Exploring the Association between Exposure to Suicide and Suicide Risk among Military
Service Members and Veterans

Melanie A. Hom, M.S.¹

Ian H. Stanley, M.S.¹

Peter M. Gutierrez, Ph.D.²

Thomas E. Joiner, Jr., Ph.D.¹

¹Department of Psychology, Florida State University

²Rocky Mountain Mental Illness Research, Education and Clinical Center, Denver Veterans
Affairs Medical Center

³Department of Psychiatry, University of Colorado School of Medicine

Corresponding Author:

Melanie A. Hom, M.S.
Department of Psychology
Florida State University
1107 West Call Street
Tallahassee, FL 32306
hom@psy.fsu.edu
+1 (415) 347-6854

Abstract

Background. Past research suggests that suicide has a profound impact on surviving family members and friends; yet, little is known about experiences with suicide bereavement among military populations. This study aimed to characterize experiences with suicide exposure and their associations with lifetime and current psychiatric symptoms among military service members and veterans. **Methods.** A sample of 1,753 United States military service members and veterans completed self-report questionnaires assessing experiences with suicide exposure, lifetime history of suicidal thoughts and behaviors, current suicidal symptoms, and perceived likelihood of making a future suicide attempt. **Results.** The majority of participants (57.3%) reported knowing someone who had died by suicide, and of these individuals, most (53.1%) reported having lost a friend to suicide. Chi-square tests, one-way ANOVAs, and logistic regression analyses revealed that those who reported knowing a suicide decedent were more likely to report more severe current suicidal symptoms and a history of suicidal thoughts and behaviors compared to those who did not know a suicide decedent. Hierarchical linear regression analyses indicated that greater self-reported interpersonal closeness to a suicide decedent predicted greater self-reported likelihood of a future suicide attempt, even after controlling for current suicidal symptoms and prior suicidal thoughts and behaviors. **Limitations.** This study utilized cross-sectional data, and information regarding degree of exposure to suicide was not collected. **Conclusions.** Military personnel and veterans who have been bereaved by suicide may themselves be at elevated risk for suicidal thoughts and behaviors. Additional work is needed to delineate the relationship between these experiences.

Keywords. Suicide; Bereavement; Survivor; Military service member; Veteran

Introduction

Suicide claims the lives of over 40,000 individuals in the United States (U.S.) each year (Centers for Disease Control and Prevention [CDC], 2015), and for each life lost to suicide, many other individuals are estimated to be impacted by the grief and pain associated with bereavement of the suicide decedent (Cerel et al., 2016; Shneidman, 1972). Military service members and veterans represent a group at especially high risk for suicide, with a number of studies revealing elevated rates of suicide deaths, attempts, and ideation in this population (Hoge and Castro, 2012; Kuehn, 2009; Nock et al., 2014; Ursano et al., 2015). Consequently, it is likely that many current and former military personnel know or will know an individual who has died by suicide. Despite this assumption, there has been a notable dearth of research among individuals with a military service history who have been exposed to suicide, affected by suicide, and/or bereaved by suicide.¹

A growing body of research among non-military populations suggests that loss of a loved one to suicide can profoundly impact one's own mental health and suicide risk. For example, a recent review of 57 studies on suicide bereavement experiences found that, across studies, individuals who have lost a romantic partner to suicide are at increased suicide risk, parents bereaved by the suicide of a child are at elevated risk for involuntary psychiatric hospitalization, and children who have lost a parent to suicide may be at increased risk for developing depression (Pitman et al., 2014). Individuals who lose a parent to suicide during their childhood have also

¹Throughout the manuscript, we will aim to utilize nomenclature proposed by Cerel and colleagues (2014) to capture the continuum of suicide survivorship. Specifically, the following three terms will be used: *exposed to suicide* (i.e., knowing someone who has died by suicide), *affected by suicide* (i.e., having experienced significant psychological distress following the suicide death of another individual with whom one may or may not have had a close relationship); and *bereaved by suicide* (i.e., short-term or long-term clinically significant distress following the suicide death of an individual with whom one had a close personal relationship). These categories are viewed as being nested (i.e., those *bereaved by suicide* have also been *affected by suicide* and *exposed to suicide*) rather than mutually exclusive.

been shown to be at increased risk for death by suicide (Guldin et al., 2015). Importantly, a population-based study conducted by Omerov and colleagues (2013) found that the increased risk for depression observed among suicide-bereaved parents was not significantly accounted for by mental health problems that predated the suicide death (i.e., the suicide death itself appeared to confer depression risk). There is also evidence suggesting that grief reactions may be more severe among those who lose a loved one to suicide than those who lose a loved one to non-suicide causes of death (Barrett and Scott, 1990; de Groot et al., 2006; Jordan, 2001).

Regarding experiences with suicide survivorship among military populations specifically, to our knowledge, only one study to date has examined the impact of exposure to suicide in a military sample. In this study, Cerel and colleagues (2015) investigated the prevalence and correlates of exposure to suicide among military veterans in the U.S. state of Kentucky using a random digit dial survey study design. Of the 931 veterans who participated, nearly half (47.1%) reported exposure to suicide at some point during their lives. Consistent with aforementioned research, those with lifetime exposure to suicide were significantly more likely to report clinically significant depression and anxiety symptoms, as well as suicidal ideation, than those without exposure to suicide. Notably, these symptoms were elevated among those who reported greater perceived closeness to the suicide decedent. These findings provide preliminary evidence for the impact of suicide exposure and bereavement on future suicide risk among military veterans, but the authors note that the study's sampling strategy limits its generalizability (e.g., one southern U.S. state, relatively older veterans [$M_{\text{age}}=61.6$, $SD=15.42$]). They also recommend that future studies in this domain include younger, active duty military members to enhance relevance to current behavioral health efforts among military service members and veterans.

Taken together, it is evident that exposure to suicide and suicide bereavement—and their association with the suicidal thoughts and behaviors—are areas deserving of further empirical investigation among military service members and veterans. If experiences with suicide bereavement appear to be prevalent and/or to confer risk for suicide and the development of psychiatric symptoms in this population, then this may illuminate a potentially important intervention avenue for military populations.

The Present Study

To better understand the experiences that United States military service members and veterans have had with knowing someone who has died by suicide, the aims of this study were:

Aim 1: To characterize service members' and veterans' experiences with suicide exposure, being affected by suicide, and/or suicide bereavement.

Aim 2: To examine the extent to which suicide exposure, *closeness* to a suicide decedent, and *impact* of a suicide death are each associated with service members' and veterans' own (a) lifetime history of suicidal thoughts, suicide plans, suicide attempts, and non-suicidal self-injury and (b) severity of current suicidal symptoms.

Aim 3: To investigate the extent to which *closeness* and *impact* are associated with service members' and veterans' (a) severity of current suicidal symptoms and (b) self-reported likelihood of a future suicide attempt, controlling for other suicidal symptoms and lifetime history of suicidal thoughts and behaviors.

Methods

Participants

A total of 1,753 U.S. military service members and veterans were included in the present study. The current sample represents an aggregate of common data elements (CDEs) collected

across fifteen independent studies funded by the Military Suicide Research Consortium (MSRC, 2015). The sample was predominantly male (81.5%), and individuals ranged in age from 18 to 88 years ($M=33.44$; $SD=13.38$). In terms of race, 64.8% identified as White, 19.7% Black/African American, 1.4% American Indian/Alaska Native, 0.9% Multiracial, 0.6% Asian, 0.3% Native Hawaiian/Other Pacific Islander, and 12.2% Declined to State. For military service branch, 69.5% reported an Army affiliation, 12.9% Navy, 10.8% Marine Corps, 4.4% Air Force, 0.4% Coast Guard, 0.1% National Guard, and 2.0% other. Neither current military status (e.g., Active Duty, Reserve) nor rank was systematically collected across studies; thus, this information is not included in our analyses. For marital status, participants were most likely to report being single (41.1%), followed by married (28.3%), divorced (20.7%), separated (8.1%), widowed (0.9%), and cohabitating (0.8%). Finally, with respect to highest education level completed, 49.3% reported completing some college, 30.9% high school/GED, 12.2% a college degree, and 5.5% more than a college degree; 2.0% reported not completing high school.

Measures

The following measures were administered as a battery of CDEs across fifteen unique studies.² This assessment battery has been shown to have strong psychometric properties, including among military service member and veteran samples (Gutierrez and Joiner, 2016).

Demographics Questionnaire. Demographic and military service characteristics were collected using a brief self-report questionnaire inquiring about sex, age, race/ethnicity, marital status, highest level of education completed, and branch of service.

Suicide Exposure and Bereavement Experiences. Individuals responded to questions regarding their experiences knowing someone who had died by suicide. They were asked: “Do

²Although Cerel and colleagues’ (2015) study was also funded by the Military Suicide Research Consortium, to prevent redundancies in reporting of findings, these data were not included in the present analyses.

you know anyone who has died by suicide?” (Response options: Yes/No); “Did the death occur during your military career?” (Response options: Yes/No); “What was your relationship to the person who died by suicide?” (Open-ended response); “How close would you describe your relationship with this person?” (1=“Not Close,” 3=“Somewhat Close,” and 5=“Very Close”); and “Thinking about the effect of the person’s suicide on your life, please circle the most appropriate number below” (1=“The death had little effect on my life,” 2=“The death had somewhat of an effect on me but did not disrupt my life,” 3=“The death disrupted my life for a short time,” 4=“The death disrupted my life in a significant or devastating way, but I no longer feel that way,” and 5=“The death had a significant or devastating effect on me that I still feel”).

Depressive Symptom Inventory—Suicidality Subscale (DSI-SS; Metalsky & Joiner, 1997). This 4-item self-report measure was used to assess current suicidal symptom severity. Individuals were presented with four groups of statements—each assessing a different domain of suicidality (e.g., frequency of suicidal thoughts, controllability of suicidal thoughts)—and then were asked to select the statement that best describes them in the past two weeks. DSI-SS total scores range from 0 to 12, with higher scores representing greater severity of symptoms. Past research suggests that the DSI-SS has strong psychometric properties (Joiner, Pfaff, & Acres, 2002), including when compared to other self-report suicide risk measures (Batterham et al., 2014). The DSI-SS also demonstrated strong internal consistency in the present study ($\alpha = .90$).

Suicidal Behaviors Questionnaire—Revised (SBQ-R; Osman et al., 2001). The SBQ-R is a 4-item self-report measure assessing various aspects of an individual’s experiences with suicidal thoughts and behaviors. For the current study, Item 1 was used to assess lifetime history of suicide ideation, plans, and attempts (“Have you ever thought about or attempted to kill yourself?”), and Item 4 was used to assess self-reported future likelihood of a suicide attempt

(“How likely is it that you will attempt suicide someday?”; 0=“Never” to 6=“Very Likely”). The SBQ-R has been shown to have strong reliability and validity across clinical and non-clinical samples (Osman et al., 2001).

Interpersonal Needs Questionnaire—Thwarted Belongingness Subscale (INQ-TB; Gutierrez & Joiner, 2016; Van Orden, Cukrowicz, Witte, & Joiner, 2012). An abbreviated 5-item version of the 9-item INQ-TB was used as a measure of thwarted belongingness (i.e., perception that one lacks meaningful social connections). According to the interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010), thwarted belongingness is required for the emergence of suicidal desire. For the INQ, participants rated each item on a 7-point Likert scale (1=“Not at all true for me,” 4=“Somewhat true for me,” 7=“Very true for me”). Total scores range from 5 to 35, with lower scores indicating greater thwarted belongingness. The INQ has been shown to have good internal consistency and predictive validity (Van Orden et al., 2012), including when a shortened version is utilized (Hill et al., 2015). The abbreviated INQ-TB used in this study demonstrated good internal consistency ($\alpha=.89$).

Non-Suicidal Self-Injury (NSSI) Measure. A single self-report item (“How many times in your life have you purposefully hurt yourself *without* wanting to die?”), adapted from the Self-Injurious Thoughts and Behaviors Interview (Nock et al., 2007), was used to assess lifetime history of non-suicidal self-injury. Individuals who responded “0” were categorized as not having a lifetime history of NSSI, whereas those who provided a response ≥ 1 were categorized as having a lifetime history of NSSI.

Procedures

As noted, this study represents an aggregate of data collected across fifteen independent studies funded by the MSRC. Studies varied in recruitment strategies (e.g., community flyers,

provider referral), study setting (e.g., university research laboratory, Veterans Affairs [VA] or military psychiatric inpatient unit, outpatient mental health clinic), survey administration method (e.g., computer-based, paper-and-pencil), and study design and aims (e.g., group treatment trial, web-based intervention study, neuroimaging investigation). Despite this, all participants in this study completed the same battery of self-report measures either at their baseline study visit or upon study enrollment. All participants provided informed consent prior to study enrollment, and the relevant Institutional Review Board(s) for each investigation approved all study procedures. The Department of Defense's Human Research Protection Office also verified compliance with all applicable human subjects policies.

Based on survey responses, participants were categorized as either having known ($n=1,004$) or not having known ($n=749$) someone who died by suicide. For participants who reported knowing someone who had died by suicide, each open-ended response to the question "What was your relationship to the person who died by suicide?" was coded as belonging to one of the following eleven categories: (1) Spouse/Romantic Partner; (2) Child (Daughter, Son); (3) Parent (Mother/Father); (4) Sibling (Sister, Brother); (5) Aunt, Uncle, Cousin; (6) Grandparent; (7) Other Family Member; (8) Friend; (9) Fellow Service Member (i.e., directly worked with service member); (10) Other Military Contact (i.e., did not directly work with service member); or (11) Other (e.g., Acquaintance, Co-worker).

Data Analysis

For Aim 1, descriptive statistics were used to describe the prevalence of suicide exposure. For Aim 2, chi-square tests of independence were used to assess whether those who knew someone who had died by suicide were more likely to report a lifetime history of suicide ideation, plans, and attempts, as well as NSSI, than those who did not know a suicide decedent.

One-way ANOVAs were utilized to evaluate differences in self-report symptom measure scores (i.e., DSI-SS total score, SBQ-R Item 4, INQ-TB total score) between (1) those who did and did not know someone who had died by suicide and (2) those who did and did not lose a fellow service member, specifically, to suicide. Additionally a series of univariate linear regression analyses were conducted to evaluate the extent to which (1) *closeness* to the suicide decedent and (2) *impact* of the suicide death were associated with scores on self-report symptom measures (DSI-SS total score, SBQ-R Item 4, INQ-TB total score) among those with exposure to suicide. Similarly, logistic regression analyses were employed to evaluate the extent to which *closeness* and *impact* were associated with self-reported lifetime suicide ideation, plans, and attempts, and NSSI.

Lastly, for Aim 3, two hierarchical linear regression analyses were implemented among those who had lost someone to suicide, specifically. This analytic approach was employed to investigate the unique contributions of lifetime suicidal thoughts and behaviors, current suicidal symptoms, and suicide bereavement experiences to current self-reported suicidal ideation and self-reported likelihood of a future attempt. The first analysis examined predictors of DSI-SS current suicidal ideation severity. Lifetime suicide ideation, plans, and attempts, and NSSI were entered in Step 1. Then, SBQ-R Item 4 and the INQ-TB total scores were entered in Step 2. Finally, *closeness* and *impact* were entered in Step 3. The second analysis examined predictors of SBQ-R likelihood of a future suicide attempt. Again, lifetime suicide ideation, plans, and attempts, and NSSI were entered in Step 1. Next, DSI-SS and INQ-TB total scores were entered in Step 2. Finally, both *closeness* and *impact* were entered in Step 3.

Of note, additional exploratory analyses were conducted to evaluate whether the pattern of findings for each analysis described above remained the same after controlling for age, sex,

and marital status. Follow-up chi-square tests, one-way ANOVAs, and moderation analyses were also conducted to examine the role of male and female sex in our findings. These analyses were not conducted with age and marital status given that these characteristics were likely different at the time of exposure to suicide, which would limit the interpretability of results.

Results

Means, standard deviations, and zero-order correlations for all self-report measures are presented in Table 1.

Experiences with Suicide Exposure

Suicide exposure experiences are presented in Table 2. A total of 1,004 (57.3%) participants reported knowing someone who had died by suicide, and of these individuals, 43.3% reported that a suicide death had occurred during their military careers. Participants most commonly reported losing a Friend ($n=502$; 53.1%), followed by Other ($n=180$; 19.0%); Fellow Service Member ($n=100$; 10.6%); Aunt, Uncle, Cousin ($n=84$; 8.9%); Other Family Member ($n=82$; 8.7%); Sibling ($n=25$; 2.6%); Other Military Contact ($n=21$; 2.2%); Parent ($n=19$; 1.9%); Spouse/Romantic Partner ($n=16$; 1.7%); Grandparent ($n=10$; 1.1%); and Child ($n=3$; 0.3%). A plurality of participants ($n=273$; 28.2%) who had known someone who died by suicide reported being “Somewhat Close” to the suicide decedent, and a plurality ($n=298$; 30.8%) also reported that the suicide death had “Somewhat of an effect but did not disrupt life.”

Suicide Exposure and Lifetime Suicidal Behaviors/Current Suicidal Symptoms

Suicide-exposed individuals were significantly more likely than those not exposed to suicide to report a lifetime history of suicide ideation ($\chi^2=94.168$, $p<.001$), suicide plans ($\chi^2=62.357$, $p<.001$), suicide attempts ($\chi^2=37.527$, $p<.001$), and NSSI ($\chi^2=41.061$, $p<.001$). These data are detailed in Table 3.

Participants who reported exposure to suicide reported more severe DSI-SS current suicidal ideation ($F[1,166]=43.822, p<.001, M_{Yes}=2.40, M_{No}=1.48$) and a greater SBQ-R likelihood of a future suicide attempt ($F[1,166]=64.160, p<.001, M_{Yes}=1.61, M_{No}=.97$). There were no differences between the two groups with respect to INQ thwarted belongingness ($F[1,1017]=.089, p=.766, M_{Yes}=19.99, M_{No}=20.15$). Of note, individuals who reported losing a fellow service member to suicide ($n=100$) did not report more severe DSI-SS current suicidal ideation ($F[1,910]=.322, p=.570$), greater SBQ-R likelihood of a future suicide attempt ($F[1,917]=.705, p=.401$), or INQ thwarted belongingness ($F[1,681]=.982, p=.322$) than individuals who reported losing a non-fellow service member (i.e., other military contact) to suicide.

Closeness to Suicide Decedent and Lifetime Suicidal Behaviors/Current Suicidal Symptoms

Participants who reported greater closeness to the suicide decedent also reported more severe DSI-SS current suicidal ideation ($\beta=.110, t[925]=3.361, p=.001, \text{partial } r^2=.012$), greater SBQ-R likelihood of a future suicide attempt ($\beta=.191, t[926]=5.934, p<.001, \text{partial } r^2=.036$), and greater INQ thwarted belongingness ($\beta=-.085, t[684]=-2.242, p=.025, \text{partial } r^2=.007$). Logistic regression analyses revealed that those who reported greater closeness to the suicide decedent were also more likely to report a lifetime history of suicidal ideation ($B=.229, SE=.052, p<.001$), suicide plans ($B=.215, SE=.048, p<.001$), and suicide attempts ($B=.183, SE=.052, p<.001$), but not NSSI ($B=.094, SE=.052, p=.071$). Findings are presented in Tables 4 and 5.

Impact of Suicide Death and Lifetime Suicidal Behaviors/Current Suicidal Symptoms

Individuals reporting a greater negative impact of a suicide death on their lives also reported more severe DSI-SS current suicidal ideation ($\beta=.174, t[925]=5.389, p<.001, \text{partial } r^2=.030$), SBQ-R likelihood of a future attempt ($\beta=.233, t[926]=7.290, p<.001, \text{partial } r^2=.054$),

and INQ thwarted belongingness ($\beta = -.078$, $t[684] = -2.044$, $p = .041$, partial $r^2 = .006$). Logistic regression analyses indicated that greater negative impact of a suicide death was also associated with a greater likelihood of reporting a lifetime history of suicidal ideation ($B = .439$, $SE = .059$, $p < .001$), suicide plans ($B = .363$, $SE = .052$, $p < .001$), suicide attempts ($B = .243$, $SE = .053$, $p < .001$), and NSSI ($B = .142$, $SE = .052$, $p = .007$). Results are presented in Tables 4 and 5.

Predictors of Current Suicidal Ideation Severity & Likelihood of a Future Suicide Attempt

Findings from hierarchical multiple linear regression analyses are presented in Table 6. Greater self-reported closeness to the suicide decedent was associated with less severe DSI-SS current suicidal ideation ($\beta = -.079$, $t[636] = -2.050$, $p = .041$, partial $r^2 = .002$), controlling for lifetime suicide ideation, plans, and attempts; SBQ-R likelihood of a future suicide attempt; INQ thwarted belongingness; and suicide death impact. The overall model including all variables was also significant ($F[8,636] = 55.336$, $p < .001$), accounting for 41.0% of the variance in DSI-SS current suicidal ideation scores; however, the change in R^2 values between Steps 2 and 3 was not significant ($F[2,636] = 2.201$, $p = .112$). Greater self-reported closeness to the suicide decedent was also associated with reporting a greater likelihood of making a future suicide attempt ($\beta = .095$, $t[636] = 2.550$, $p = .011$, partial $r^2 = .010$), controlling for lifetime suicide ideation, plans, and attempts; DSI-SS current suicidal ideation; INQ thwarted belongingness; and suicide death impact. Again, the overall model including all variables was significant ($F[8,636] = 64.716$, $p < .001$), accounting for 44.9% of the variance in SBQ-R Item 4 scores; however for these analyses, the change in R^2 values between Steps 2 and 3 was significant ($F[2,636] = 5.016$, $p = .007$).

Additionally, when these analyses were conducted excluding individuals who reported knowing a family member who died by suicide, the pattern of findings remained the same. This

indicates that the impact of suicide bereavement on one's suicidal symptoms that was found in the present study was likely not merely a manifestation of genetic transmission (e.g., see Brent & Mann, 2005; Brent & Melhem, 2008; and Brent et al., 2004).

Exploratory Analyses with Demographic Variables

The patterns of findings described above remained the same after accounting for the effects of age, sex, and marital status. Follow-up chi-square tests revealed that, of those exposed to suicide, females were significantly more likely than males to report a lifetime history of NSSI (37.8% of females, 27.1% of males; $\chi^2=8.433$, $p=.003$), but not suicide ideation, plans, or attempts. Follow-up one-way ANOVAs did not reveal sex differences in severity of self-reported current suicidal symptoms among those exposed to suicide ($ps>.05$). Finally, moderation analyses did not indicate that sex was a significant moderator of the relationships between (1) closeness to a suicide decedent and current suicidal symptoms ($ps>.05$); or (2) impact of suicide death and current suicidal symptoms ($ps>.05$).

Discussion

This study aimed to describe the prevalence of exposure to suicide, as well as the associations between suicide exposure and indices of suicide risk, among a large sample of military service members and veterans. Findings revealed that the majority of military service members and veterans (57.3%) had been exposed to suicide. In turn, being exposed to suicide, greater closeness to a suicide decedent, and greater perceived negative impact of the suicide death on one's life were each significantly associated with elevated rates of lifetime suicidal thoughts and behaviors, rates of lifetime NSSI (with rates higher among females), current suicidal symptoms, and self-reported likelihood of a future suicide attempt. Notably, these findings remained even after controlling for sex, age, and marital status, which strengthens our

confidence in the generalizability of our findings. Most strikingly, greater *closeness* to a suicide decedent was significantly associated with greater self-reported likelihood of a future suicide attempt, even when controlling for other suicide risk factors. These findings have numerous implications for research, clinical work, and military mental health, each of which will be detailed below.

First, the results of this study extend a growing body of literature documenting the ways in which the tragedy of suicide afflicts not only the suicide decedent but also the bereaved (for reviews, see Cerel, Jordan, & Duberstein, 2008; Pitman, Osborn, King, & Erlangsen, 2014). Our pattern of findings was consistent with the aforementioned study of military veterans (Cerel et al., 2015). Cerel and colleagues (2015) found a similar rate of exposure to suicide as well as significant associations between prior suicide exposure and current suicidal ideation among their participants. Together, our study and theirs begin to paint a picture of the potentially troubling effects of suicide bereavement among military populations—specifically, that loss of a loved one, friend, and/or peer to suicide may increase one’s own risk for suicide. Important to note, the mean age of participants in Cerel and colleagues’ (2015) was markedly higher than that of the present study sample (61.6 ± 15.42 years and 33.44 ± 13.38 years, respectively). It is likely, then, that rates of exposure to suicide may effectively be significantly higher in this sample than in Cerel and colleagues’ (2015) study when accounting for the longer time frame in which exposure to suicide may have occurred. This is not surprising given the increasing rates of suicide observed in the military in recent years (Kuehn, 2009) and, again, emphasizes the critical need to better understand the impact of suicide bereavement on military service members and veterans. The finding that exposure to suicide was associated with higher lifetime rates of NSSI among females than males especially warrants further investigation given that rates of NSSI in the

general population are not associated with sex (Klonsky, 2011) and that little is known about NSSI among service members and veterans.

Second, although closeness to a suicide decedent was both positively associated with current suicidal ideation and self-reported likelihood of a future attempt in univariate analyses, after controlling for the effects of lifetime suicidal thoughts and behaviors and other suicidal symptoms, the direction of association between *closeness* and current suicidal ideation was reversed. That is, closeness to a suicide decedent was still positively associated with self-reported likelihood of a future attempt but now was negatively associated with current suicidal ideation. What might account for this seeming paradox? For one, it is important to highlight that differential pathways likely account for the emergence of suicidal ideation and suicide attempts (Klonsky and May, 2014). Moreover, it is plausible that current suicidal ideation, which itself is a symptom of major depressive disorder (American Psychiatric Association, 2013) and may not signal an actual threat to life (i.e., often, although not always, in the case of passive suicide ideation), is a more fluid construct than future likelihood of a suicide attempt. This finding is additionally consistent with prior research revealing differential relationships between closeness to a suicide decedent and subsequent risk of suicidal ideation and suicide attempts (Brent et al., 1993a, 1993b). Finally, these individuals may view suicide as more acceptable or possible now that someone close to them has died by suicide, and therefore, may be more likely envision themselves dying by suicide—a point that will be discussed below.

Third, in understanding the effects that suicide has on the bereaved, whether the suicide decedent was a family member, friend, co-worker, or roommate, there are several factors that may serve as potential mechanistic explanations, either independently or in conjunction with one another. Potential mechanistic links include suicide contagion (Cox et al., 2012; Joiner, 1999);

genetic effects whereby psychiatric disorders are pre-morbidly transmitted from decedent to offspring (Brent and Mann, 2005; Brent et al., 2004); assortative relating, whereby individuals with risk factors for suicide are prone to comingle (Joiner, 2003); maladaptive bereavement responses (American Psychiatric Association, 2013); and/or more permissible attitudes about suicide (Renberg and Jacobsson, 2003). Past research among adolescents exposed to a peer's suicide also suggests that the negative impact of exposure to suicide may be especially potent among those with a prior history of stressful life events (Swanson and Colman, 2013) and feelings of accountability for the suicide death (Bridge et al., 2003). The current study is not positioned to definitively claim that one or more of these processes are in play among military service members and veterans, though research and future work in this domain would benefit from investigation of these processes.

Regardless of the mode of transmission, that military service members and veterans bereaved by suicide may subsequently be at elevated risk for suicidal thoughts and behaviors warrants empirical and clinical attention. In the same way that treatment engagement and connection to mental health services are critical among suicidal individuals (Hom et al., 2015), it is important to ensure that service members and veterans bereaved by suicide also receive high-quality, evidence-based care. Indeed, spouses and first-degree relatives bereaved by suicide have been found to have a greater perceived need for professional help than those who have lost a spouse or first-degree relative to another cause of death (de Groot et al., 2006). Individuals bereaved by suicide may also experience a more complicated presentation of grief than individuals bereaved by natural causes of death (e.g., physical illness; Barrett & Scott, 1990; de Groot et al., 2006; Rings, Gutierrez, & Forster, 2014).

To address this need for mental health services, past research suggests that support groups for service members and veterans bereaved by suicide may be particularly helpful, in part because they are both cost-effective and highly disseminable (Barlow et al., 2010; Cerel, Padgett, & Reed, 2009; see also Schneider, Grebner, Schnabel, & Georgi, 2011). However, prior to dissemination among military populations, further work is needed to empirically test the efficacy of these interventions utilizing a randomized controlled trial design. Whether the clinical modality is treatment or assessment, it is additionally important to consider that an individual bereaved by suicide may have more negative views towards mental health treatment (Ward-Ciesielski et al., 2015). In this regard, it may be useful to empathize and emphasize that the health care *system* did indeed fail; however, it is the clinician's goal to ensure suicide—including among those bereaved by suicide—does not occur moving forward (cf., Zero Suicide [<http://zerosuicide.sprc.org>]).

Lastly, it is also noteworthy that empirically-informed suicide risk assessment and management frameworks often include questions probing if the patient has experienced the death by suicide of a family member (Chu et al., 2015). This question is likely included in standardized frameworks to account for genetically transmitted risk for suicide (e.g., see Brent & Mann, 2005; Brent & Melhem, 2008; and Brent et al., 2004), and the patient's answer to this question typically does not yield actionable steps to the same degree as, for instance, current plans or preparations for a suicide attempt. Despite this, our study's findings suggest that a simple additional probe inquiring whether an individual has been close to anyone who died by suicide (i.e., not only a genetic relative) may aid in risk detection and have clinical utility.

Limitations and Future Directions

To our knowledge, this study is among the first to examine the psychological impact of suicide exposure among military service members and veterans; however, its limitations must also be noted. First, its use of cross-sectional data limited our ability to investigate the temporal relationship between participants' exposure to suicide and their own suicidal thoughts and behaviors. Similarly, data were not available on when reported suicide deaths had occurred; thus, we were unable to control for "time since event" in analyses or to determine time effects. Consequently, prospective studies will be critical in delineating the relationship between these experiences. Second, future studies may benefit from utilization of structured response options rather than open-ended responses when probing participants' relationship to a suicide decedent. Third, it remains unknown whether respondents had been directly exposed to the suicide death itself (e.g., finding the deceased's body). Fourth, given the relatively low mean scores for self-reported likelihood of a future attempt, it is recommended that these findings be interpreted with caution. Further investigation is warranted replicate these results. Fifth, data were pooled across a variety of studies (e.g., community samples, treatment trials), these studies selected for specific populations (e.g., veterans at elevated suicide risk), and representative sampling strategies were not utilized, limiting the generalizability of findings. However, as noted above, that our pattern of findings remained after controlling for demographic characteristics strengthens our confidence in our results. Finally, data were not available regarding key military metrics, including whether individuals were current military service members or veterans, years of service, time since separation (for veterans), and deployment history and status. These variables may serve as important moderators of the relationship between exposure to suicide and service members' and veterans' future suicide risk. Investigation of whether methods, too, are contagious—a point

consistent with familiarity with means posited by the capability construct of the interpersonal theory of suicide—may also be informative (Joiner, 2005; Van Orden et al., 2010).

Despite the clear need for research investigating suicide bereavement among military service members and veterans, in addition to general population samples, this work is not without its challenges. Challenges include potential difficulties interfacing with institutional review boards (Hom et al., 2016; Moore et al., 2013) and inexcusable misperceptions that issues surrounding suicide bereavement (cf., postvention) are intended strictly for the clinical, rather than empirical, domain (Moore et al., 2013). By delineating the underlying mechanisms that account for the relationship between suicide bereavement and psychiatric symptoms, we may then be able to enhance our identification of potentially lifesaving treatment targets.

Conclusions

Converging evidence across multiple populations suggests that exposure to suicide may have a significant impact on individuals' own psychological functioning, including increased risk for suicidal thoughts and behaviors. The current study extended this line of research by examining the impact of suicide exposure on military personnel and veterans, specifically. These preliminary findings suggest that service members who report being bereaved by suicide are themselves at increased suicide risk. This appears to be especially true among those reporting greater closeness to the suicide decedent, with effects observed even when controlling for current suicidal symptoms and prior suicidal thoughts and behaviors. As research and clinical work remains deservedly focused on finding ways to prevent suicide deaths, complementary efforts are needed to better understand the experiences of those left in their wake, which may dramatically enhance both upstream suicide prevention efforts as well as suicide-specific interventions.

References

- American Psychiatric Association, 2013. Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5. American Psychiatric Association, Washington, DC.
- Barlow, C.A., Schiff, J.W., Chugh, U., Rawlinson, D., Hides, E., Leith, J., 2010. An evaluation of a suicide bereavement peer support program. *Death Stud.* 34, 915–30.
doi:10.1080/07481181003761435
- Barrett, T.W., Scott, T.B., 1990. Suicide bereavement and recovery patterns compared with nonsuicide bereavement patterns. *Suicide Life. Threat. Behav.* 20, 1–15.
- Batterham, P., Ftanou, M., Pirkis, J., Brewer, J., Mackinnon, A., Beautrais, A., Fairweather-Schmidt, A., Christensen, H., 2014. A systematic review and evaluation of measures for suicidal ideation and behaviors in population-based research. *Psychol. Assess.* 27, 501–512.
doi:10.1037/pas0000053
- Brent, D.A., Mann, J.J., 2005. Family genetic studies, suicide, and suicidal behavior. *Am. J. Med. Genet.* 133C, 13–24. doi:10.1002/ajmg.c.30042
- Brent, D.A., Melhem, N., 2008. Familial transmission of suicidal behavior. *Psychiatr. Clin. North Am.* 31, 157–77. doi:10.1016/j.psc.2008.02.001
- Brent, D.A., Oquendo, M., Birmaher, B., Greenhill, L., Kolko, D., Stanley, B., Zelazny, J., Brodsky, B., Melhem, N., Ellis, S.P., Mann, J.J., 2004. Familial transmission of mood disorders: Convergence and divergence with transmission of suicidal behavior. *J. Am. Acad. Child Adolesc. Psychiatry* 43, 1259–66. doi:10.1097/01.chi.0000135619.38392.78
- Brent, D.A., Perper, J., Moritz, G., Friend, A., Schweers, J., Allman, C., McQuiston, L., Boylan, M.B., Roth, C., Balach, L., 1993a. Adolescent witnesses to a peer suicide. *J. Am. Acad. Child Adolesc. Psychiatry* 32, 1184–1188. doi:10.1097/00004583-199311000-00011

- Brent, D.A., Perper, J.A., Moritz, G., Allman, C., Schweers, J., Roth, C., Balach, L., Canobbio, R., Liotus, L., 1993b. Psychiatric sequelae to the loss of an adolescent peer to suicide. *J. Am. Acad. Child Adolesc. Psychiatry* 32, 509–517. doi:10.1097/00004583-199305000-00004
- Bridge, J.A., Day, N.L., Richardson, G.A., Birmaher, B., Brent, D.A., 2003. Major depressive disorder in adolescents exposed to a friend's suicide. *J. Am. Acad. Child Adolesc. Psychiatry* 42, 1294–1300. doi:10.1097/01.chi.00000084830.67701.9
- Centers for Disease Control and Prevention [CDC], 2015. WISQARS: Cost of Injury Reports [WWW Document]. URL <https://wisqars.cdc.gov:8443/cost>
- Cerel, J., Jordan, J.R., Duberstein, P.R., 2008. The impact of suicide on the family. *Crisis* 29, 38–44. doi:10.1027/0227-5910.29.1.38
- Cerel, J., Maple, M., van de Venne, J., Moore, M., Flaherty, C., Brown, M., 2016. Exposure to suicide in the community: Prevalence and correlates in one U.S. state. *Public Health Rep.* 131, 100–7.
- Cerel, J., McIntosh, J.L., Neimeyer, R.A., Maple, M., Marshall, D., 2014. The continuum of “survivorship”: Definitional issues in the aftermath of suicide. *Suicide Life. Threat. Behav.* 44, 591–600. doi:10.1111/sltb.12093
- Cerel, J., Padgett, J.H., Reed, G.A., 2009. Support groups for suicide survivors: Results of a survey of group leaders. *Suicide Life. Threat. Behav.* 39, 588–98. doi:10.1521/suli.2009.39.6.588
- Cerel, J., van de Venne, J.G., Moore, M.M., Maple, M.J., Flaherty, C., Brown, M.M., 2015. Veteran exposure to suicide: Prevalence and correlates. *J. Affect. Disord.* 179, 82–7. doi:10.1016/j.jad.2015.03.017

Chu, C., Klein, K.M., Buchman-Schmitt, J.M., Hom, M.A., Hagan, C.R., Joiner, T.E., 2015.

Routinized assessment of suicide risk in clinical practice: An empirically informed update.

J. Clin. Psychol. doi:10.1002/jclp.22210

Cox, G.R., Robinson, J., Williamson, M., Lockley, A., Cheung, Y.T.D., Pirkis, J., 2012. Suicide

clusters in young people. *Crisis* 33, 208–214. doi:10.1027/0227-5910/a000144

de Groot, M.H., de Keijser, J., Neeleman, J., 2006. Grief shortly after suicide and natural death:

A comparative study among spouses and first-degree relatives. *Suicide Life. Threat. Behav.*

36, 418–31. doi:10.1521/suli.2006.36.4.418

Guldin, M.B., Li, J., Pedersen, H.S., Obel, C., Agerbo, E., Gissler, M., Cnattingius, S., Olsen, J.,

Vestergaard, M., 2015. Incidence of suicide among persons who had a parent who died

during their childhood: A population-based cohort study. *JAMA Psychiatry* 72, 1227–34.

doi:10.1001/jamapsychiatry.2015.2094

Gutierrez, P.M., Joiner, T.E., 2016. The Military Suicide Research Consortium Common Data

Elements: Psychometric support, clinical, and research utility. *Military Health System*

Research Symposium (MHSRS), Orlando/Kissimmee, FL.

Hill, R.M., Rey, Y., Marin, C.E., Sharp, C., Green, K.L., Pettit, J.W., 2015. Evaluating the

Interpersonal Needs Questionnaire: Comparison of the reliability, factor structure, and

predictive validity across five versions. *Suicide Life Threat. Behav.* 45, 302–14.

doi:10.1111/sltb.12129

Hoge, C.W., Castro, C.A., 2012. Preventing suicides in US service members and veterans:

Concerns after a decade of war. *JAMA* 308, 671–2. doi:10.1001/jama.2012.9955

Hom, M.A., Podlogar, M.C., Stanley, I.H., Joiner, T.E., 2016. Ethical issues and practical

challenges in suicide research. *Crisis*. doi:10.1027/0227-5910/a000415

- Hom, M.A., Stanley, I.H., Joiner, T.E., 2015. Evaluating factors and interventions that influence help-seeking and mental health service utilization among suicidal individuals: A review of the literature. *Clin. Psychol. Rev.* 40, 28–39. doi:10.1016/j.cpr.2015.05.006
- Joiner, T.E., 2005. *Why People Die by Suicide*. Harvard University Press, Cambridge, MA. doi:10.5860/choice.44-1002
- Joiner, T.E., 2003. Contagion of suicidal symptoms as a function of assortative relating and shared relationship stress in college roommates. *J. Adolesc.* 26, 495–504. doi:10.1016/S0140-1971(02)00133-1
- Joiner, T.E., 1999. The clustering and contagion of suicide. *Curr. Dir. Psychol. Sci.* 8, 89–92.
- Joiner, T.E., Pfaff, J.J., Acres, J.G., 2002. A brief screening tool for suicidal symptoms in adolescents and young adults in general health settings: Reliability and validity data from the Australian National General Practice Youth Suicide Prevention Project. *Behav. Res. Ther.* 40, 471–481. doi:10.1016/s0005-7967(01)00017-1
- Jordan, J.R., 2001. Is suicide bereavement different? A reassessment of the literature. *Suicide Life. Threat. Behav.* 31, 91–102. doi:10.1521/suli.31.1.91.21310
- Klonsky, E.D., 2011. Non-suicidal self-injury in United States adults: Prevalence, sociodemographics, topography and functions. *Psychol. Med.* 41, 1981–1986. doi:10.1017/S0033291710002497
- Klonsky, E.D., May, A.M., 2014. Differentiating suicide attempters from suicide ideators: A critical frontier for suicidology research. *Suicide Life Threat. Behav.* 44, 1–5. doi:10.1111/sltb.12068
- Kuehn, B.M., 2009. Soldier suicide rates continue to rise: Military, scientists work to stem the tide. *JAMA* 301, 1111–1113. doi:10.1001/jama.2009.342

Metalsky, G.I., Joiner, T.E.J., 1997. The Hopelessness Depression Symptom Questionnaire.

Cognit. Ther. Res. 21, 359–384. doi:10.1023/A:1021882717784

Military Suicide Research Consortium (MSRC), Department of Defense Office of the Assistant

Secretary of Defense for Health Affairs, 2015. Military Suicide Research Consortium

[WWW Document]. URL <https://msrc.fsu.edu>

Moore, M., Maple, M., Mitchell, A.M., Cerel, J., 2013. Challenges and opportunities for suicide

bereavement research: The experience of ethical board review. Crisis 34, 297–304.

doi:10.1027/0227-5910/a000191

Moore, M., Maple, M., Mitchell, A.M., Cerel, J., 2013. Challenges and opportunities for suicide

bereavement research: The experience of ethical board review. Crisis 34, 297–304.

doi:10.1027/0227-5910/a000191

Nock, M.K., Holmberg, E.B., Photos, V.I., Michel, B.D., 2007. Self-Injurious Thoughts and

Behaviors Interview: Development, reliability, and validity in an adolescent sample.

Psychol. Assess. 19, 309–317. doi:10.1037/1040-3590.19.3.309

Nock, M.K., Stein, M.B., Heeringa, S.G., Ursano, R.J., Colpe, L.J., Fullerton, C.S., Hwang, I.,

Naifeh, J.A., Sampson, N.A., Schoenbaum, M., Zaslavsky, A.M., Kessler, R.C., 2014.

Prevalence and correlates of suicidal behavior among soldiers: Results from the Army

Study to Assess Risk and Resilience in Servicemembers (Army STARRS). JAMA

Psychiatry 71, 514–22. doi:10.1001/jamapsychiatry.2014.30

Omerov, P., Steineck, G., Nyberg, T., Runeson, B., Nyberg, U., 2013. Psychological morbidity

among suicide-bereaved and non-bereaved parents: A nationwide population survey. BMJ

Open 3, e003108. doi:10.1136/bmjopen-2013-003108

Osman, A., Bagge, C.L., Gutierrez, P.M., Konick, L.C., Kopper, B.A., Barrios, F.X., 2001. The

- Suicidal Behaviors Questionnaire-Revised (SBQ-R): Validation with clinical and nonclinical samples. *Assessment* 8, 443–454. doi:10.1177/107319110100800409
- Pitman, A., Osborn, D., King, M., Erlangsen, A., 2014. Effects of suicide bereavement on mental health and suicide risk. *The Lancet Psychiatry* 1, 86–94. doi:10.1016/S2215-0366(14)70224-X
- Renberg, E.S., Jacobsson, L., 2003. Development of a Questionnaire on Attitudes Towards Suicide (ATTS) and Its Application in a Swedish Population. *Suicide Life Threat. Behav.* 33, 52–64. doi:10.1521/suli.33.1.52.22784
- Rings, J.A., Gutierrez, P.M., Forster, J.E., 2014. Exploring Prolonged Grief Disorder and its relationship to suicidal ideation among veterans. *Mil. Behav. Heal.* 2, 283–292. doi:10.1080/21635781.2014.963758
- Schneider, B., Grebner, K., Schnabel, A., Georgi, K., 2011. Is the emotional response of survivors dependent on the consequences of the suicide and the support received? *Crisis* 32, 186–93. doi:10.1027/0227-5910/a000081
- Shneidman, E.S., 1972. *Survivors of suicide*. Charles C. Thomas, Springfield, IL.
- Swanson, S.A., Colman, I., 2013. Association between exposure to suicide and suicidality outcomes in youth. *Can. Med. Assoc. J.* 185, 870–7. doi:10.1503/cmaj.121377
- Ursano, R.J., Kessler, R.C., Stein, M.B., Naifeh, J.A., Aliaga, P.A., Fullerton, C.S., Sampson, N.A., Kao, T.C., Colpe, L.J., Schoenbaum, M., Cox, K.L., Heeringa, S.G., 2015. Suicide attempts in the US Army during the wars in Afghanistan and Iraq, 2004 to 2009. *JAMA Psychiatry* 72, 917–26. doi:10.1001/jamapsychiatry.2015.0987
- Van Orden, K., Cukrowicz, K., Witte, T., Joiner, T., 2012. Thwarted belongingness and perceived burdensomeness: construct validity and psychometric properties of the

Interpersonal Needs Questionnaire. *Psychol. Assess.* 24, 197–215. doi:10.1037/a0025358

Van Orden, K.A., Witte, T.K., Cukrowicz, K.C., Braithwaite, S.R., Selby, E.A., Joiner Jr., T.E.,

2010. The interpersonal theory of suicide. *Psychol. Rev.* 117, 575–600.

doi:10.1037/a0018697

Ward-Ciesielski, E.F., Wielgus, M.D., Jones, C.C., 2015. Suicide-bereaved individuals' attitudes toward therapists. *Crisis* 36, 135–141. doi:10.1027/0227-5910/a000290

Table 1

Means, Standard Deviations, and Zero-Order Correlations of Self-Report Measures

	1	2	3	4	5
1. DSI-SS Suicidal Ideation	--				
2. INQ Thwarted Belongingness	-.34**	--			
3. SBQ-R Item 4 Future Likelihood	.72**	-.41**	--		
4. Closeness to Decedent	.12**	-.09*	.20**	--	
5. Impact of Death	.18**	-.08*	.24**	.63**	--
<i>M</i>	2.01	20.04	1.34	2.98	2.60
<i>SD</i>	2.84	8.26	1.64	1.38	1.34
Range	0-12	5-35	0-6	1-5	1-5
α	.90	.90	--	--	--

* $p < .05$, ** $p < .01$

Note. DSI-SS = Depressive Symptom Inventory—Suicidality Subscale; INQ = Interpersonal Needs Questionnaire; SBQ-R = Suicide Behaviors Questionnaire-Revised.

Table 2

Factors among Participants Reporting Suicide Exposure ($N=1,004$)

	<i>n</i>	Valid %
Relationship to Individual Who Died by Suicide¹		
Spouse/Romantic Partner	16	1.7%
Child (Daughter, Son)	3	0.3%
Parent (Mother, Father)	19	1.9%
Sibling (Sister, Brother)	25	2.6%
Aunt, Uncle, Cousin	84	8.9%
Grandparent	10	1.1%
Other Family Member	82	8.7%
Friend	502	53.1%
Fellow Service Member	100	10.6%
Other Military Contact	21	2.2%
Other (Acquaintance, Co-Worker, etc.)	180	19.0%
Suicide Death Occurred During Military Career		
No	555	56.7%
Yes	423	43.3%
<i>Missing</i>	26	--
Closeness of Relationship with Suicide Decedent ($M=3.01$, $SD=1.36$)		
1=Not Close	187	19.3%
2	154	15.9%
3=Somewhat Close	273	28.2%
4	172	17.8%
5=Very Close	182	18.8%
<i>Missing</i>	35	--
Effect of Death on Participant's Life ($M=2.62$, $SD=1.34$)		
1=Little effect on life	215	22.2%
2=Somewhat of an effect but did not disrupt life	298	30.8%
3=Disrupted life for a short time	196	20.2%
4=Disrupted life in a significant or devastating way, but no longer feel that way	122	12.6%
5=Significant or devastating effect that is still felt	131	13.5%
<i>Missing</i>	42	--

¹ Categories are not mutually exclusive

Table 3

History of Lifetime Suicide Ideation, Plans, and Attempts, and Non-Suicidal Self-Injury in Association with Knowing Someone Who Died by Suicide

	Knows Someone Who Died by Suicide				χ^2	<i>p</i>
	Yes		No			
	<i>(n=1,004)</i>		<i>(n=749)</i>			
	N	Valid %	N	Valid %		
Lifetime Suicidal Ideation	680	67.7%	334	44.6%	94.168	<.001
Lifetime Suicide Plans	535	53.3%	257	34.3%	62.357	<.001
Lifetime Suicide Attempts	291	29.0%	123	16.4%	37.527	<.001
Lifetime Non-Suicidal Self-Injury	291	29.0%	119	15.9%	41.061	<.001

Table 4

Univariate Linear Regression with Closeness to Suicide Decedent and Impact of Suicide Death Predicting Self-Report Symptom Measure Severity

	R^2	β	t	p	partial r^2
DSI-SS Suicidal Ideation					
Closeness to Suicide Decedent	.012	.110	3.361	.001	.012
Impact of Suicide Death	.030	.174	5.389	<.001	.030
SBQ-R Likelihood Future Suicide Attempt					
Closeness to Suicide Decedent	.037	.191	5.934	<.001	.036
Impact of Suicide Death	.054	.233	7.290	<.001	.054
INQ Thwarted Belongingness					
Closeness to Suicide Decedent	.007	-.085	-2.242	.025	.007
Impact of Suicide Death	.006	-.078	-2.044	.041	.006

Note. DSI-SS = Depressive Symptom Inventory—Suicidality Subscale; SBQ-R = Suicide Behaviors Questionnaire-Revised; INQ = Interpersonal Needs Questionnaire

Table 5

Logistic Regression with Closeness to Suicide Decedent and Impact of Suicide Death Predicting Lifetime Suicidal Behavior Type

	<i>B</i>	SE	Wald	<i>p</i>
Lifetime Suicidal Ideation				
Closeness to Suicide Decedent	.229	.052	19.535	<.001
Impact of Suicide Death	.439	.059	55.105	<.001
Lifetime Suicide Plan				
Closeness to Suicide Decedent	.215	.048	19.866	<.001
Impact of Suicide Death	.363	.052	49.369	<.001
Lifetime Suicide Attempt				
Closeness to Suicide Decedent	.183	.052	12.153	<.001
Impact of Suicide Death	.243	.053	21.281	<.001
Lifetime Non-Suicidal Self-Injury				
Closeness to Suicide Decedent	.094	.052	3.265	.071
Impact of Suicide Death	.142	.052	7.390	.007

Table 6

Multiple Hierarchical Linear Regression Examining Predictors of Current Suicidal Ideation Severity and Likelihood of a Future Suicide Attempt

	R^2	p (F -Change)	β	t	p	partial r^2
Dependent Variable: DSI-SS Current Suicidal Ideation Severity						
Step 1:	.193	--				
Lifetime Suicidal Ideation			.130	2.951	.003	.013
Lifetime Suicide Plan			.290	6.026	<.001	.054
Lifetime Suicide Attempt			.080	1.924	.055	.006
Lifetime Non-Suicidal Self-Injury			.052	1.415	.158	.003
Step 2:	.406	< .001				
Lifetime Suicidal Ideation			.038	.992	.322	.002
Lifetime Suicide Plan			.149	3.514	<.001	.019
Lifetime Suicide Attempt			.033	.913	.361	.001
Lifetime Non-Suicidal Self-Injury			-.012	-.370	.711	<.001
SBQ Future Suicide Attempt			.485	13.473	<.001	.365
INQ Thwarted Belongingness			-.100	-3.018	.003	.104
Step 3:	.410	.112				
Lifetime Suicidal Ideation			.038	1.001	.317	.002
Lifetime Suicide Plan			.149	3.522	<.001	.019
Lifetime Suicide Attempt			.035	.968	.333	.001
Lifetime Non-Suicidal Self-Injury			-.012	-.388	.698	<.001
SBQ Future Suicide Attempt			.491	13.606	<.001	.226
INQ Thwarted Belongingness			-.101	-3.066	.002	.015
Closeness to Suicide Decedent			-.079	-2.050	.041	.002
Impact of Suicide Death			.034	.880	.379	.006
Dependent Variable: SBQ-R Future Likelihood of a Suicide Attempt						
Step 1:	.223	--				
Lifetime Suicidal Ideation			.160	3.710	<.001	.021
Lifetime Suicide Plan			.266	5.622	<.001	.047
Lifetime Suicide Attempt			.088	2.165	.031	.007
Lifetime Non-Suicidal Self-Injury			.122	3.396	.001	.018

Step 2:	.440	< .001				
Lifetime Suicidal Ideation			.079	2.140	.033	.132
Lifetime Suicide Plan			.114	2.763	.006	.180
Lifetime Suicide Attempt			.045	1.296	.196	.085
Lifetime Non-Suicidal Self-Injury			.092	2.994	.003	.048
DSI-SS Suicidal Ideation			.457	13.473	<.001	.222
INQ Thwarted Belongingness			-.149	-4.687	<.001	.033
Step 3:	.449	.007				
Lifetime Suicidal Ideation			.076	2.052	.041	.132
Lifetime Suicide Plan			.109	2.656	.008	.180
Lifetime Suicide Attempt			.042	1.210	.227	.085
Lifetime Non-Suicidal Self-Injury			.091	2.992	.003	.048
SBQ-R Future Suicide Attempt			.459	13.606	<.001	.365
INQ Thwarted Belongingness			-.143	-4.517	<.001	.129
Closeness to Suicide Decedent			.095	2.550	.011	.010
Impact of Suicide Death			-.002	-.056	.955	<.001

Note. DSI-SS = Depressive Symptom Inventory—Suicidality Subscale; SBQ-R = Suicide Behaviors Questionnaire-Revised; INQ = Interpersonal Needs Questionnaire