between-group differences not adjusted for the analyses (*e.g.*, death exposures outside of the military was higher in the unexposed group versus the exposed), overfitting due to high number of covariates, or it might even suggest a potential protective impact as one considers military culture and posttraumatic growth.

Distress

Both unit suicide exposed and unexposed service members and veterans each had unadjusted BSI-18 total T-scores close to the mean score of 50. This held true even after controlling for age, gender, education, marital status, lifetime trauma types, lifetime suicide exposure, and lifetime death exposure. This score was similar to adults diagnosed with cancer during childhood (28), other military samples of Air Force nurses (65), enlisted Air Force women with and without children (87), and veterans in a pain management program (144), and it was lower than service members/veterans enrolled at universities and civilian students (19), and veterans diagnosed with PTSD (159).

Given the potential for exposure to multiple types of death within a military unit to confound results, groups were subdivided into three additional exposure groups for the GEQ analysis. One group had exposure only to military unit suicide (Suicide Alone), another had only non-suicide death exposure (Death Alone), and the final group had exposure to both (Both Exposed). Notably, the Both Exposed group reported experiencing a higher severity of grief for the suicide compared to non-suicide death; that is, GEQ-suicide was higher than GEQ-death within the group. Further, when the adjusted mean GEQ scores were compared between the group exposed to unit Suicide Alone versus unit Death Alone, suicide grief again was more severe than grief from death (GEQ-suicide > GEQ-death). This finding supports the GEQ literature (15; 17; 70), as well as literature stating that suicide grief is in fact, unique (16; 18; 90; 91). Service members and veterans who were Both Exposed had similar GEQ-suicide scores to the Suicide Alone group, suggesting level of suicide grief was similar for these two groups. Therefore, the higher overall GEQ-suicide scores compared to GEQ-death scores suggest a different grief experience.

Yet, mean scores in the current study were lower than in previous literature (70), though only two other known studies have used the abbreviated version of the GEQ to assess suicide grief (70; 71). This finding may be due to differences in the type of relationship with the decedent (*i.e.*, military coworker versus parent of child who died by suicide). Likewise, Mitchell and colleagues (110) found friends/coworkers had much lower depression and anxiety scores and higher mental health quality of life scores when compared to spouses, parents, and children suicide loss survivors.

Functioning

In terms of the FIS total score, this study's sample reported scores below the 75th percentile of the measure development norms (82). FIS total scores for this sample were higher compared to a sample of soldiers who had recently returned from a six-month combat deployment (1), indicating greater functional impairment. Interestingly, the scale's development sample and the recently redeployed samples were both young (over 75 percent under the age of 30), male (90 percent or higher) infantry soldiers, so there is variability in FIS scores even within these two studies. Unfortunately, these are the only two studies that have published FIS total means from their samples, and subscale mean scores are not available. Given the current study's largely older, veteran sample, it would be reasonable to expect higher impairment scores.

One explanation for low scores in this sample is that the study participants were comprised of military service members and veterans. Active duty soldiers and Marines have been found to underreport or deny mental health problems when responding to post-deployment health surveys and research studies (84; 88; 98; 162). Another explanation may be the taboo nature of suicide interacting with the more interdependent and team-orientated military culture. Anger, guilt, betrayal, and sense of shame were emotions reported by participants in the aftermath of the suicide. Anger toward suicide decedents is not uncommon (91; 115; 120).

Service members/veterans may experience a particular sense of betrayal from their unit member for what they may perceive to be a violation of military cultural norms: mental toughness, collectivism, self-reliance, self-sacrifice, and fearlessness about death (29). As a result of this cultural violation, stigmatizing the unit member's death might have been one cognitive strategy used to cope with the suicide loss. Future empirical studies may examine these assumptions noted here.

Important Variables in Suicide Exposure

Lifetime Trauma Types

Aim 2 sought to determine the demographic, relational, and unit support factors associated with better or worse outcomes among military service members and veterans exposed to military unit suicide. More lifetime trauma types was associated with higher symptom distress and higher functional impairment, but was not associated with grief. Severe trauma may lead to the development of PTSD, whereas distress and impairment are fundamental diagnostic criteria. PTSD has been linked to functional impairment in various life domains and with low service utilization (5). Additionally, PTSD is associated with poor coping strategies (*e.g.*, alcohol misuse), which can negatively impact social relationships and reduce the opportunity to receive social support (89; 121).

It is important to note that for the purposes of this study, the LEC-5 measured how many different types of traumatic events the participant reported they were exposed to in their lifetime. The total score was not meant to capture how many times a single event occurred during one's lifetime (*e.g.*, having been in multiple natural disasters or victim of sexual assault more than once), nor the severity of the events or the resulting symptoms. However, the measure served as an indication of the range of stressful events the participant has endured. One may speculate that

exposure to many different traumatic events over one's lifetime may overshadow the impact associated with exposure to military unit suicide. Or, it may be argued that once the trauma exposure reaches a certain threshold, additional exposures (*e.g.*, to military suicide) do not result in notable change in the existing distress, grief, and functional impairment experienced.

Unit Social Support

A greater sense of unit support was associated with less symptom distress and functional impairment, but was not associated with grief. Along with resilience and post-deployment social support, military unit support has been found to be an important buffer for PTSD and depressive symptoms (121). The current sample reported "social support" as the primary source of outreach after the suicide (35.6%), either receiving aid from various helping resources or the military unit survivor reached out to others in order to receive social support. Although the participant may have experienced emotions and cognitions indicative of bereavement (as measured by the GEQ), the presence of unit support may have helped reduce the overall severity of the psychological distress and functioning.

Demographic Factors

Higher levels of education were associated with lower functional impairment. Higher education has been linked to higher rates of utilization of bereavement services by suicide loss survivors (20). As a whole, suicide exposed participants in the current study were a more educated group (compared to the unexposed participants), and this group might have been more willing to seek services or talk to a professional (*e.g.*, medical doctor, chaplain, mental health provider) to alleviate their grief, and perhaps consequently mitigating potential loss in functioning.

Officers and warrant officers reported less symptom distress, while senior NCOs reported less functional impairment, compared to NCOs. This may be partially explained by the fact that junior enlisted, male service members comprise the majority of active duty military suicides (14; 124; 125; 136; 142; 143), and therefore are likely to have spent more time with demographically similar others (*i.e.*, age, rank). Compared to officers, senior NCOs, and female service members, NCOs may have developed deeper bonds with the service member before the suicide.

Particularly due to the culture of interdependence and the hierarchical rank structure that prohibits fraternization, fellow unit members surviving a suicide loss also are likely to be junior enlisted males. Gender was not a significant contributor to distress, grief, and functioning in this study, which is consistent with military suicide loss bereavement literature (79). But this should be interpreted with caution, as the current sample had a high number of males compared to females, leading to unequal sample sizes.

Perceived Closeness

Perceived closeness was associated with grief, but not with distress or functioning. One caveat is that this item did not capture the reference point for timing. That is, the participant could answer based on how close they felt to the decedent at any point during their lifetime, which could be interpreted from a variety of time points. But this is common practice within suicide survivor research (38-40; 43; 85; 110; 129). For unit suicide exposed participants, perceived closeness was the *only* individual variable significantly associated with grief in the regression model: higher closeness was associated with more grief. Additional analyses showed level of perceived closeness statistically predicted GEQ-suicide score. Cerel and colleagues (45) found greater perceived closeness was associated with higher scores on measures of depression, anxiety, PTSD, and prolonged grief in a veteran sample. In a study of military service members

exposed to suicide, greater closeness was associated with greater risk for suicide and lifetime history of suicidal behavior, but not non-suicidal self-injury (85).

Posttraumatic Growth

Another explanation for relatively lower symptom distress, grief, and impairment scores in this sample is posttraumatic growth (31; 147). Posttraumatic growth is a phenomenon that occurs for some individuals in the aftermath of a traumatic life event. It is a construct of positive psychological change that occurs over five domains: relating to others, new possibilities, personal strength, spiritual change, and appreciation of life (31). In a random-digit telephone survey conducted in Kentucky, veterans exposed to suicide had the highest scores on a measure of posttraumatic growth, followed by veterans exposed to traumatic death and veterans exposed to both (118). Over 20 percent of a sample of spouses bereaved by suicide recorded a moderately high score on a measure of stress-related growth (101). Parent suicide survivors have likewise demonstrated posttraumatic growth, although only a low to moderate amount (111; 112). One reason surmised by the authors was that the parents were too close in time to their child's suicide (within two years) and more posttraumatic growth might occur in the years to come. Among Vietnam veterans, 60 to 70 percent reported positive changes resulting from their military and combat experiences such as self-discipline, coping skills, and an appreciation for life (67). Stressful events such as combat and suicide could have resulted in positive changes in the study sample as well.

What is the mechanism through which trauma or stress leads to posttraumatic growth? Triplett and colleagues (149) found that if a traumatic event disrupts an individual's assumptive world (*i.e.*, challenges one's core beliefs), it can lead to rumination. Deliberate rumination in an effort to understand what happened and make sense of the world then appears to lead to higher

life satisfaction and psychological well-being. Difficulty making sense of traumatic loss has been linked to development of complicated grief (52; 117). Consequently, cognitive strategies have been linked to growth after a stressful or traumatic event, including suicide bereavement (30; 119). Making sense of the suicide has been cited as one of the critical tasks of bereavement for parents of suicide loss (104). A high proportion of the current sample (66.9%) reported being preoccupied with thoughts of the unit member who died by suicide, trying to make sense of it and/or mourn for the life of their unit member, though only a small proportion of the sample reported actively engaging in cognitive appraisal-focused coping (~15%).

CLINICAL IMPLICATIONS

The current study generated findings with potential clinical utility. First, the qualitative items provided rich data regarding the immediate emotions, thoughts, behaviors, and somatic symptoms reported by service members and veterans who experience the suicide loss of a military unit member. Participants reported feeling sad, shocked, yearning, anger, and numb. They wondered “why,” they ruminated, tried to accept the loss and move on. Some even noticed physical reactions to the news, such as fatigue, pains, trembling, and other sensations. These reactions are consistent with grief (24; 55) and the overall suicide survivorship literature (90; 91; 94; 103; 115; 157). Clinicians can help normalize the grief process by explaining that these strong emotions are typical for the suicide loss survivor, but that they do subside over time.

In additional, what the data shows is that over the course of a lifetime, service members and veterans experience traumatic life events, which were associated with more distress and more impaired functioning. Military service inherently increases the risk for exposure to stressful or traumatic life events. But individuals who report a particularly high number of

different traumatic life events may be more at risk for negative outcomes following a unit member suicide if proper intervention does not take place. Therefore, clinicians are encouraged to directly assess for lifetime trauma types among military service members who have recently experienced the death of a fellow service member (either through suicide or another reason) in order to gauge the potential for notably higher psychological distress and lower overall functioning. Although it goes beyond the scope of the current study, it also may be important to assess the temporal proximity to determine acuity of the loss. A unit suicide that occurred within the past week may require different postvention than a suicide that occurred decades in the past.

One important takeaway is that service members and veterans might experience strong reactions to the loss, but that unit support can act as a buffer from stressful experiences. Service members and veterans provided recommendations for what they felt would be helpful to their bereavement process. Only a small subset of the sample responded to the request for recommendations, requiring cautious interpretation of findings. Facilitated open-discussions about the suicide loss, bringing the unit together to support each other, and professional assistance were all cited as important in the aftermath of unit suicide loss. This echoes Dyregrov's (66) needs-based assessment of suicide survivors; this investigator emphasized the need for peer and social support, and personalized professional help. Maple and colleagues' (104) survey of parents of child suicide loss emphasized the need for social support and difficulty attaining the support they desired. Both veteran and active service members could benefit from access to targeted intervention and peer support facilitated by trained professionals to help cope with the loss (106), and to facilitate cognitive strategies that lead to posttraumatic growth.

Finally, what the findings of this study suggest is that grief may be a universal reaction to loss associated with any type of death exposure, but grief from suicide may be experienced at a greater intensity and different quality than other forms of death. Quantitative measures such as the GEQ-suicide are only a first step in elucidating the experience of a person following exposure to suicide loss. Yet, such measures may not truly capture the unique personal experiences of grief. Therefore, clinicians are encouraged to ask their patients directly about specific cognitive, emotional, physiological, and behavioral reactions to the death of a military unit member, but also take caution to not make premature assumptions about one type of death causing more adverse psychological and health-related consequences compared to another. Other factors (*e.g.*, perceived closeness, coping strategies, posttraumatic growth) may contribute to individual differences in grief severity and quality.

MILITARY IMPLICATIONS

Operational readiness requires active duty service members to be ready to deploy and engage in combat operations at any moment. When a unit member dies by suicide, the rest of the unit has to make up for the functional role that member had in the unit, while undergoing emotional, cognitive, and behavioral processes that can deplete the psychological resources necessary to achieve mission success. During a deployment, a unit suicide can be especially disruptive as the command may lack time and professional assets to respond in an ideal manner. Further, unit members may wish to avoid engagement in the bereavement process while in combat theater due to the necessity to focus on the mission in order to avoid catastrophic mistakes, and potentially mission failure. Military leaders are encouraged to recognize that to compartmentalize the unit suicide and to ignore it in the short-term, may also place their units at

risk, especially in circumstances when the psychological depletion of the surviving, affected, and/or bereaved unit members is not taken into account.

If a suicide occurs in a military unit, command may want to focus their attention on the unit members most at risk for negative outcomes: those who have experienced many different traumatic events, with only a high school diploma (or equivalent), who lack a sense of unit support, and who perceive themselves as extremely close to the decedent. NCOs may be somewhat more at risk for distress than officers, and somewhat more impaired than senior NCOs. Taking recent findings from Ursano (155) into account, leaders should be concerned if there were other unit suicide attempts within the past year.

Recommendations from the military unit suicide survivors were provided by a small subset of the sample, so interpretations should be made with caution. Yet, themes that arose from the recommendations suggest that providing clear information about the manner of death of the service member, offering specific times where professionals will be available for facilitating group discussion or processing individual grief reactions, and providing clear instructions for accessing postvention services would give members concrete resources. Leadership can continue working to decrease stigma related to suicide and seeking mental health services by acting as a role model. The suicide should not be glorified, but it should be acknowledged and leaders can help in the meaning-making process. This leadership intervention will help reduce some of the barriers to having open discussions about the suicide loss and help normalize help-seeking behaviors for those who may desire additional support. Any leader or clinician making efforts to communicate about a suicide should refer to Gould's (75) recommendations of proper handling of suicide news in the media.

LIMITATIONS AND FUTURE DIRECTIONS

Despite efforts to minimize design flaws, the study methods had inherent limitations. First, the participants were a convenience sample, drawn from both current and prior military populations. While this was purposefully done to maximize reach and gain the broadest perspective on the topic, random sampling would provide a stronger basis for generalizability to the active military and veteran populations. Because convenience sampling was used, some segments of the population may have been unintentionally excluded in this process, a form of nonresponse bias. Consequently, accurate estimates of suicide exposure rates cannot be provided and external validity is limited. Future research about this topic should focus on recruitment efforts to increase generalizability. One method to increase participation would be to send invitation email reminders to potential participants.

The sensitive nature of the study may have promoted self-selection bias. Lee (100) describes topics considered sensitive in research: (i) issues considered private, stressful, or sacred (*e.g.*, sexuality, death); (ii) issues that raise fears of stigmatization or harm (*e.g.*, illegal behaviors); (iii) and controversial issues in the presence of a social or political conflict (*e.g.*, revolts). Postvention research covers at least the first two of these sensitive topics. Discussion of loss, grief, and exposure to suicide in this study asked participants to explore private thoughts, emotions, behaviors, and functioning related to a form of death (*i.e.*, suicide) that is often taboo or dishonorable in many cultures. To ensure a high enough sample and adequately power the study, recruitment initially targeted those who might have unit suicide exposure (*e.g.*, Suicidology listserv, chaplains, former commanders). However, participants who chose to complete the study may have been more motivated and/or personally invested in the topic than those who did not participate or who withdrew, as has been suggested in other suicide

bereavement studies (109; 148). Further, participants who chose not to participate may have been more distressed or impaired, but their lack of participation precludes drawing any conclusions about their reasons for not participating.

Both sampling method and the sensitive nature may have contributed to a significant threat to internal validity in this study: dropouts leading to missing data. Table 27 and Figure 4 provide more information about missing data. The high number of dropouts is not surprising for web-based research. Hoonakker and Carayon (86) reported an average response rate of 50.5 percent for web-based surveys. Musch and Reips (113) reported dropout rates from Internet research average about 34 percent (median = 35%, range = 1-87%). In the present study, with a total of 1,555 surveys eligible for analysis, and a maximum of 470 participants with both the predictor variable and at least one outcome measure completed, the survey response rate is approximately 30 percent. In an effort to respect privacy and the sensitive nature of the study, none of the items were mandatory (minus the two screener questions). This option led to a concerning number of missing items, particularly troublesome when responses were left blank on items 20 and 21, which were used to determine unit suicide or non-suicide death exposures and whether a participant would see the GEQ-suicide and/or GEQ-death. One possibility is that participants left the item blank when the intended response was zero, but this assumption could not be made without risking integrity of the data. Forced-responses to such critical items may be necessary to ensure opportunity to address the research questions. Missing data were addressed by person-mean imputation as described in the Methods section, but this was used conservatively (25). Additional analyses of included versus not included surveys is provided in Table 27. Participants who were not included in the final analyses reported fewer lifetime trauma types and higher GEQ-suicide scores, but were not significantly different on any of the other outcome

measures. However, for participants who never completed the outcome measures, it is impossible to know if their scores would differ from the analysis sample.

In addition to sensitivity, web-based surveys are subject to biases of truthful responding. The ability to create an online identity is a form of self-determination that can be both liberating for participants, but also could have deleterious consequences when responses are faked or a bias is introduced. For example, extreme outliers for suicide or death exposure, or number of deployments, called into question whether the response was honest, or exaggerated, or if the participant made an erroneous entry. Self-report surveys and Likert-scales are susceptible to response bias, particularly socially desirable responding (73). Assurances of anonymity were presented to allay fears of negative consequences from honest responding. However, this concern may not have been sufficiently addressed. Stigma, concerns about confidentiality, and concerns about impact on one's military career have all been raised as reasons service members may underreport or deny mental health problems (84; 88; 162). Future studies should provide reminders of privacy throughout the survey to encourage truthful responding. Another avenue for accessing more accurate data is through the use of military personnel databases, such as the ongoing postvention research (116) being conducted by the Defense Suicide Prevention Office (DSPO), although this eliminates anonymity.

Next, this study's method was cross-sectional, limiting interpretations of temporal relationships between the predictor variable and the outcome measures. It is not possible to draw cause-effect conclusions with cross-sectional data. By using a retrospective approach to the suicide and death-related items, as well as the qualitative items, temporal relationships are more readily available. Yet, this leads to another limitation: retrospective studies are prone to recall or misclassification bias by the participants. For example, four of the qualitative items queried

about the specific and immediate reactions to the death on a number of domains (*i.e.*, emotions, cognitions, behaviors, and physical sensations). Over time, recall accuracy degrades, or new interpretations of events are created. Retrospective research cannot establish causality, and it relies heavily on the accuracy of the participants to provide important data for the research questions at hand (83). Given that many years may have passed since the military unit suicide or non-suicide deaths, this limits drawing conclusions with accuracy, although time markers were included in the final model of the regressions in an effort to mitigate this limitation.

Ideally, obtaining data from a military unit in the acute timeframe (*e.g.*, days or weeks) following a unit suicide or death would reduce some of the problems associated with recall bias. Participants who are months and years removed from the death are more likely to forget details from their experiences, and the process of healing from the loss could play a role in their perception about the event. In future studies, creating demographically matched groups, nesting participants into meaningful temporal clusters (*i.e.*, acute versus distal) could lead to more meaningful and robust findings. Additionally, a longitudinal design that follows military unit members after a suicide on outcome measures has methodological advantages over the cross-sectional design, including improved power and the ability to make causal inferences.

Finally, the analytic approach could be improved. Violations to assumptions of ANCOVA included homogeneity of variances, normality, and extreme values. ANCOVA is robust to violations of normality, so this violation was not as concerning. However, too many covariates likely resulted in over-fitting. Because some of variables retained in the model were actually noise variables, the efficiency and predictive power were likely hampered, demonstrated by reductions in the adjusted R^2 values in some steps of the regression, and causing statistical instability. Despite the difficulty transformation adds to interpretation, future analyses of this

dataset should consider transforming the data, as well as using fewer covariates in the full model. Also, use of filters to exclude certain subgroups (*i.e.*, U.S. Coast Guard, multiple branches of service, midshipman/cadets) led to unnecessarily removing participants who had missing values for branch of service, which was not a variable of interest in any of the analyses. Future analyses should use Discreet Missing Variable function on SPSS to mitigate these losses.

Qualitative responses were analyzed for common themes by frequencies and then categorized based on literature. Using more dedicated qualitative software packages (*e.g.*, NVivo) along with data-driven methods of analysis such as grounded-theory would be a worthwhile endeavor with the current data. Only a small subset of the participants answered the qualitative items, limiting their generalizability.

STRENGTHS OF RESEARCH PROJECT

The current study was the first to collect both quantitative and qualitative data to examine the suicide loss survivorship experience of military service members and veterans, specific to military relationships. A recently published article by Hom (85) investigated suicidal behaviors of military members who have been exposed to suicide, but only about ten percent of the sample was exposed to a suicide of a fellow service member. Ursano and colleagues' study (155) investigated potential suicide contagion among soldiers exposed to unit suicide, and it highlights efforts to systematically investigate the impact of suicide attempts in the unit on subsequent attempts in the unit. In parallel, the DSPO is conducting a postvention study (116) using large Department of Defense databases to identify military units affected by a suicide. Results from this dissertation study along with the three aforementioned studies will bolster the limited

military postvention literature and in fact, highlight the scientific progress made over the past three to four years, since the inception of this dissertation work.

Privacy, convenience, and survey item development received considerable attention prior to the launch of the study. First, due to the sensitive topic of the study, privacy was of utmost importance. The questionnaire was hosted online, without asking for any personally identifying information, using a research platform (SurveyGizmo®) with high levels of data security, including HIPAA compliance. The informed consent assured participants of the safeguards in place for Human Subjects Protection. Additionally, the study had the sponsorship of the Navy Suicide Prevention Office and was conducted and reviewed by the Uniformed Services University, which increased its legitimacy and efforts to protect participants.

Next, the study aimed to reach a wide audience of active military and prior military service members. Both groups live and work worldwide, which necessitated convenient access to study materials. SurveyGizmo® presented an attractive platform accessible by computer and mobile devices. Internet access was the only requirement to complete the survey. Prior studies found web-based studies outperform traditional pen-paper mail surveys (141), although this was found to be due to faster response times rather than response rates (96). Despite this drawback, web-based surveys are widely accepted and are even the preferred method of research due to the perception of increased anonymity and decreased intensity and discomfort compared to face-to-face interaction with researchers, particularly for sensitive topics (132). Additionally, web-based surveys are seen as fast, convenient, and easy to complete (126). The study webpage link could easily be forwarded to others, increasing the opportunity for recruitment.

Lastly, survey development was systematic, following the steps of the Tailored Design Method (62). Four separate groups had the opportunity to review survey items and provide

feedback: the advisor, the *Laboratory*, the dissertation committee, and military students. This process promoted a systematic method of survey design to reduce redundancy, word-choice errors, and ensure items comprehensively collected necessary data.

CONCLUSION

Loss of a unit member by suicide is not as rare as one might believe. Military suicide survivors may grieve differently, but they may also come out of the other side in more positive and healthy ways. Both professionals and military leaders can provide an avenue for a healthy grieving process, to mitigate the detrimental impact on the individual, as well as the military unit. However, one must take caution not to assume that all unit members will experience and express their grief at the same level of intensity, thus postvention should be tailored to the suicide loss survivor's personal needs and risk levels. Creating opportunities to obtain professional assistance, social support from peers and other suicide loss survivors, and direct conversations to promote meaning making and facilitate understanding of why the suicide may have occurred are recommended.

Table 1. Suicide terminology

Term	Definition
Suicidal self-directed violence	Deliberate, self-directed behavior resulting in injury or potential injury to oneself with evidence of suicidal intent (<i>i.e.</i> , wish to die) (50).
Suicide attempt	Non-fatal self-directed violence with any intent to die as a result of the behavior (50).
Suicide	Death caused by self-directed injurious behavior with any intent to die (50).
Suicide survivor (or suicide loss survivor)	A family member or friend of a person who died by suicide (6), but can include coworkers, neighbors, and professional relationships as well (38).
Suicide survivor: exposed	Individuals who become aware of a suicide death but may not necessarily experience any level of severity or long-term impact (42).
Suicide survivor: affected	Individuals who are exposed to a suicide and experience psychological distress (42), not limited to timeframe.
Suicide survivor: bereaved	Individuals who have an attachment to the deceased who experience significant psychological distress and functional impairment in the short-term (within 12 months) or long-term (longer than 12 months) after the suicide (42).
Postvention	Activities occurring after a suicide aimed at facilitating recovery for the suicide survivors to reduce negative outcomes (8).

Table 2. Department of Defense postvention strategies (127)

Service Branch	Postvention Strategy
Army	• Suicide Response Teams (SRTs) at each installation to support commanders. • <i>Army G-1 Toolkit for Leaders</i> (154): http://www.armyg1.army.mil/hr/suicide/commandertoolkit.asp
Air Force	• Traumatic Stress Response (TSR) teams: multidisciplinary teams at each installation. • <i>Air Force Guide for Suicide Risk, Assessment, Management, and Treatment</i> (152): https://www.usuhs.edu/sites/default/files/media/mps/pdf/mholloway-afguidesuiciderisk.pdf
Marine Corps	• Critical Incident Stress Debriefing (CISD) teams.
Navy	• Chaplains, Casualty Assistance Calls Officers (CACOs), Special Psychiatric Rapid Intervention Teams (SPRINT) available to assist commands and families.

Table 3. Questionnaire content

Measure	Targeted construct (subscales)	Number of items	Time to complete
Demographics	Individual data (e.g., sex, education)	~20	< 2 min
BSI-18	Global symptom distress (somatic, depression, anxiety)	18	< 5 min
DRRI-2:J	Perceived unit social support	12	< 5 min
GEQ	Suicide grief symptoms and severity	16	< 5 min
Postvention	Responses to unit suicide	10	< 5 min
LEC-5	Lifetime number of different types of traumatic events	17	< 5 min
FIS	Functional impairment (physical, social, interpersonal, occupational)	14	< 5 min
Postvention	Support and services received and/or desired after the suicide event	~10	< 10 min

Note.

a. BSI-18 = Brief Symptom Inventory; GEQ = Grief Experiences Questionnaire; DRRI-2:J = Deployment Risk and Resiliency Inventory-2: Unit social support subscale; LEC-5 = Life Events Checklist (types of trauma exposure); FIS = WRAIR Functional Impairment Scale

Table 4. Coding of study variables used in analyses

Variable Type	Variable Name	Type (SPSS classification)	Levels or Description
Predictor variable (IV)	Group	Categorical (nominal)	0 = Unexposed to unit suicide 1 = Exposed to unit suicide
Independent variables (IV)	Age	Continuous (scale)	Open ended; 18 or older
	Gender	Categorical (dichotomous)	1 = Male 2 = Female
	Education	Rank-ordered (ordinal)	1 = HS/GED 2 = Some college 3 = 2- or 4-year college degree 4 = Postsecondary degree
	Marital Status	Categorical (nominal)	1 = Never married 2 = Married 3 = Previously married (<i>i.e.</i> , separated/divorced or widowed)
	Rank	Rank-ordered (ordinal) Continuous (scale)	1 = Junior enlisted (E1-3) 2 = NCO (E4-E6) 3 = Senior NCO (E7-E9) 4 = Junior officer/Warrant (W1-O3) 5 = Senior officer (O4-O9)

Note.

a. NCO = noncommissioned officer

Table 4. Coding of study variables used in analyses continued

Variable Type	Variable Name	Type (SPSS classification)	Levels or Description
Independent variables (IV)	Lifetime suicide/death exposure counts	Continuous (scale)	Sum score; possible range 0 or more
	LEC-5 (types of trauma exposure)	Continuous (scale)	Sum score; possible range 0 to 16
	Perceived closeness	Likert (ordinal) Continuous (scale)	0 = Not close at all 1 = Not particularly close 2 = Somewhat close 3 = Extremely close
	Time since unit member's death/last worked together/communicated	Likert (ordinal) Continuous (scale)	1 = Less than 1 month 2 = 1 month to 1 year 3 = 1-3 years 4 = 4-6 years 5 = More than 6 years
	DRRI-2:J (unit social support)	Continuous (scale)	Sum score; possible range 12 to 60
Dependent variables (DVs)	BSI-18 (distress)	Continuous (scale)	T-score; possible range 33 to 81
	GEQ (grief from suicide/death)	Continuous (scale)	Sum score; possible range 16 to 80
	FIS (functioning)	Continuous (scale)	Sum score; possible range 0 to 70

Note.

a. Measures: BSI-18 = Brief Symptom Inventory (distress); GEQ = Grief Experiences Questionnaire; DRRI-2:J = Deployment Risk and Resiliency Inventory-2: Unit social support subscale; LEC-5 = Life Events Checklist (types of trauma exposure); FIS = WRAIR Functional Impairment Scale (functioning)

Table 5. Participant characteristics

Demographic	Total Sample ^a (<i>N</i> = 1555)	Unexposed (<i>n</i> = 380)	Exposed (<i>n</i> = 419)	DoD Demographic Active Duty ^b , % (<i>N</i> = 1,326,273)
Age, in years	(<i>N</i> = 1512)	(<i>n</i> = 377)	(<i>n</i> = 409)	
<i>M</i> (<i>SD</i>)	54.08 (18.6)	60.33 (14.8)	49.65 (17.4)	28.6
Range, years	18 - 85	19 - 85	18 - 85	-
Gender	(<i>N</i> = 1554)	(<i>n</i> = 380)	(<i>n</i> = 418)	
Male	1387 (89.3)	358 (94.2)	356 (85.2)	84.9%
Female	160 (10.3)	21 (5.5)	61 (14.6)	15.1%
Other	1 (0.1)	0	1 (.2)	-
Prefer not to answer	6 (0.4)	1 (.3)	0 (0)	-
Marital Status	(<i>N</i> = 1529)	(<i>n</i> = 1026)	(<i>n</i> = 415)	
Never married	254 (16.6)	25 (6.7)	59 (14.2)	40.5%
Married	999 (64.2)	284 (75.7)	285 (68.7)	55.3%
Separated	31 (2.0)	10 (2.7)	6 (1.4)	-
Divorced	186 (12.2)	42 (11.2)	49 (11.8)	4.1%
Widowed	59 (3.9)	14 (3.7)	16 (3.9)	-
Level of Education	(<i>N</i> = 1523)	(<i>n</i> = 374)	(<i>n</i> = 408)	HS/GED/Some College
High school/GED	306 (20.1)	57 (15.2)	53 (13.0)	77.0%
Some college, no degree	495 (32.5)	139 (37.2)	117 (28.7)	
Associate's degree	189 (12.4)	39 (10.4)	59 (14.5)	Bachelor's Degree
Bachelor's degree	269 (17.7)	68 (18.2)	83 (20.3)	12.6%
Master's degree	198 (13.0)	54 (14.4)	71 (17.4)	Advanced Degree
Doctoral degree	66 (4.3)	17 (4.5)	25 (6.1)	8.1%

Notes.

a. Data is presented as *N* (valid %) unless indicated otherwise

b. DoD Active Duty data from Department of Defense Office of the Deputy Assistant Secretary of Defense (59)

Table 5. Participant characteristics continued

Demographic	Total Sample (<i>N</i> = 1555)	Unexposed (<i>n</i> = 380)	Exposed (<i>n</i> = 419)	DoD Demographic Active Duty, % (<i>N</i> = 1,326,273)
Race	(<i>N</i> = 1432)	(<i>n</i> = 365)	(<i>n</i> = 392)	
White	1240 (86.6)	322 (88.2)	327 (83.4)	68.9%
Black	36 (2.5)	8 (2.2)	12 (3.1)	17.2%
Asian	13 (0.8)	0	6 (1.5)	4.0%
American Indian/Alaska Native	26 (1.8)	4 (1.1)	10 (2.6)	1.4%
Native Hawaiian/Other Pacific Islanders	6 (0.4)	4 (1.1)	1 (.3)	1.1%
Other	36 (2.5)	14 (3.8)	11 (2.8)	4.3%
More than one	75 (5.2)	13 (3.6)	25 (6.4)	3.2%
Ethnicity	(<i>N</i> = 1409)	(<i>n</i> = 360)	(<i>n</i> = 384)	
Non-Hispanic	1330 (94.4)	340 (94.4)	361 (94.0)	88.0%
Hispanic	79 (5.6)	20 (5.6)	23 (6.0)	12.0%
Mental health diagnosis endorsed	(<i>N</i> = 1435)	(<i>n</i> = 366)	(<i>n</i> = 390)	
No	1094 (76.2)	272 (74.3)	277 (71.0)	--
Yes	341 (23.8)	94 (25.7)	113 (29.0)	--
Time in Service, in years	(<i>N</i> = 1401)	(<i>n</i> = 358)	(<i>n</i> = 401)	
<i>M</i> (<i>SD</i>)	10.4 (8.8)	12.49 (9.64)	12.78 (8.72)	--
Range, years	1 - 48	1 - 40	1 - 48	--
Unit suicide exposure	(<i>N</i> = 799)	(<i>n</i> = 380)	(<i>n</i> = 419)	
Yes	419 (52.4)	0 (0)	419 (100)	
Unit death exposure	(<i>N</i> = 824)	(<i>n</i> = 374)	(<i>n</i> = 413)	
Yes	680 (82.5)	322 (86.1)	321 (77.7)	

Notes.

a. Data is presented as *N* (valid %) unless indicated otherwise

b. DoD Active Duty data from Department of Defense Office of the Deputy Assistant Secretary of Defense (59)

Table 5. Participant characteristics continued

Demographic	Total Sample (<i>N</i> = 1555)	Unexposed (<i>n</i> = 380)	Exposed (<i>n</i> = 419)	DoD Demographic Active Duty, % (<i>N</i> = 1326273)
Branch of Service	(<i>N</i> = 1012)	(<i>n</i> = 274)	(<i>n</i> = 351)	
Air Force	206 (20.4)	51 (18.6)	54 (15.4)	23.6%
Army	332 (32.4)	95 (34.7)	117 (33.3)	38.0%
Coast Guard	5 (0.5)	1 (.4)	2 (.6)	-
Marine Corps	138 (13.6)	40 (14.6)	50 (14.2)	14.2%
Navy	214 (21.1)	78 (28.5)	107 (30.5)	24.2%
National Guard	111 (11.0)	9 (3.3)	15 (4.3)	-
Multiple	6 (0.6)	0	1 (0.6)	-
Duty Status	(<i>N</i> = 1404)	(<i>n</i> = 364)	(<i>n</i> = 401)	
Active duty	275 (19.6)	40 (11.0)	104 (25.9)	100%
Veteran/retired	1045 (74.4)	315 (86.5)	268 (66.8)	-
Reserves	32 (2.3)	1 (.3)	12 (3.0)	-
National Guard	52 (3.7)	8 (2.2)	17 (4.2)	-
Military Rank	(<i>N</i> = 1451)	(<i>n</i> = 372)	(<i>n</i> = 415)	
E1-E3	182 (12.5)	24 (6.5)	27 (6.5)	22.9%
E4-E6	773 (53.3)	206 (55.4)	204 (49.2)	49.4%
E7-E9	195 (13.4)	71 (19.1)	74 (17.8)	10.0%
W1-W3	8 (0.6)	1 (.3)	4 (1.0)	1.2%
W4-W5	3 (0.2)	2 (.5)	1 (.2)	0.3%
O1-O3	152 (10.5)	28 (7.5)	44 (10.6)	10.0%
O4-O6	128 (8.8)	37 (9.9)	60 (14.5)	6.5%
O7-O9	2 (0.1)	0	1 (.2)	< 0.01%
Cadet/midshipman	8 (0.6)	3 (.8)	0	-

Notes.

a. Data is presented as *N* (valid %) unless indicated otherwise

b. DoD Active Duty data from Department of Defense Office of the Deputy Assistant Secretary of Defense (59)

Table 5. Participant characteristics continued

Demographic	Total Sample (<i>N</i> = 1555)	Unexposed (<i>n</i> = 380)	Exposed (<i>n</i> = 419)	DoD Demographic Active Duty, %(<i>N</i> =1,326,273)
Era of Service	(<i>N</i> = 1487)	(<i>n</i> = 372)	(<i>n</i> = 411)	
Post-Sept 11, 2001	568 (38.2)	97 (25.5)	224 (53.5)	--
Persian Gulf	336 (22.6)	106 (27.9)	141 (33.7)	--
1975-1990	393 (26.4)	132 (34.7)	111 (26.5)	--
Late Vietnam	774 (52.1)	252 (66.3)	156 (37.2)	--
Early Vietnam	95 (6.3)	29 (7.6)	17 (4.1)	--
Pre-Vietnam	15 (1.0)	1 (.3)	0	--
Deployments, <i>M</i> (<i>SD</i>)	(<i>N</i> = 634)	(<i>n</i> = 153)	(<i>n</i> = 200)	
Non-combat	2.45 (3.88)	2.84 (4.10)	2.98 (4.51)	--
Combat	1.43 (1.85)	1.51 (1.80)	2.00 (2.26)	--
Humanitarian	0.55 (1.7)	.52 (1.30)	1.04 (2.56)	--
Non-combat deployments	(<i>N</i> = 1093)	(<i>n</i> = 276)	(<i>n</i> = 325)	
0	262 (24.0)	52 (18.8)	56 (17.2)	--
1 or more	831 (76.0)	224 (81.2)	269 (82.8)	--
Combat deployments	(<i>N</i> = 1151)	(<i>n</i> = 318)	(<i>n</i> = 359)	
0	318 (27.6)	58 (18.2)	62 (17.3)	--
1 or more	833 (72.4)	260 (81.8)	297 (82.7)	--
Humanitarian deployments	(<i>N</i> = 657)	(<i>n</i> = 160)	(<i>n</i> = 207)	
0	482 (73.4)	113 (70.7)	120 (56.6)	--
1 or more	175 (26.6)	47 (29.3)	89 (43.4)	--

Notes.

a. Data is presented as *N* (valid %) unless indicated otherwise

b. DoD Active Duty data from Department of Defense Office of the Deputy Assistant Secretary of Defense (59)

Table 6. Unadjusted sample size, means, and standard deviations for measures by exposure group

<i>Measure</i>	<i>Total sample</i>			<i>Unexposed</i>			<i>Exposed</i>		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
BSI total T-score	702	50.27	12.05	216	50.94	12.37	198	48.64	12.04
Depression	699	51.24	11.11	216	51.82	11.29	197	50.28	10.66
Anxiety	702	48.39	10.91	216	48.88	11.08	199	47.90	10.98
Somatization	703	51.14	10.16	216	52.04	10.51	198	49.22	9.50
GEQ-suicide	290	31.57	11.36	0	--	--	290	31.57	11.36
GEQ-death	366	26.68	10.73	217	27.15	10.37	134	26.85	10.73
FIS total	679	24.68	10.73	210	26.3	11.01	190	23.52	10.90
Physical	711	5.18	2.72	217	5.71	2.78	200	4.54	2.55
Occupational	700	10.19	5.36	211	10.77	5.62	195	9.51	5.17
Social	666	6.54	3.41	205	6.86	3.66	186	6.68	3.50
Personal	686	2.94	1.53	214	3.03	1.52	192	2.89	1.50
LEC-5	690	4.06	2.80	215	4.56	2.90	196	4.43	2.85
DRRI-2:J	726	46.78	10.33	221	47.63	9.82	202	48.41	10.27

Notes.

a. Measures: BSI-18 = Brief Symptom Inventory (distress); GEQ = Grief Experiences Questionnaire; DRRI-2:J = Deployment Risk and Resiliency Inventory-2: Unit social support subscale; LEC-5 = Life Events Checklist (trauma exposure); FIS = WRAIR Functional Impairment Scale (functioning)

Table 7. ANOVAs results for outcome measures by exposure group

<i>Measure</i>		<i>Sum of Squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>Sig.</i>
BSI-18 total T-score	Between Groups	550.33	1	550.33	3.69	.055
	Within Groups	61481.15	412	149.23		
	Total	62031.48	413			
Depression	Between Groups	245.90	1	245.90	2.04	.155
	Within Groups	49672.96	411	120.86		
	Total	49918.86	412			
Anxiety	Between Groups	98.56	1	98.56	0.81	.369
	Within Groups	50259.62	413	121.69		
	Total	50358.18	414			
Somatization ^a	Between Groups	821.44	1	821.44	8.15	.005
	Within Groups	41549.37	412	100.85		
	Total	42370.80	413			
GEQ-death ^b	Between Groups	7.62	1	7.62	0.07	.793
	Within Groups	38525.56	349	110.39		
	Total	38533.18	350			
FIS total	Between Groups	771.87	1	771.87	6.43	.012
	Within Groups	47802.61	398	120.11		
	Total	48574.48	399			
Physical	Between Groups	143.52	1	143.52	20.07	.000
	Within Groups	2967.97	415	7.15		
	Total	3111.48	416			
Occupational	Between Groups	159.34	1	159.34	5.45	.020
	Within Groups	11814.49	404	29.24		
	Total	11973.84	405			
Social	Between Groups	2.90	1	2.90	0.23	.635
	Within Groups	4997.88	389	12.85		
	Total	5000.78	390			
Personal ^c	Between Groups	2.06	1	2.06	0.91	.342
	Within Groups	917.31	404	2.27		
	Total	919.37	405			

Notes.

a. Welch's $F(1, 411.92) = .81, p = .004$ b. Kruskal-Wallis: GEQ-death, $\chi^2(1) = .12, p = .725$ c. Kruskal-Wallis: personal functioning $\chi^2(1) = 2.19, p = .139$

Table 8. Exploratory regression analysis for covariates to FIS total score

<i>Variable</i>	<i>R²</i>	<i>Adj. R²</i>	<i>Sig.</i>
Age	.054	.053	.000
Gender	.029	.028	.000
Marital status	.031	.029	.000
Education	.064	.063	.000
Time in service	.003	.001	.193
Rank	.055	.054	.000

Table 9. ANCOVA for BSI-18 total score

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>Partial η^2</i>
Marital status	86.50	2	43.25	.42	.658	.00
Age	11.95	1	11.95	.12	.734	.00
Gender	2.50	1	2.50	.02	.876	.00
Education	940.53	1	940.53	9.12	.003	.03
Rank	708.47	1	708.47	6.87	.009	.02
Lifetime trauma types	3666.44	1	3666.44	35.54	.000	.11
Lifetime suicide exposure	144.42	1	144.42	1.40	.238	.01
Lifetime death exposure	40.52	1	40.52	.39	.531	.00
Group	420.65	1	420.65	4.08	.044	.01
Error	29297.17	284	103.16			

<i>Group</i>	<i>n</i>	<i>Unadjusted Mean^d</i>	<i>SD</i>	<i>n</i>	<i>Adj. Mean^d</i>	<i>SE</i>
Unexposed	216	50.94	12.47	146	50.16	1.08
Exposed	198	48.64	12.04	149	47.41	1.10

Notes.

a. $R^2 = .298$ (*adj. $R^2 = .274$*)b. Levene's $p = .714$ c. Shapiro-Wilk $p = .431$ (unexposed), .106 (exposed), .071 (overall)

d. Scores can range from 40 to 81

e. Estimated marginal $M_{\text{diff}} = 2.75$, 95%CI [.07, 5.43] with LSD

Table 10. ANCOVA for BSI-18 somatization subscale

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>Partial η^2</i>
Marital status	58.78	2	29.39	.42	.659	.00
Age	382.74	1	382.74	5.44	.020	.02
Gender	87.76	1	87.76	1.25	.265	.00
Education	792.96	1	792.96	11.27	.001	.04
Rank	293.86	1	293.86	4.17	.042	.01
Lifetime trauma types	2316.70	1	2316.70	32.91	.000	.10
Lifetime suicide exposure	18.15	1	18.15	.26	.612	.00
Lifetime death exposure	13.15	1	13.15	.19	.666	.00
Group	103.97	1	103.97	1.48	.225	.01
Error	19992.07	284	70.40			

<i>Group</i>	<i>n</i>	<i>Unadjusted Mean^d</i>	<i>SD</i>	<i>n</i>	<i>Adj. Mean^d</i>	<i>SE</i>
Unexposed	216	52.04	10.51	146	50.75	.89
Exposed	198	49.22	9.50	149	49.38	.91

Notes.

a. $R^2 = .301$ (*adj. $R^2 = .277$*)b. Levene's $p = .019$ c. Shapiro-Wilk $p = .017$ (unexposed), .005 (exposed), .000 (overall)

d. Scores can range from 40 to 81

Table 11. ANCOVA for FIS total score

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>Partial η^2</i>
Marital status	40.91	2	20.45	.22	.800	.00
Age	462.60	1	462.60	5.04	.026	.02
Gender	193.68	1	193.68	2.11	.147	.01
Education	939.08	1	939.08	10.23	.002	.04
Rank	765.44	1	765.44	8.34	.004	.03
Lifetime trauma types	2052.48	1	2052.48	22.37	.000	.07
Lifetime suicide exposure	67.05	1	67.05	.73	.393	.00
Lifetime death exposure	272.38	1	272.38	2.97	.086	.01
Group	1.54	1	1.54	.02	.897	.00
Error	25694.91	280	91.77			

<i>Group</i>	<i>n</i>	<i>Unadjusted Mean^d</i>	<i>SD</i>	<i>n</i>	<i>Adj. Mean^d</i>	<i>SE</i>
Unexposed	210	26.30	11.01	144	24.12	1.03
Exposed	190	23.52	10.90	147	23.96	1.06

Notes.

a. $R^2 = .280$ (*adj. $R^2 = .254$*)

b. Levene's = .822

c. Shapiro-Wilk $p < .001$ (unexposed), .000 (exposed), .000 (overall)

d. Scores can range from 14 to 70

Table 12. ANCOVA for FIS physical impairment

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>Partial η^2</i>
Marital status	.10	2	.05	.01	.989	.00
Age	240.08	1	240.08	52.16	.000	.15
Gender	26.38	1	26.38	5.73	.017	.02
Education	25.63	1	25.63	5.57	.019	.02
Rank	52.00	1	52.00	11.30	.001	.04
Lifetime trauma types	139.33	1	139.33	30.27	.000	.10
Lifetime suicide exposure	3.36	1	3.36	.73	.393	.00
Lifetime death exposure	8.21	1	8.21	1.78	.183	.01
Group	3.90	1	3.90	.85	.358	.00
Error	1316.377	286	4.603			

<i>Group</i>	<i>n</i>	<i>Unadjusted Mean^d</i>	<i>SD</i>	<i>n</i>	<i>Adj. Mean^d</i>	<i>SE</i>
Unexposed	217	5.71	2.78	147	4.71	.23
Exposed	200	4.54	2.55	150	4.97	.24

Notes.

a. $R^2 = .398$ (*adj. $R^2 = .377$*)

b. Levene's = .850

c. Shapiro-Wilk $p = .809$ (unexposed), .005 (exposed), .034 (overall)

d. Scores can range from 2 to 10

Table 13. ANCOVA for FIS occupational impairment

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>Partial η^2</i>
Marital status	46.72	2	23.36	.98	.376	.01
Age	142.99	1	142.99	6.01	.015	.02
Gender	33.15	1	33.15	1.39	.239	.01
Education	239.75	1	239.75	10.08	.002	.04
Rank	61.00	1	61.00	2.57	.110	.01
Lifetime trauma types	276.30	1	276.30	11.62	.001	.04
Lifetime suicide exposure	49.28	1	49.28	2.07	.151	.01
Lifetime death exposure	39.01	1	39.01	1.64	.201	.01
Group	0.034	1	.03	.00	.970	.00
Error	6659.02	280	23.78			

<i>Group</i>	<i>n</i>	<i>Unadjusted Mean^d</i>	<i>SD</i>	<i>n</i>	<i>Adj. Mean^d</i>	<i>SE</i>
Unexposed	211	10.77	5.62	143	9.63	.52
Exposed	195	9.51	5.17	148	9.65	.54

Notes.

a. $R^2 = .195$ (*adj. $R^2 = .167$*)

b. Levene's = .669

c. Shapiro-Wilk $p < .001$ (unexposed), .000 (exposed), .000 (overall)

d. Scores can range from 6 to 30

Table 17. Immediate reactions to suicide (N = 328)

Item	Response Code	Response Examples	N	valid % ^a
<i>How did you feel?</i> (n = 320)	Despair, Depression, and Sadness	Sad; Distraught; Sorrow; Emotionally drained; Sick	158	49.38
	Shock and Disbelief	Shocked; Stunned; Surprised; Couldn't believe it; Numb	99	30.94
	Anguish, Longing, and Searching	Horrified; Disturbed; Denial; Upset; Bad; Hurt	48	15.00
	Anger	Mad; Rage; Angry; Resentment; Frustrated	37	11.56
	Numb or no emotion	Fine; Indifferent	15	4.69
	Guilt	Guilt; Regret	15	4.69
	Relief	Not surprised; Expected	3	.94
	Fear and Anxiety	Distressed; Concerned	1	.31
<i>What did you do?</i> (n = 307)	Emotion-Focused Coping	Cried; Withdrew; Moped; Grieved; Talked to others; Drank alcohol	146	47.56
	Problem-Focused Coping	Provided support; Informed and contacted others; Called for help; Went back to work	83	27.04
	Appraisal-Focused Coping	Accepted it; Wondered why; Reflected; Avoided thinking about it	46	14.98
	Nothing	--	43	14.01
<i>What did you think?</i> (n = 290)	Preoccupation with the Deceased	Wondering why; What was wrong with the decedent; Selfish; What a waste; Memories of decedent	194	66.90
	Disbelief/Confusion	Surprised; Confused; Couldn't understand	28	9.66
	Avoidant Thinking	Avoided thinking about it	5	1.72
	Nothing	--	11	3.79
	Other	"Life goes on"; Not surprised; Sad; Angry; Hated it; Don't remember	62	21.38
<i>What were your bodily reactions?</i> (n = 284)	Lack of Energy	Exhausted; Sluggish; Weakness; Tired	22	7.75
	Stomach Pain	Sick; Nauseous; Vomit	27	9.51
	Palpitations	Trembling; Shaking; Flushed; Sweats	23	8.10
	Tightness in Chest	Chest tightness; Increased heart rate; Chest sensations	7	2.46
	Disturbed Sleep	Difficulty sleeping; Sleepless; Restless	7	2.46
	Loss of Appetite	Lost appetite; Couldn't eat	3	1.06
	Nothing	--	106	37.32
	Other	Headache; Chills; Crying; Depression; Anxiety; Anger; Shock; Don't remember	114	40.14

Notes.

a. A total of 328 individuals responded to at least one of the nine qualitative items. Individual response counts are included for each item within the tables. Percentages are based on number who responded to the question (*i.e.*, valid percent).

b. "Nothing" categories indicate the participant's response stated "nothing," or "none."

c. -- denotes code and response match

Table 18. Postvention support services ($N = 328$)

Item	Response Code	Response Examples	N	valid % ^a
<i>Describe all the individuals who came and spoke with you, and if you reached out to any services/support afterward</i> ($n = 208$)	Social support	Family; Friends; Significant others; Unit members	74	35.58
	Command Leadership	--	55	26.44
	Chaplain	--	35	16.83
	Behavioral Health Professionals	Counselors; Psychologists; Military mental health resources	22	10.58
	Other	VA; Don't remember	17	8.17
	Non-Military Resources	Email/Internet communication; NCIS investigators; Civilian clergy	7	3.37
	No One	--	56	26.92

Note.

a. -- denotes code and response match

Table 19. Helpful and unhelpful postvention (N = 328)

Item	Response Code	Response Examples	N	valid % ^a
<i>What have you found to be the most helpful in the aftermath of the suicide?</i> (n = 205)	Individual Action	Talking to others; Behavioral coping mechanisms (exercise, substance use); Keeping busy	126	61.46
	Active Postvention	Chaplain; Counselors; Suicide prevention briefs/courses	16	7.80
	Withdrawal/Avoidance	Avoid thinking about it; Not talking about it; Ignoring it	10	4.88
	Nothing	--	21	10.24
	Other	Moping; Social media; Time	39	19.02
<i>What have you found to be the least helpful in the aftermath of the suicide?</i> (n = 182)	Individual Action	Talking to others; Behavioral coping mechanisms (exercise, substance use); Keeping busy	41	22.53
	Active Postvention	Chaplain; Counselors; Suicide prevention briefs/courses	28	15.38
	Withdrawal/Avoidance	Avoid thinking about it; Not talking about it; Ignoring it	16	8.79
	Nothing	--	26	14.29
	Other	Moping; Social media; Time	78	42.86

Note.

a. -- denotes code and response match

Table 20. Recommendations from military unit suicide survivors

Recommendation	Description	Response Examples
Open Discussion	Provide as many details of suicide as possible; Discuss the event; Talk openly; Discuss the good times and not just the suicide death	<i>“Open talking forums, small groups”; “Being open with as much details as possible to answer questions while still maintaining correct privacy of the individual”</i>
Reduce Stigma	Encourage talking about emotions; Do not minimize suicide	<i>“Stop the stigma before it starts. I can't count the number of times I heard people over the years minimize suicide, call it cowardly/weak, complain”</i>
Increased Unit Involvement	Encourage unit to support each other	<i>“Get the unit involved”; “Anything to reinforce the bond of being “needed” and valued. And that nothing is so bad that a positive turn cannot be made in a person's circumstances”</i>
Increased Acknowledgment of Loss	Acknowledge the need for suicide loss survivors to heal	<i>“Everyone will react differently... But that needs to be allowed and supported to do so, and come to terms with the events”</i>
Increased Services Offered	Increase support systems/services availability; Support/services to all affected military members; Offer non-military counseling; Confidential counseling; Individual attention to loss survivors; Offer support/services to decedent's family; Chaplain visits; Mandatory 1:1 sessions' Meetings guided by mental health professional for unit; Group counseling	<i>“Make support readily available - often times people won't go out of their way to seek out help”; “Have an informal unit meeting during which people can discuss their feelings... Maybe guided by a mental health professional”; “There should be more professional help available. While deployed we never had the chance for interacting with one”</i>
Increased Follow-Up	Long-term focused actions; Continued follow up with suicide loss survivors	<i>“Follow up, people don't always recognize that they need help immediately”</i>
Increased Prevention Efforts	Improve suicide prevention efforts	<i>“It's better to prevent the suicide than responding to it”</i>
Emphasize Unit/Leadership Not Responsible	Emphasize unit members/leadership not responsible	<i>“Avoid scrutiny of command climate, rather explore the reasons the individual was suffering”</i>
Increased Postvention Training	Postvention training to leadership and mental health; Trainings	<i>“I think Jag, public affairs, and medical/mental health officers and SNCO should learn postvention best practices”</i>
Private Reporting System	Private reporting system; discussion for mental health concerns (self/others)	<i>“Allow investigating officer to file report without chain of command review/editing”</i>
Time Off	Allow suicide loss survivors time off from work	<i>“An understanding of the work place environment and the coworkers need time to grieve and reflect. The leader should provide a rotating day off amongst the work space”</i>

Table 20. Recommendations from military unit suicide survivors continued

Recommendation	Description	Response Examples
Increased Selectivity	Increase selectivity during MEPs	<i>“My advice is for the military to screen for instability at MEPs”; “Actually screen civilians considering entering the military instead of that joke of a screening at MEPS”</i>
Increased Outreach from Leadership	Increased outreach/interaction from leadership	<i>“More leadership-driven outreach and interaction”</i>
No Forced Services	No mandatory debriefings, meetings, or participation in services	<i>“Don't force debriefings on people who don't want to be there”</i>
Less War	Less war	<i>“ Stop going to war unnecessarily and compromising generations of young people”</i>
Personalized Notification	Personalize announcement of death, do not email	<i>“Don't notify the unit by email. Have a Commanders call... tell people in person”</i>
Decreased Investigation Time	Quickly completed investigation	<i>“Do the investigation immediately and be done with it”</i>
Increased Follow-Up Research	Climate survey following death	<i>“Conduct a climate survey immediately”</i>
Decreased Follow-Up Research	Reduce surveys distributed	<i>“Stop sending out a billion surveys so people can perform a data-capture and talk half-intelligently about it in front of congress”</i>
Increased Regulation of Suicidal Service Members	Heavier regulation of flagged suicidal service members	<i>“Heavier regulations on restricting travel of flagged suicidal service members”</i>
Other	Recognize suicide as shameful behavior	<i>“No military honors, take care of the family, but this needs to be considered a shameful behavior”</i>

Table 21. ANCOVA of GEQ-suicide by level of perceived closeness

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>Partial η^2</i>
Marital status	6.66	2	3.33	.04	.965	.00
Age	.88	1	.88	.01	.923	.00
Gender	83.43	1	83.43	.89	.349	.01
Education	769.03	1	769.03	8.16	.005	.06
Rank	9.87	1	9.87	.11	.747	.00
Lifetime trauma types	91.64	1	91.64	.97	.326	.01
Lifetime suicide exposure	29.14	1	29.14	.31	.579	.00
Lifetime death exposure	67.58	1	67.58	.72	.399	.01
Closeness	937.54	3	312.51	3.32	.022	.07
Error	12442.25	132	94.26			

<i>Closeness level</i>	<i>n</i>	<i>Unadjusted Mean^c</i>	<i>SD</i>	<i>n</i>	<i>Adj. Mean^d</i>	<i>SE</i>
Not close at all	30	25.55	11.62	17	28.13	2.65
Not particularly close	65	25.71	7.59	36	26.61	1.85
Somewhat close	130	33.00	10.48	63	29.32	1.43
Extremely close	58	37.75	12.68	29	34.75	2.09

a. $R^2 = .233$ (*adj. $R^2 = .163$*)

b. Levene's = .263

c. Scores can range from 16 to 40

Table 22. ANCOVA for GEQ-suicide for suicide alone and both exposed groups

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>Partial η^2</i>
Marital status	55.03	2	27.52	.28	.757	.00
Age	3.74	1	3.74	.04	.846	.00
Gender	24.59	1	24.59	.25	.618	.00
Education	929.99	1	929.99	9.44	.003	.06
Rank	125.39	1	125.39	1.27	.261	.01
Lifetime trauma types	65.06	1	65.06	.66	.418	.01
Lifetime suicide exposure	8.65	1	8.65	.09	.767	.00
Lifetime death exposure	185.62	1	185.62	1.88	.172	.01
Group	.77	1	.77	.01	.930	.00
Error	13598.98	138	98.54			

<i>Group</i>	<i>n</i>	<i>Unadjusted Mean^c</i>	<i>SD</i>	<i>n</i>	<i>Adj. Mean^c</i>	<i>SE</i>
Suicide Alone	71	28.55	9.85	45	29.63	1.72
Both Exposed	217	32.51	11.70	104	29.80	1.25

Notes.

a. $R^2 = .190$ (*adj. $R^2 = .131$*)

b. Levene's = .665

c. Scores can range from 16 to 40

Table 23. ANCOVA for GEQs for suicide alone and death alone groups

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	<i>Partial η^2</i>
Marital status	64.33	2	32.17	.40	.671	.01
Age	.23	1	.23	.00	.958	.00
Gender	52.35	1	52.35	.65	.421	.00
Education	990.29	1	990.29	12.32	.001	.07
Rank	1.08	1	1.08	.01	.908	.00
Lifetime trauma types	1726.55	1	1726.55	21.48	.000	.11
Lifetime suicide exposure	74.49	1	74.49	.93	.337	.01
Lifetime death exposure	12.67	1	12.67	.16	.692	.00
Group	458.20	1	458.20	5.70	.018	.03
Error	13743.03	171	80.37			

<i>Group</i>	<i>n</i>	<i>Unadjusted Mean^c</i>	<i>SD</i>	<i>n</i>	<i>Adj. Mean^c</i>	<i>SE</i>
Suicide Alone	71	28.55	9.85	45	30.20	1.67
Death Alone	217	27.15	10.37	137	26.08	1.06

Notes.

a. $R^2 = .228$ (adj. $R^2 = .183$)

b. Levene's = .499

c. Scores can range from 16 to 40

Table 24. Multiple regression for active service ($n = 66$) vs. veterans ($n = 70$) on BSI-18

	<u>Active Service</u>			<u>Veterans/Retirees</u>		
	$F(17, 48) = 3.04^{**}$			$F(12, 52) = 2.36^{**}$		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Marital status						
Never married	-.15	3.69	-.01	-1.33	6.23	-.03
Previously married	-6.64	4.22	-.17	5.51	3.14	.21
Education	-2.56	2.23	-.19	-.87	2.06	-.07
Lifetime trauma types	1.33*	.53	.30*	1.16*	.52	.29*
Lifetime suicide exposure	1.42	1.00	.16	-.33	.60	-.07
Lifetime death exposure	.45	.40	.15	.27	.29	.12
Age	-.09	.17	-.08	-.18	.12	-.23
Gender	.70	2.67	.03	1.08	6.93	.02
Rank						
Senior officer (O4-O9)	-7.02	4.83	-.32	-8.15	4.31	-.26
Junior officer/warrant (W1-O3)	-8.10	4.48	-.35	-4.26	5.40	-.11
Senior NCO (E7-E9)	-10.24*	4.66	-.36*	2.46	3.87	.08
Junior enlisted (E1-E3)	-10.30	6.87	-.17	8.52	6.11	.19
Perceived closeness	-3.62*	1.60	-.29*	-1.52	1.55	-.13
Time since death	.40	1.56	.05	-.48	1.67	-.05
Time since worked together	2.84*	1.19	.30*	.18	1.47	.02
Time since last contact	-.78	1.43	-.10	.71	1.39	.08
Unit social support	-.34**	.12	-.36**	-.16	.15	-.13
R^2	.519	.436				
<i>Adj. R²</i>	.348	.251				

Notes.

a. * $p < .05$; ** $p < .01$; *** $p < .001$

b. NCO = noncommissioned officer

c. Married was reference group for marital status; NCO (E4-E6) was reference group for rank

Table 25. Multiple regression for active service ($n = 67$) vs. veterans ($n = 69$) on GEQ-suicide

	<u>Active Service</u>			<u>Veterans/Retirees</u>		
	$F(17, 49) = 2.26^*$			$F(17, 51) = 1.46$		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Marital status						
Never married	-3.72	3.03	-.18	-1.44	7.03	-.03
Previously married	-1.91	3.47	-.06	2.38	3.68	.08
Education	-2.17	1.77	-.22	-.59	2.32	-.05
Lifetime trauma types	.01	.43	.00	.01	.57	.00
Lifetime suicide exposure	1.17	.79	.18	.00	.68	.00
Lifetime death exposure	.30	.32	.13	.24	.33	.10
Age	.10	.14	.12	-.16	.13	-.20
Gender	2.58	2.13	.16	-.53	7.80	-.01
Rank						
Senior officer (O4-O9)	2.74	3.93	.17	-5.48	4.88	-.17
Junior officer/warrant (W1-O3)	-.31	3.64	-.02	-6.36	6.14	-.16
Senior NCO (E7-E9)	-5.91	3.82	-.28	1.66	4.29	.05
Junior enlisted (E1-E3)	-8.65	5.65	-.19	15.75*	6.78	.34*
Perceived closeness	3.51*	1.31	.38*	1.57	1.75	.13
Time since death	1.09	1.27	.16	.15	1.93	.01
Time since worked together	.45	.94	.06	-.30	1.65	-.03
Time since last contact	-3.60**	1.18	-.61**	.48	1.60	.05
Unit social support	-.10	.09	-.15	-.11	.17	-.09
R^2	.440	.327				
<i>Adj. R</i> ²	.245	.102				

Notes.

a. * $p < .05$; ** $p < .01$; *** $p < .001$

b. NCO = noncommissioned officer

c. Married was reference group for marital status; NCO (E4-E6) was reference group for rank

Table 26. Multiple regression for active service ($n = 66$) vs. veterans ($n = 68$) on FIS total

	<u>Active Service</u>			<u>Veterans/Retirees</u>		
	$F(17, 48) = 3.35^{**}$			$F(17, 50) = 2.17^*$		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Marital status						
Never married	.69	3.46	.03	-2.05	6.35	-.04
Previously married	-5.60	3.95	-.15	.29	2.90	.01
Education	-4.15	2.09	-.33	.03	1.91	.00
Lifetime trauma types	1.18*	.49	.28*	1.27*	.49	.35*
Lifetime suicide exposure	-.05	.94	-.01	-.86	.56	-.20
Lifetime death exposure	.11	.38	.04	.53	.27	.26
Age	.36*	.16	.35*	.02	.11	.03
Gender	2.56	2.50	.12	-2.66	6.38	-.05
Rank						
Senior officer (O4-O9)	-6.99	4.52	-.34	-5.68	4.01	-.20
Junior officer/warrant (W1-O3)	-6.37	4.20	-.29	-.51	5.05	-.01
Senior NCO (E7-E9)	-13.04**	4.36	-.47**	-.11	3.54	.00
Junior enlisted (E1-E3)	-16.20*	6.43	-.28*	6.87	5.59	.17
Perceived closeness	-1.76	1.50	-.15	-.12	1.43	-.01
Time since death	.39	1.46	.05	1.14	1.61	.12
Time since worked together	2.26*	1.12	.25*	-2.92*	1.42	-.31*
Time since last contact	-.88	1.34	-.12	-1.20	1.29	-.14
Unit social support	-.44***	.11	-.48***	-.13	.14	-.11
R^2	.542	.424				
<i>Adj. R²</i>	.380	.228				

Notes.

a. * $p < .05$; ** $p < .01$; *** $p < .001$

b. NCO = noncommissioned officer

c. Married was reference group for marital status; NCO (E4-E6) was reference group for rank

Table 27. Comparison of included versus not included participants

<i>Demographic</i>	<i>Included in analyses n (%)^a</i>	<i>Not Included n (%)^a</i>	<i>Sig.</i>
Age	<i>n</i> = 295	<i>n</i> = 1184	
Mean (SD)	51.87 (16.22)	54.50 (19.21)	<i>p</i> = .017
Gender	<i>n</i> = 295	<i>n</i> = 1219	
Male	254 (86.1)	1102 (90.4)	<i>p</i> = .034 ^b
Female	41 (13.9)	117 (9.6)	
Marital status	<i>n</i> = 295	<i>n</i> = 1201	
Never married	27 (9.1)	223 (18.6)	<i>p</i> < .001
Married	214 (72.5)	761 (63.4)	
Previously married	54 (18.3)	217 (18.1)	
Level of education	<i>n</i> = 295	<i>n</i> = 1195	
HS/GED	25 (8.5)	270 (22.6)	
Some college	72 (24.4)	414 (34.6)	
2- or 4-year degree	110 (37.3)	337 (28.2)	
Postsecondary	88 (29.8)	174 (14.6)	
Duty status	<i>n</i> = 288	<i>n</i> = 1083	
Active service	96 (33.3)	257 (23.7)	<i>p</i> < .001
Veteran/retiree	192 (66.7)	826 (76.2)	
Time in service	<i>n</i> = 282	<i>n</i> = 1089	
Mean (SD)	13.75 (8.68)	9.36 (8.55)	<i>p</i> < .001
Rank	<i>n</i> = 295	<i>n</i> = 1115	
E1-E3	15 (5.1)	116 (10.4)	<i>p</i> < .001
E4-E6	132 (44.7)	622 (55.8)	
E7-E9	45 (15.3)	142 (12.7)	
W1-O3	43 (14.6)	118 (10.6)	
O4-O9	60 (20.3)	67 (6.0)	

Note.

a. Percentages are within group (Included or Not Included)

b. Fisher's exact test

Table 27. Comparison of included versus not included participants continued

<i>Measure</i>	<i>Included in analyses n (%)</i>	<i>Not Included n (%)</i>	<i>Sig.^c</i>
LEC-5	<i>n</i> = 295	<i>n</i> = 1184	
Mean (SD)	4.43 (2.87)	3.57 (2.78)	<i>p</i> < .001
Lifetime suicide exposure	<i>n</i> = 295	<i>n</i> = 706	
Mean (SD)	1.31 (1.66)	1.55 (2.12)	<i>p</i> = .057
Lifetime death exposure	<i>n</i> = 295	<i>n</i> = 829	
Mean (SD)	6.09 (5.52)	5.59 (7.06)	<i>p</i> = .277
GEQ-suicide	<i>n</i> = 148	<i>n</i> = 148	
Mean (SD)	29.77 (10.68)	33.84 (12.22)	<i>p</i> = .002
GEQ-death	<i>n</i> = 233	<i>n</i> = 146	
Mean (SD)	26.84 (10.30)	28.22 (11.39)	<i>p</i> = .235
BSI total	<i>n</i> = 295	<i>n</i> = 548	
Mean (SD)	49.26 (11.92)	50.84 (11.85)	<i>p</i> = .065
BSI-depression	<i>n</i> = 294	<i>n</i> = 545	
Mean (SD)	50.62 (10.60)	51.73 (11.27)	<i>p</i> = .158
BSI-anxiety	<i>n</i> = 295	<i>n</i> = 549	
Mean (SD)	47.87 (10.57)	48.74 (10.80)	<i>p</i> = .258
BSI-somatization	<i>n</i> = 295	<i>n</i> = 548	
Mean (SD)	50.14 (9.87)	51.38 (10.07)	<i>p</i> = .085
FIS total	<i>n</i> = 288	<i>n</i> = 521	
Mean (SD)	24.32 (11.08)	24.40 (10.35)	<i>p</i> = .910
FIS-physical	<i>n</i> = 293	<i>n</i> = 564	
Mean (SD)	4.84 (2.71)	5.18 (2.65)	<i>p</i> = .081
FIS-occupational	<i>n</i> = 288	<i>n</i> = 556	
Mean (SD)	9.78 (5.35)	10.27 (5.35)	<i>p</i> = .201
FIS-social	<i>n</i> = 285	<i>n</i> = 508	
Mean (SD)	6.72 (3.58)	6.44 (3.19)	<i>p</i> = .252
FIS-personal	<i>n</i> = 293	<i>n</i> = 525	
Mean (SD)	2.93 (1.49)	2.90 (1.50)	<i>p</i> = .791

Note.

c. When Levene's test was significant, significance for equal variances not assumed is provided.

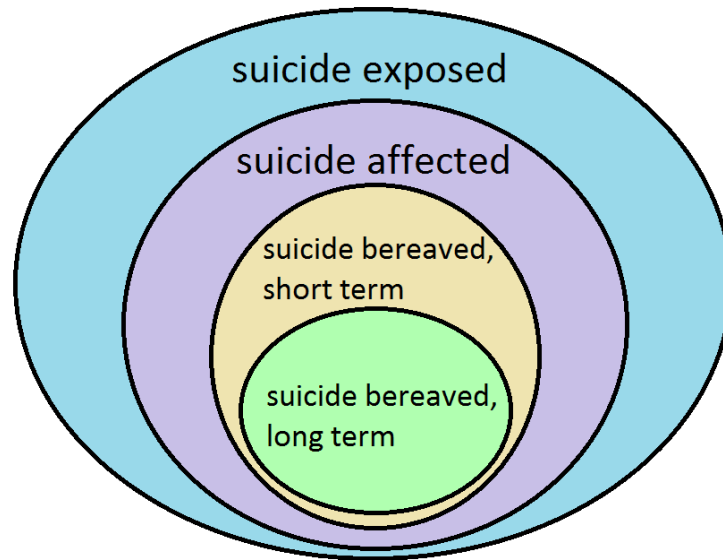


Figure 1. Cerel et al.'s (42) Nested Model of Suicide Survivorship

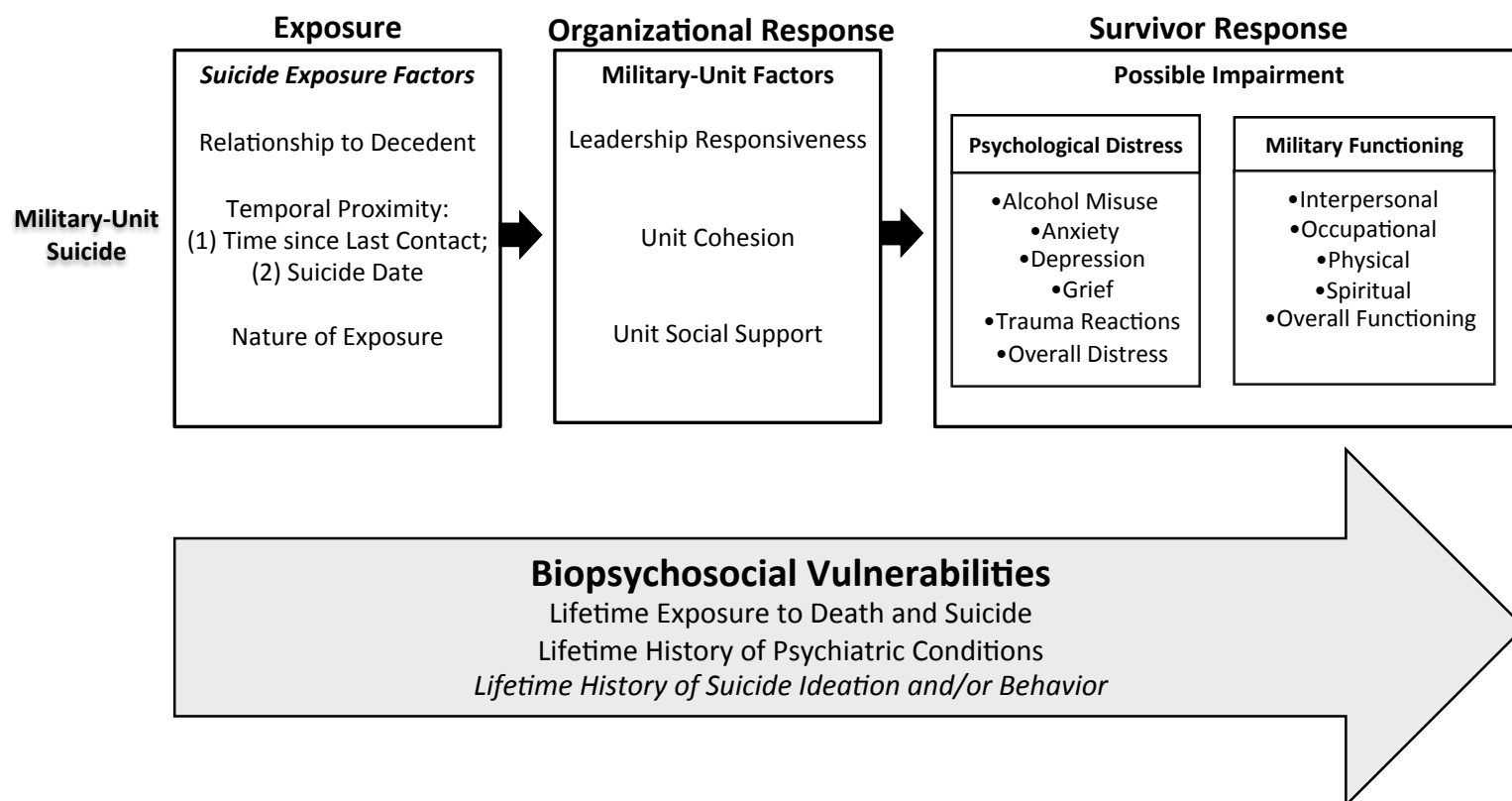


Figure 2. Conceptual model of dissertation study

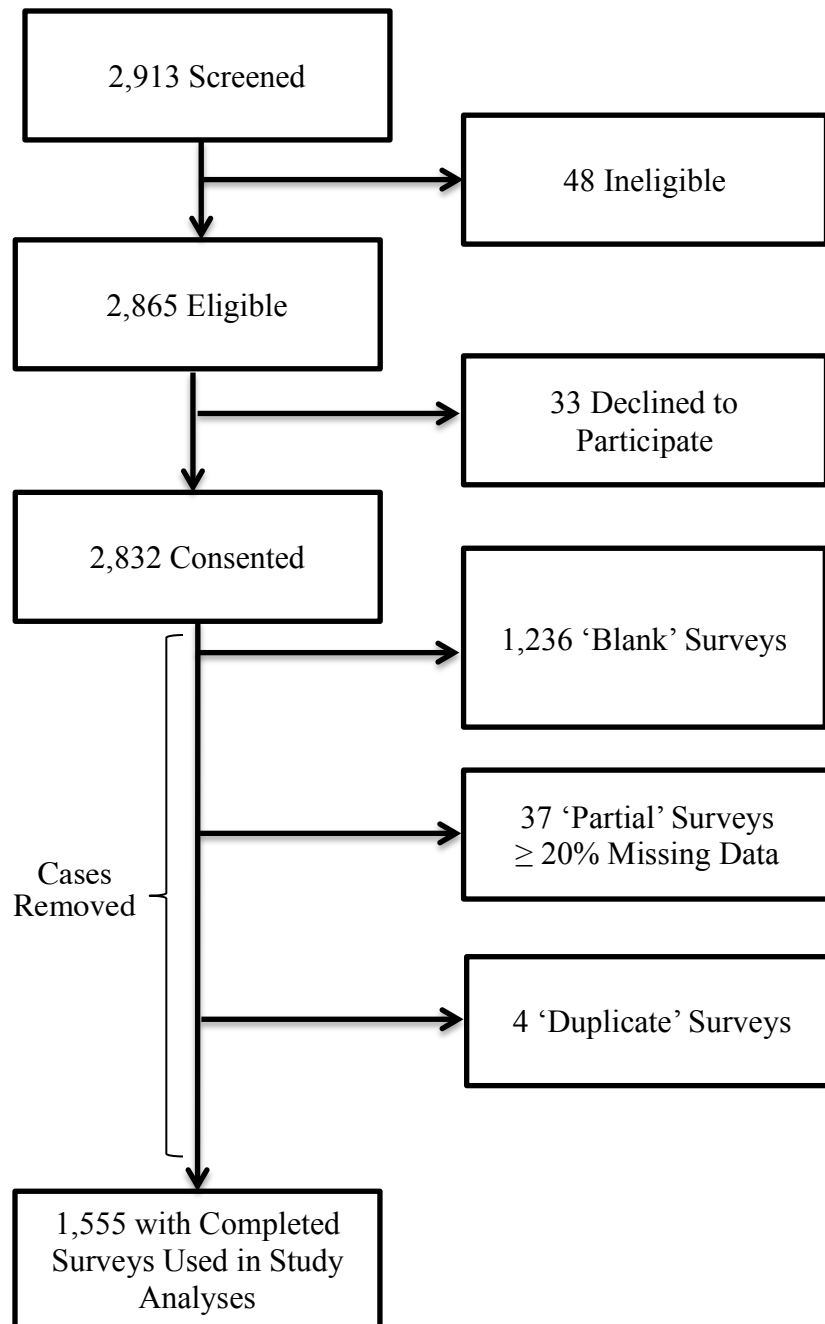


Figure 3. Overview of study participation and determination of final sample for analysis

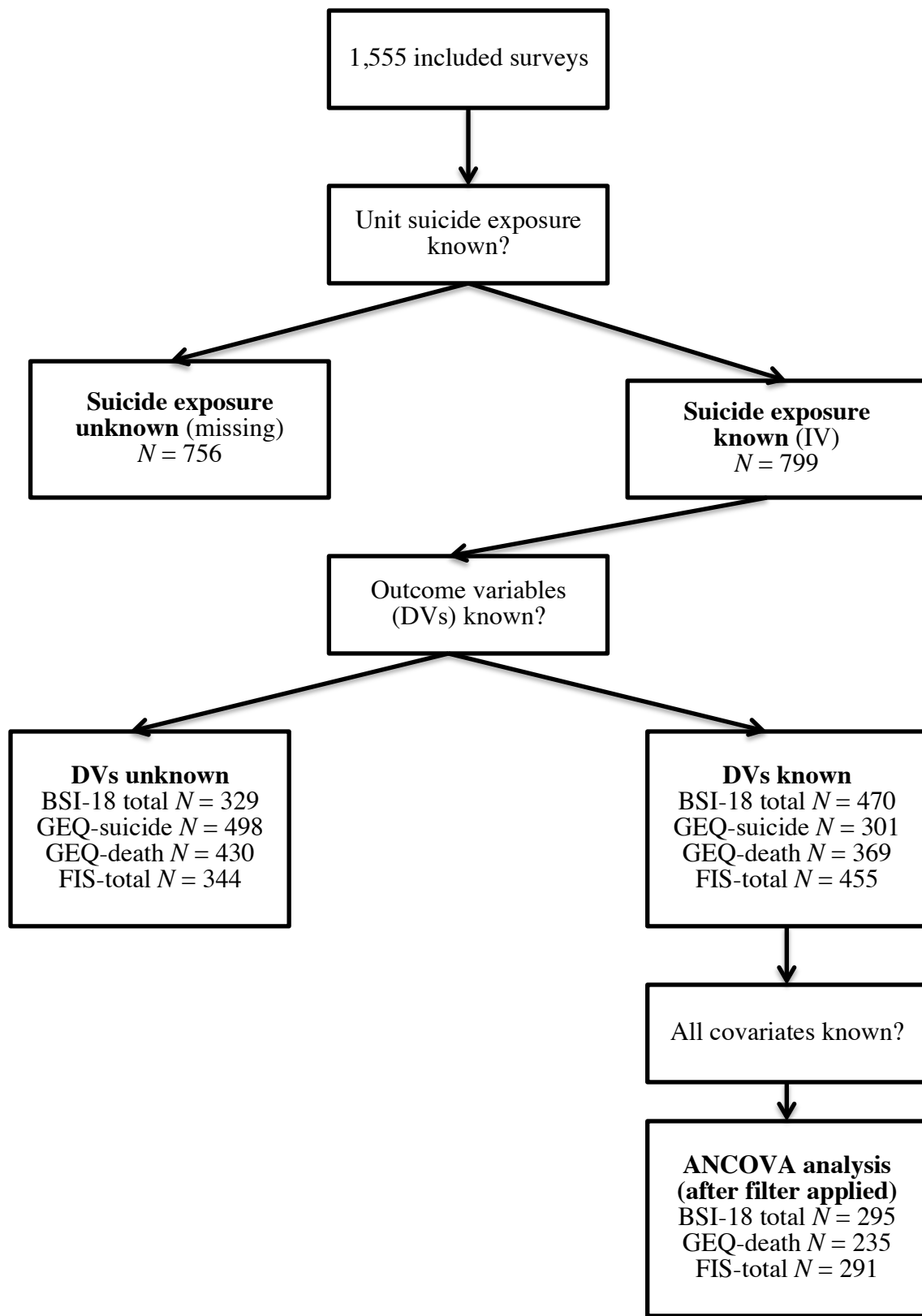


Figure 4. Flowchart of sample sizes

APPENDIX A: POSTVENTION SURVEY

Screener

*1) Are you at least 18 years of age?**

- ☐ No
☐ Yes

*2) Have you ever served in the U.S. Armed Forces (i.e., Air Force, Army, Coast Guard, Marine Corps, Navy) active duty, National Guard, or Reserves?**

- ☐ No
☐ Yes

Informed Consent

Dear Service Member and/or Veteran,

We appreciate your willingness to consider our request to participate in this study. Your responses to the following questions will help us better understand the unique reactions that service members and veterans may have following a suicide death of a past or current unit member. In the sections below, you will find information to help you choose whether or not you want to participate in this study.

Who is conducting the study?

You are being asked to participate in an anonymous online research study entitled, “Psychological Well-Being of Unit Members Post Military Suicide.” Your decision to take part is voluntary. This research is being conducted by LTJG Kyna Pak and Dr. Marjan Holloway, at Uniformed Services University of the Health Sciences (USUHS).

What is the purpose of this study?

The purpose is to learn about the responses and the well-being of service members following the suicide of a past or current unit member. We need to recruit two groups – those who have experienced the suicide of a unit member and those who have not. Ultimately, we hope to generate recommendations for the care of service members and veterans who are affected and bereaved by the suicide of a unit member.

What am I being asked to do?

Step 1. Read the information presented on this screen. If you choose to participate in the study, please check ‘I Agree’ at the bottom of this page. By selecting this option, you are electronically providing your informed consent to participate in this study.

Step 2. Respond to the questions on each page. Please try to answer all questions to the best of your ability. You may skip any questions you do not wish to answer. You have the option to stop your participation at any time.

The online questions will take approximately 25 minutes to complete.

Will my information remain private and confidential?

The responses you provide are anonymous and confidential. The information you and other participants provide will be stored in a password-protected computer and only presented in summary reports. No personally identifying information will be requested or recorded.

What are the benefits of participating in this study?

You may benefit by having an opportunity to share your perspective and experiences. Other service members may benefit from the knowledge generated through this study and the recommendations on how to best care for service members and veterans who experience a suicide death of a unit member. However, no benefit can be guaranteed. There is no financial compensation for your participation in this study.

What are the potential risks of participating in this study?

As you respond to some questions, you may experience slight discomfort due to negative thoughts and emotions. Please use your judgment and stop at any time if you are too upset to continue.

What are the resources available to me if I become distressed during my participation?

1. *Tragedy Assistance Program for Survivors (TAPS); www.taps.org; 1-800-959-TAPS (8277)*
2. *DoD/VA Suicide Prevention; www.dspo.mil; 1-800-273-8255 Press 1 (Military Crisis Line)*
3. *Military OneSource; www.militaryonesource.com; 1-800-342-9647*
4. *National Suicide Prevention Lifeline; www.suicidepreventionlifeline.org; 1-800-273-TALK (8255)*

Who do I contact in case of any questions and/or comments about the study?

You may contact LTJG Kyna Pak at (301) 295-3271 of USUHS, Bethesda, Maryland 20814 and leave a private voicemail. If you have questions about your rights as a research subject, you should call the Director of Human Research Protections Programs at USUHS at (301) 295-9534. This person is your representative and has no connection to the researchers conducting this study.

Thank you again for your time and willingness to contribute to our research.

By selecting, "I Agree," you can begin answering the study questions.

*Do you agree to participate in this study?**

- ☐ I Agree
☐ I do NOT agree to participate
-

Demographics

3) What is your gender?

- ☐ Male
- ☐ Female
- ☐ Other
- ☐ Prefer not to answer

4) What is your current marital status?

- ☐ Never married
- ☐ Married
- ☐ Separated
- ☐ Divorced
- ☐ Widowed

5) What is the highest level of education you have completed?

- ☐ High School/GED
- ☐ Some college, no degree
- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Doctoral Degree

6) What is your age? _____

7) What is your period/era of military service (mark all that apply)

- ☐ September 2001 or later
- ☐ August 1990 to August 2001 (includes Persian Gulf)
- ☐ May 1975 to July 1990
- ☐ Vietnam Era (1964 to 1975)
- ☐ February 1955 to July 1964
- ☐ Korean War (July 1950 to January 1955)
- ☐ January 1947 to June 1950
- ☐ World War II (December 1941 to December 1946)

8) Since 2008, have you deployed with the 2/7 Marines?

- ☐ No
- ☐ Yes

9) What is your ethnicity?

- ☐ Hispanic or Latino
- ☐ Non-Hispanic or non-Latino

10) With what race(s) do you identify? (Choose all that apply)

- ☐ White/Caucasian
- ☐ Black/African American
- ☐ Asian
- ☐ American Indian or Alaskan Native
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Other - Please specify: _____

11) Have you ever been diagnosed with a mental health and/or alcohol/substance use condition?

- ☐ No
☐ Yes

Military Service

12) Approximately how many years have you served in the military? _____

13) What is your current status?

- ☐ Active duty
☐ Veteran or Retired
☐ Reserves
☐ National Guard

14) What is your current military rank? If separated/retired or discharged, what was your final rank?

- ☐ E1-E3
☐ E4-E6
☐ E7-E9
☐ W1-W3
☐ W4-W5
☐ O1-O3
☐ O4-O6
☐ O7-O9
☐ Cadet/Midshipman

15) How many total deployments have you had during your time of military service?

	Number
Non-combat zone	_____
Combat zone	_____
Humanitarian	_____

16) Which BEST describes your occupation within your military unit? (most recent)

- ☐ Aircraft Aircrew (including pilots)
☐ Aircraft/Missile/Ship command and control
☐ Armored/Tank
☐ Artillery/Naval gun crew
☐ Chaplain or Ministry support
☐ Combat Engineer
☐ Communications, Signals, or Military intelligence (including linguist, electronic and human intelligence)
☐ Food preparation or Food service

- () Headquarters, Command Staff, or Administrative
 - () Infantry (including airborne, air assault, amphibious assault forces)
 - () Legal, Public Affairs, or Broadcast
 - () Logistics (including acquisition, supply or personnel transportation, storage, or distribution)
 - () Maintenance or repair - computers or electronics
 - () Maintenance or repair - ship, aircraft, missile, or space systems
 - () Maintenance or repair - vehicles
 - () Maintenance or repair - other
 - () Medical, Dental, Behavioral health, or Other healthcare
 - () Recruitment
 - () Reconnaissance, Surveillance, or Target acquisition
 - () Security Forces, Military police, Maritime enforcement/rescue
 - () Special Operations or Special Warfare
 - () Training/Education (including instructor or training support)
 - () Other
-

Loss

17) During your lifetime, how many (number) of the following categories of death personally affected you?

Suicide death, close family member: _____

Suicide death, non-military friend: _____

Suicide death, non-military other (specify): _____

Non-suicide death, close family member: _____

Non-suicide death, non-military friend: _____

Non-suicide death, non-military other (specify): _____

18) During your lifetime, have you experienced the death of any military service member or veteran with whom you have served in the same unit?

Please note that this question applies to any current or former fellow unit member who has died for any reason (suicide or non-suicide), and can apply to a death that occurred during or after ending military service.

☐ No

☐ Yes

19) What is your branch of service? (if separated, choose the longest served)

☐ Air Force

☐ Army

☐ Coast Guard

☐ Marine Corps

☐ National Guard

☐ Navy

20) Approximately how many unit member suicide deaths have personally affected you? _____

21) Approximately how many unit member non-suicide deaths have personally affected you? _____

Relationship: Suicide

22) Please rate how close you personally felt to the service member who died by suicide.

- ☐ Not close at all ☐ Not particularly close ☐ Somewhat close ☐ Extremely close

23) How would you characterize your professional relationship with the service member who died by suicide?

- ☐ I was their subordinate
☐ They were my peer
☐ I was their supervisor

24) What branch of service were you in when you served together?

- ☐ Air Force
☐ Army
☐ Coast Guard
☐ Marine Corps
☐ Navy
☐ National Guard

25) What type of unit was this?

- ☐ Conventional
☐ Special Operations
☐ Other - Write In: _____

26) What was the smallest unit/element size you worked with the service member who died by suicide?

- ☐ 4 people or fewer (e.g., fireteam)
☐ 5 to 10 people (e.g., Staff, squad, element, work center, naval division)
☐ 11 to 50 people (e.g., platoon, naval division or department, flight)
☐ 51 to 100 people (e.g., company, naval department, flight/squadron)
☐ All larger units (greater than 100 people)

27) Which of the following best describes your relationship with this service member? (check all that apply)

- ☐ We interacted in a professional context (e.g., legal, medical, religious support)
☐ We worked together
☐ We deployed together
☐ We socialized outside of work
☐ We had a sexual/romantic relationship
☐ We lived together
☐ We supported each other as friends
☐ We were family members or became family members over time
☐ Other - Write In: _____

28) How did you first learn about the death?

- ☐ Witnessed the death
☐ Discovered the body
☐ Was informed by other unit members
☐ Was informed by leadership
☐ Was informed by a friend or family member of deceased
☐ Was informed by other: _____

() Discovered the death through social media

() Learned about the death through other means - Write In: _____

29) What were immediate reactions (within a few days/weeks) after this person's death?

How did you feel?: _____

What did you do?: _____

What did you think?: _____

What were your bodily reactions?: _____

30) Approximately how long has it been since:

	Less than 1 month	1 month to 1 year	1-3 years	4-6 years	More than 6 years
This service member's death?					
You worked with this service member?					
You last had contact this service member?					

Reaction to Suicide (GEQ-suicide)

31) How frequently have you experienced any of these reactions since the suicide of _____ ?

	Never	Rarely	Sometimes	Often	Almost Always
Trembling, shaking, or twitching	()	()	()	()	()
Light-headedness, dizziness, or fainting	()	()	()	()	()
Question why the person had to die	()	()	()	()	()
Think that the person's time to die had not yet come	()	()	()	()	()
Feel like no one cared to listen to you	()	()	()	()	()
Feel like a social outcast	()	()	()	()	()
Feel like others may have blamed you for the death	()	()	()	()	()
Think of times before the death when you could	()	()	()	()	()

have made the person's life more pleasant					
---	--	--	--	--	--

Reaction to Suicide (GEQ-suicide cont.)

32) How frequently have you experienced any of these reactions since the suicide of _____?

	Never	Rarely	Sometimes	Often	Almost Always
Feel like there was something very important you wanted to make up to the person	()	()	()	()	()
Feel that, had you somehow been a different person, the person would not have died	()	()	()	()	()
Avoid talking about the death of the person	()	()	()	()	()
Feel uncomfortable revealing the cause of the death	()	()	()	()	()
Feel that the person never considered what the death might do to you	()	()	()	()	()

Worry that you might harm yourself	☐	☐	☐	☐	☐
Think of ending your own life	☐	☐	☐	☐	☐
Wonder about the person's motivation for not living longer	☐	☐	☐	☐	☐

Postvention

33) Describe all the individuals who came and spoke with you. Also describe if you reached out to any services/support afterward and how effective you felt the services/support they offered was.

34) Who offered services/support following the suicide death of your fellow unit member? Which of these services do you think would have been helpful (check all that apply):

	Offered	Needed
Leadership spoke to the group	☐	☐
Leadership spoke individually to members	☐	☐
Chaplain spoke to group	☐	☐
Chaplain spoke individually	☐	☐
Behavioral Health/Psych spoke informally	☐	☐
Behavioral Health/Psych formal assistance	☐	☐
Specialized military rapid response/crisis team	☐	☐
Peers spoke with each other	☐	☐
Non-military organization	☐	☐

35) How important is religion or spirituality in your life?

☐ Not at all important ☐ Somewhat important ☐ Important ☐ Very important

36) What kinds of coping strategies did you use to make it through the suicide and its aftermath? (check all that apply)

- ☐ Focused on other things (e.g., work, family)
- ☐ Distracted self (e.g., TV, video games)
- ☐ Tried to see the 'silver lining'
- ☐ Prayed
- ☐ Talked to a friend or family member
- ☐ Talked to a professional (e.g., counselor, medical)

- ☐ Talked to a religious community leader (*e.g.*, chaplain, priest)
- ☐ Used psychiatric medication(s)
- ☐ Used more alcohol
- ☐ Used other substance(s)
- ☐ Overate
- ☐ Overslept

37) What have you found to be the most helpful in the aftermath of the suicide?

38) What have you found to be the least helpful in the aftermath of the suicide?

39) If you have any recommendations for how the military can better meet the needs of service members when their fellow unit member dies by suicide, please provide these recommendations below.

Relationship: Non-suicide

40) Please rate how close you personally felt to the service member who died.

- ☐ Not close at all ☐ Not particularly close ☐ Somewhat close ☐ Extremely close

41) How would you characterize your professional relationship with the service member who died?

- ☐ I was the person's subordinate
☐ I was the person's peer
☐ I was the person's supervisor

42) What branch of service were you in when you served together?

- ☐ Air Force
☐ Army
☐ Coast Guard
☐ Marine Corps
☐ Navy
☐ National Guard

43) What type of unit was this?

- ☐ Conventional
☐ Special Operations
☐ Other - Write In: _____

44) What was the smallest unit/element size you worked together?

- ☐ 4 people or fewer (e.g., fireteam)
☐ 5 to 10 people (e.g., Staff, squad, element, work center, naval division)
☐ 11 to 50 people (e.g., platoon, naval division or department, flight)
☐ 51 to 100 people (e.g., company, naval department, flight/squadron)
☐ All larger units (greater than 100 people)

45) Which of the following best describes your relationship with this service member? (check all that apply)

- ☐ We interacted in a professional context (e.g., legal, medical, religious support)
☐ We worked together
☐ We deployed together
☐ We socialized outside of work
☐ We had a sexual/romantic relationship
☐ We lived together
☐ We supported each other as friends
☐ We were family members or became family members over time
☐ Other - Write In: _____

46) How did you first learn about the death?

- ☐ Witnessed the death
☐ Discovered the body
☐ Was informed by other unit members
☐ Was informed by leadership
☐ Was informed by a friend or family member of deceased
☐ Was informed by other: _____
☐ Discovered the death through social media

() Learned about the death through other means - Write In: _____

47) What were immediate reactions (within a few days/weeks) after this person's death?

How did you feel?: _____

What did you do?: _____

What did you think?: _____

What were your bodily reactions?: _____

48) Approximately how long has it been since:

	Less than 1 month	1 month to 1 year	1-3 years	4-6 years	More than 6 years
This service member's death?					
You worked with this service member?					
You last had contact this service member?					

Reaction to unit death (GEQ-death)

49) How frequently have you experienced any of these reactions since the death of _____?

	Never	Rarely	Sometimes	Often	Almost Always
Trembling, shaking, or twitching	()	()	()	()	()
Light-headedness, dizziness, or fainting	()	()	()	()	()
Question why the person had to die	()	()	()	()	()
Think that the person's time to die had not yet come	()	()	()	()	()
Feel like no one cared to listen to you	()	()	()	()	()
Feel like a social outcast	()	()	()	()	()
Feel like others may have blamed you for the death	()	()	()	()	()
Think of times before the death when you could	()	()	()	()	()

have made the person's life more pleasant					
---	--	--	--	--	--

Reaction to unit death (GEQ-death cont.)

50) How frequently have you experienced any of these reactions since the death of _____?

	Never	Rarely	Sometimes	Often	Almost Always
Feel like there was something very important you wanted to make up to the person	()	()	()	()	()
Feel that, had you somehow been a different person, the person would not have died	()	()	()	()	()
Avoid talking about the death of the person	()	()	()	()	()
Feel uncomfortable revealing the cause of the death	()	()	()	()	()
Feel that the person never considered what the death might do to you	()	()	()	()	()

Worry that you might harm yourself	()	()	()	()	()
Think of ending your own life	()	()	()	()	()
Wonder about the person's motivation for not living longer	()	()	()	()	()

Unit Closeness (DRRI-2:J)

51) The statements below are about your relationships with other military personnel. As used in these statements, the term "unit" refers to those you lived and worked with on a daily basis. Please mark how much you agree or disagree with each statement.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My unit was like family to me	()	()	()	()	()
People in my unit were trustworthy	()	()	()	()	()
My fellow unit members appreciated my efforts	()	()	()	()	()
I felt valued by my fellow unit members	()	()	()	()	()
Members of my unit were interested in my well-being	()	()	()	()	()
My fellow unit members were interested in what I thought and how I	()	()	()	()	()

felt about things					
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Unit Closeness (cont.)

52) The statements below are about your relationships with other military personnel. As used in these statements, the term "unit" refers to those you lived and worked with on a daily basis. Please mark how much you agree or disagree with each statement.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My unit leader(s) were interested in what I thought and how I felt about things	()	()	()	()	()
I felt like my efforts really counted to the leaders in my unit	()	()	()	()	()
My service was appreciated by the leaders in my unit	()	()	()	()	()
I could go to unit leaders for help if I had a problem or concern	()	()	()	()	()

The leaders of my unit were interested in my personal welfare	()	()	()	()	()
I felt valued by the leaders of my unit	()	()	()	()	()

53) Please select which unit you were considering when answering the previous questions:

- ☐ Unit from which the suicide death occurred
- ☐ Unit from which the non-suicide death occurred
- ☐ Unit from which a suicide and non-suicide death occurred (both experienced in same unit)
- ☐ None of the above

Past week experiences (BSI-18)

54) How often in the past week have you felt the following symptoms:

	Not at all	A little of the time	Half of the time	Most of the time	All the time
Faintness or dizziness	()	()	()	()	()
Feeling no interest in things	()	()	()	()	()
Nervousness or shakiness inside	()	()	()	()	()
Pains in heart or chest	()	()	()	()	()
Feeling lonely	()	()	()	()	()
Feeling tense or keyed up	()	()	()	()	()
Nausea or upset stomach	()	()	()	()	()
Feeling blue	()	()	()	()	()
Suddenly scared for no reason	()	()	()	()	()

Past week experiences (BSI-18 cont.)

55) How often in the past week have you felt the following symptoms:

	Not at all	A little of the time	Half of the time	Most of the time	All the time

Trouble getting your breath	()	()	()	()	()
Feeling of worthlessness	()	()	()	()	()
Spells of terror or panic	()	()	()	()	()
Numbness or tingling in parts of your body	()	()	()	()	()
Feeling hopeless about the future	()	()	()	()	()
Feeling so restless you couldn't sit still	()	()	()	()	()
Feeling weak in parts of your body	()	()	()	()	()
Thoughts of ending your life	()	()	()	()	()
Feeling fearful	()	()	()	()	()

Functioning (FIS)

56) How much difficulty do you currently have with the following:

	No difficulty at all	A little difficulty	Moderate difficulty	Quite a bit of difficulty	Extreme difficulty
Your ability to do PT	()	()	()	()	()
Your ability to carry heavy loads	()	()	()	()	()
Your overall work performance	()	()	()	()	()
The accuracy of your work	()	()	()	()	()
The quality of your work	()	()	()	()	()
Your ability to complete assigned tasks	()	()	()	()	()
Your ability to multi-task	()	()	()	()	()

Functioning (FIS cont.)

57) How much difficulty do you currently have with the following:

	No difficulty at all	A little difficulty	Moderate difficulty	Quite a bit of difficulty	Extreme difficulty
Your problem	()	()	()	()	()

solving at work					
Your ability to get along with your coworkers	()	()	()	()	()
Your ability to interact with social groups (church, sports, clubs)	()	()	()	()	()
Your ability to get along with family or friends	()	()	()	()	()
Your ability to have a close relationship (e.g., spouse, girlfriend/boyfriend)	()	()	()	()	()
Your ability to handle personal responsibilities (e.g., maintaining the car, keeping appointments, running errands)	()	()	()	()	()
Your ability to get your bills paid on time	()	()	()	()	()

Traumatic events (LEC-5)

58) Serious accident at work, home, or during recreational activity

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

59) Fire or explosion

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

60) Transportation accident (for example, car accident, boat accident, train wreck, plane crash)

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

61) Exposure to toxic substance (for example, dangerous chemicals, radiation)

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

62) Physical assault (for example, being attacked, hit, slapped, kicked, beaten)

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

63) Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

64) Sexual assault (for example, rape, attempted rape, made to perform any type of sexual act through force or threat of harm)

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

65) Life-threatening illness or injury

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

66) Combat or exposure to a war-zone (in the military or as a civilian)

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

67) Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

68) Severe human suffering

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

69) Sudden violent death (for example, homicide, suicide)

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

70) Sudden accidental death

- ☐ Happened to me
- ☐ Witnessed it

- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

71) Serious injury, harm, or death you caused to someone else

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

72) Any other very stressful event or experience

- ☐ Happened to me
- ☐ Witnessed it
- ☐ Learned about it
- ☐ Part of my job
- ☐ Not sure
- ☐ Doesn't apply

Beliefs about military/veteran suicide

73) People who attempt suicide shouldn't be eligible for promotion or leadership billets.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

74) Admitting thoughts of suicide should NOT harm someone's career.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

75) Those who attempt suicide just want attention.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

76) Only cowards commit suicide.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

77) A service member who attempts suicide requires help and support from the military unit as well as leadership.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

78) Suicide hurts unit functioning.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

79) People who attempt suicide would benefit from support from their unit members.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

80) Suicide is not acceptable to my religious beliefs.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

81) Choosing suicide is morally wrong.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

Survey conclusion

82) Thank you for completing the survey. Many of the questions you answered were personal and could have elicited some painful memories. Some find answering questions about a personal experience, even a painful one, to be helpful to them. We would like to know if at the conclusion of this survey, you feel any differently than before.

Please rate how you are feeling now at the completion of the survey:

☐ Much worse ☐ Somewhat worse ☐ Neutral/same ☐ Somewhat better ☐ Much better

83) If you wish to elaborate on the above question, please use the space below.

Thank You!

APPENDIX B: RECRUITMENT FLYER



VOLUNTEERS WANTED FOR A RESEARCH STUDY

Have you ever served in the U.S. military? Have you ever experienced the loss of a fellow unit member? If you are over the age of 18, you are eligible for our study.

We are interested to find out about your experiences following your unit member's death. The death could have happened at any time during your service or after, and may include suicide.

This is an online study which can be completed in approximately 20 minutes.

There is no financial compensation. Your responses will guide recommendations for the care of those who experience a suicide death within their military unit.

If interested, please visit the following link, or email the investigator below. Snap a photo of the flyer or QRC to access the survey at a later time:

<http://sgiz.mobi/s3/9ad9ac3981b6>



If you have any questions regarding this study, please contact:
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APPENDIX C: RECOMMENDATIONS BY PARTICIPANTS

Participants were provided an open-text field to provide their responses to the prompt below. Spelling and grammar errors are retained as they originally presented.

If you have any recommendations for how the military can better meet the needs of service members when their fellow unit member dies by suicide, please provide these recommendations below.	
1.	Stop the stigma before it starts. I can't count the number of times I heard people over the years minimize suicide, call it cowardly/weak, complain about having to watch someone, joke or complain about the inconvenience if someone's suicide inconveniences them in some way (jumping off a bridge during rush hour), etc. From day 1 in boot camp there are stories/tall tales about suicides and it's always more of a cautionary tale about "being a man" than anything useful. The culture tells you people that commit suicide are weak and were never cut out for this life and they deserve mockery and ridicule. I heard it when I enlisted and I heard it within the affected unit.
2.	Make support readily available - often times people won't go out of their way to seek out help
3.	Have An informal unit meeting during which people can discuss their feelings... Maybe guided by a mental health professional
4.	Consider the total force not just active duty. Most of these support mechanisms are on base. Not present for reserve members.
5.	I can't generalize to the needs of others on this subject. Consideration needs to be made for the individual circumstances.
6.	I believe it is important to improve unit cohesiveness through discussion of shared experiences, feelings, thoughts, and behaviors.
7.	I don't know but the actions the military seam very minimal and short term focused.
8.	Do the investigation immediately and be done with it.
9.	Do an AAR to show people that they were not the cause of the suicide
10.	No idea. During my time in the service, I personally invested a lot of time and effort in trying to prevent suicides from peers and subordinates showing high risk characteristics... The members who were successfully able to take there own lives never showed me any signs. It makes me wonder who missed their signs, if I never saw them... Someone likely did- and it was likely one of their peers/ friends outside of work.
11.	Do mandatory one on one sessions with members of unit to make them talk to someone even if they don't want to
12.	My advice is for the military to screen for instability at MEPs
13.	it's better to prevent the suicide than responding to it.
14.	No military honors, take care of the family, but this needs to be considered a shameful behavior.
15.	more leadeship-driven outreach and interaction.
16.	offer non-military related counseling to individuals (people are afraid to go to formal mental health services because they're afraid it will go on their records).
17.	There should be more professional help available. While deployed we never had the chance for interacting with one.
18.	Don't force debriefings on people who don't want to be there.
19.	open talking forums. small groups. worked well.

20.	None
21.	not make personnel be responsible for their own suicides/deaths within the unit, especially when our MOS is responsible for all mortuary affairs for the base. We get overlooked and people don't understand that we need to heal as well
22.	Follow up, people don't always recognize that they need help immediately. It could take several weeks or months. Usually someone comes in right away but no one ever comes back.
23.	Don't be afraid to say the word "suicide"
24.	Being open with as much details as possible to answer questions while still maintaining correct privacy of the individual.
25.	The suicide I was referring to was a complete shock. I believe it would have been helpful for someone to provide answers. It would be nice, if available, to be told the why or at least updated. Obviously this isn't always the case but there are a lot of unanswered questions.
26.	Get the unit involved and don't forget about the families. I thought my ship handled both suicides very well. We had SPRINT team come onboard, our CO addressed it with the affected departments/divisions first and then addressed the entire ship's crew, we had a memorial service for both incidents, and we provided psychological & spiritual support to anyone who needed it. Psychologist and Chaplains also reached out to families via CACO.
27.	We need to break down the cultural barrier of not talking about our emotions.
28.	Make sure the event is discussed
29.	1) Actually screen civilians considering entering the military instead of that joke of a screening at MEPS. Think about this: if they have theoretically screened everyone and screened them as mentally healthy, than that means military service is in itself a mediating risk for suicide, but not to the degree currently assumed without better processes. 2) Stop going to war unnecessarily and compromising generations of young people. 3) I think Jag, public affairs, and medical/mental health officers and SNCO should learn postvention best practices.
30.	Consider close unit members of the suicide victim who are no longer with the unit.
31.	There is currently no government organized support system for veterans of specific units to get together again. In the infantry, the allegiance is mostly to the battalion and company level, therefore you make most of your friends and emotional support there. Some sort of government funded reunion organization for veterans of company/battalion sized units would very likely be an effective way for veterans to reconnect, share, network, and potentially redirect suicidal thoughts / actions. I have lost count of how many members of my battalion from Iraq and Afghanistan have killed themselves since we got home from Iraq and Afghanistan but the number of suicides is quickly approaching the number of our combat KIAs. Most were not close friends, some merely acquaintances, but they all hurt and likely could have been prevented.
32.	Reaffirming our need for our brothers and sisters to talk to each other - and to recognize the sign when another is withdrawing or acting outside their normal "self". Anything to reinforce the bond of being "needed" and valued. And that nothing is so bad that a positive turn cannot be made in a person's circumstances.
33.	Do not presume personnel lack resilience and coping skills - encourage members to spend time together and work through the process as a cohesive unit
34.	None
35.	Go to the funeral. Speak open and honestly about causal factors.
36.	Access to counseling away from chaplains center or hospital. Counseling without

	others observing.
37.	Peer counseling and discussions without judgement.
38.	Talk openly about it
39.	provide as many details as allowed by law and policy
40.	Everyone will react differently. But that need to be allowed and supported to do so, and come to terms with the events
41.	I'm a believer in group counseling.
42.	Allow investigating officer to file report without chain of command review/editing. My reports were changed to remove any indication of command climate and departmental climate comments. Conduct a climate survey immediately.
43.	- OPENLY encourage everyone to talk about it, take it out of the shadows! - OPENLY reward/recognize those who have saved a battle buddy from taking their own life, it's no different than saving someone from a burning car...a Soldier would immediately be r
44.	Open forum of communication with no repercussion
45.	Talking about prevention measures; reiterating the buddy system; remember the good times and not focusing on the suicide itself in conversations about the deceased
46.	immediate offering of confidential counseling for unit members, perhaps even a mandatory counseling session for the entire unit (starting with the CO), which can lead to optional, confidential sessions with individuals afterward.
47.	send one person to talk to the unit and give resources if people want to talk more, and not force it on everyone
48.	Stop making leaders feel as if they have the secret formula to knowing a suicide is going to happen. Stop focusing on suicide awareness/prevention at a unit level and instead focus on external agencies that Marines can utilize to find support/help when they need it.
49.	Multiple Chaplain visits.
50.	Have chaplain come out to talk about suicide to members on a random basis.
51.	Celebrate their life.
52.	Listening to real live situations instead of PowerPoint presentations.
53.	It's never just immediate peers, it's prior too
54.	Too often I see units focus too much on the cause of death versus how to empathize and assist those in grief. While suicide awareness is important, after a death more emphasis needs to be placed upon those dealing with the death.
55.	Over the years, i have seen a much better and inclusive reaction by naval units to support after a suicide, and being more proactive in prevention.
56.	
57.	Our battalion seemed to "pretend" to care. It brought down moral and made us seem like we didn't matter.
58.	BETTER PREPARED CHAPLAINS AND PSYCHOLOGISTS.
59.	STFU about it and stop sending out a billion surveys so people can perform a data-capture and talk half-intelligently about it in front of congress.
60.	Talk about it with friends
61.	Be understanding that recovery will take time
62.	don't notify the unit by email. Have a Commanders call... tell people in person.
63.	There is no cookie-cutter approach to dealing with the aftermath of suicide. Each situation will be different. We as a military need to understand the importance of resilience

and identifying individuals at risk. We have been a culture of not talking about suicide until it happens. We are slowly starting to change this approach and that is promising. We should focus on substance abuse identification, as well as, PTSD for both members coming back from deployment and members in general. PTSD doesn't have to be combat related, it could be a childhood trauma that never got addressed. Bottom line, Commanders don't need to hide behind a veil of suicide secrecy. Get it out in the open, talk about it, address it, confront it; but do so compassionately. Don't degrade or berate someone who has had a suicidal thought. Sometimes those thoughts are just a knee-jerk reaction to a problem that a member hasn't got an idea on how to tackle.	
64.	Need to get affected people together more than services. The affected people help each other heal.
65.	Allow for sadness and reactions. Allow for and gently encourage 'people-connecting-to-each-other' activities.
66.	avoid scrutiny of command climate, rather explore the reasons the individual was suffering.
67.	I felt like it did not bother me because it was almost expected that someone was going to do it.
68.	An understanding of the work place environment and the coworkers need time to grieve and reflect. The leader should provide a rotating day off amongst the work space people to have a chance to grieve.
69.	If Possible, allow people some time off...
70.	Suicide prevention/awareness is lips-stick on a pig- it does nothing but perpetuate survivors guilt- why didn't I see this coming in his life?
71.	PTSD IS real and they need to develop classes once soldiers arrive back from deployment
72.	crash leadership to recognize these people the are playing with death and need help training GMT time all hands
73.	There is a distinct difference between discipline and bullying and sweeping problems under the rug. When members of the team or unit are being forced to hide emotions or concerns something is going to break. There has to be a qualified discrete discussion or reporting system in place that will provide results to concerned individuals.
74.	It might be helpful if the entire unit were talked through the grief cycle on a yearly basis.
75.	none, other than stop dwelling on such acts and trying to make a big deal of such happenings and pushing unwanted and unnecessary pseudo-scientific psycho babble off on people who accept such happenings a part of life.
76.	Leaders must listen to their subordinates!!!!
77.	none
78.	None
79.	none
80.	keep in contact with those that were deployed for several months, maybe even a year after the deployment. Listen to what they say and how they say it. See if there has been a major change in their everyday life.
81.	Allow the members that worked with and knew the person mourn in their own way. Offer any assistance the survivors need. I deployed to Jonestown and helped bag bodies - we were ordered to speak to mental health persons after returning and before we could be mission ready, again.
82.	Be more up front with individuals who are suffering.

83.	None
84.	openly talking about it
85.	none
86.	Ensure the Service members talk about what happened. In my opinion, my biggest downfall was not talking to someone about it. I have built up feelings about it.
87.	no
88.	Do not belittle the victim,do not consider it a weakness if you are mourning.Allow a proper amount of time.Everyone does not heal at the same time!
89.	In today's world, I believe the military pretty well takes care of their own. Believe it more of an issue for veterans and their families. I feel the VA leaves a lot to be desired.
90.	care
91.	Peer counseling.
92.	Talk to each Member that is effected by the Death,
93.	Group counseling.Orone on one counseling.Prayer
94.	Keep things small and within the unit. Less outsiders.
95.	Not really sure if anyone can help under these circumstances. Has to be dealt with by the individuals concerned.
96.	There is nothing nobody can do after the person is gone
97.	group critical stress counseling
98.	PREVENT IT listen more
99.	Just knowing the opportunity for help is out there, but thinking it would help made me feel like I was weaker if I show emotion outward that people see.
100.	get it out.....don't hold it in
101.	Remember the good times; Put the sadness in the "Hurt Locker" Keep it locked
102.	keep a close eye on everyone
103.	Heavier regulations on restricting travel of flagged suicidal service members.
104.	None
105.	the unit should discuss the death, the reason and sings and symptoms and how to talk about and not shove it under the carpet
106.	Truthful with their comments, not guessing.
107.	None at this time.
108.	asking the wrong guy
109.	none
110.	talk about it don't hold it in
111.	Since my experience was deeply personal and shared with a very small number of other unit members, I really don't have any recommendations for what an organization or institution could contribute.
112.	NO MORE FRIKKEN WAR!!!!
113.	fact find as a group get answers and talk about life and losses how they effect others show more open feelings
114.	None
115.	No comment
116.	Close watch after returning home from deployments.

117.	Open discussions
118.	See a Veteran Psychiatrist on a one on one basis.
119.	Unit member was an alcoholic, never had any help from anyone.
120.	We need to hire more mental health professionals in the VA. I've been waiting over a year and no response from them?
121.	Be open to and listen for the smallest hints.
122.	Senior enlisted and officer leadership need a lot more training in psychology and sociology to detect and refer soldiers for counseling instead of telling them to man up and deal with it. There are times to be tough and times to be caring.
123.	Very hard to say.
124.	When a mans wife leaves him and he openly expresses suicidal thoughts He should be allowed some time away from the unit to get his mind right. He should not be told things like "If the navy wanted you to have a family, it would have been issued with your seabag"
125.	Remove from theater
126.	I think that those that worked closest with the soldier should be personally notified of their death either in person or on the phone by their fellow soldiers -- preferably an NCO -- so that junior enlisted soldiers can receive the assistance they need immediately if the news is particularly distressful to them.
127.	Let someone how you feel. Don't keep it inside.
128.	Do not leave out details. Tell us everything, not just what we think we should know.
129.	Stop overworking them with no resources! Stop telling them to do more with less. Listen to them when they tell you they need a resource.
130.	unit leaders should address it to units and inform them of resources available to deal with how it effects each servicemember
131.	Groups
132.	let the individual soldier choose how they need to deal with it. do not have mandatory bullshit meetings, or required crap with people who were not there, and not affected the same way. personally, it would have been better to get sent on a 6 week field op, than having to sit around talking to empty uniforms that " know how I feel"
133.	Yea don't do what the Marine Corps does
134.	unknown
135.	It starts before suicide response to happiness of the unit members.
136.	When a kid sits in front of a psychiatric officer and says " I'm going to kill myself tonight," he probably shouldn't be sent back to the barracks alone.
137.	mental health interview, without reprisal if found to have mental health issues.
138.	Make the Soldiers understand they are respected, and never let them feel useless, and alone.
139.	None
140.	Be there. When the person is ready to talk don't dismiss them. Embrace them. It happens at he most unexpected times. I told my roommate that I had lost my finance almost 4 years when I was sitting behind a saw in a security position.
141.	Don't make a mental health issue a negative thing or a carrier ender.
142.	Maybe offer a group gathering by all member's impacted where the chaplain's are available or maybe an internal memorial service being offered where it might be effective to see all people impacted and observe how they seem to be doing personally.

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