# MILITARY HELP-SEEKING PATTERNS PRECEDING SUICIDE-RELATED PSYCHIATRIC HOSPITALIZATION: A HIERARCHICAL CLUSTER ANALYSIS

by

Viktor Koltko

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**UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES**
**SCHOOL OF MEDICINE GRADUATE PROGRAMS**
Graduate Education Office (A 1045), 4301 Jones Bridge Road, Bethesda, MD 20814

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Name of Candidate: Viktor Koltko
Doctor of Philosophy Degree
July 17, 2018

DISSERTATION AND ABSTRACT APPROVED:

DATE:

[redacted] 27 NOV 2018
Dr. David S. Krantz
DEPARTMENT OF MEDICAL & CLINICAL PSYCHOLOGY
Committee Chairperson

[redacted] 27 NOV 2018
Dr. Marjan G. Holloway
DEPARTMENT OF MEDICAL & CLINICAL PSYCHOLOGY
Dissertation Advisor

[redacted] 27 NOV 2018
Dr. Cara H. Olsen
DEPARTMENT OF PREVENTIME MEDICINE & BIOSTATISTICS
Committee Member

[redacted] 27 NOV 2018
Dr. Layne Bennion
DEPARTMENT OF MEDICAL & CLINICAL PSYCHOLOGY
Committee Member

[redacted] 27 NOV 2018
Dr. Arlene Saitzyk
MARINE CORPS EMBASSY SECURITY GROUP
Committee Member

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# DEDICATION

This work is dedicated to my extraordinary wife Hailey, who has been a tireless champion and a never-ending source of support throughout long nights and longer months. This is as much hers as it is mine.

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Viktor Koltko
MEDICAL AND CLINICAL PSYCHOLOGY
GRADUATE EDUCATION OFFICE
Uniformed Services University
8 FEB 2019

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# ABSTRACT

Military Help-Seeking Patterns Preceding Suicide-Related Psychiatric Hospitalization: A Hierarchical Cluster Analysis

Viktor Koltko, B.S., 2018

Dissertation directed by: Dr. Marjan Holloway, Associate Professor, Department of Medical & Clinical Psychology

**Background:** Service members psychiatrically hospitalized following a suicide-related event are at particularly high risk of death by suicide. However, their pre-hospitalization help-seeking patterns are not currently known and may be best understood in terms of empirically derived subgroups. Factors associated with help-seeking may include demographics, perceived stigma, structural barriers to care, and social support.

**Purpose:** Objectives of this dissertation study were as follows: (1) to describe the self-reported help-seeking patterns, health services utilization, social support, and perceived barriers to care of service members admitted for inpatient psychiatric care following a suicide-related event; (2) to use hierarchical cluster analysis to identify subgroups based on patterns of help-resource utilization; (3) to assess the internal stability and external validity of the clusters; and (4) to evaluate correlates associated with each cluster.

**Method:** This study involved secondary analysis of baseline data from the Post Admission Cognitive Therapy (PACT) for the Inpatient Treatment of Military Personnel and Eligible Adult Dependents with Suicidal Behaviors multi-site, single-blind

randomized controlled trial. Participants included were service members psychiatrically hospitalized following a suicide-related event. Participants completed self-report measures of help-seeking, social support, perceived stigma, and barriers to care.

**Results:** A hierarchical cluster analysis utilizing Ward's method was performed to group participants according to help-seeking patterns reported on the Actual Help-Seeking Questionnaire (AHSQ). Stability of the model was validated using split-half analysis. A three-cluster solution was identified, with clusters characterized as (1) Non-Discriminant Help-Seekers, (2) Discriminant Help-Seekers, and (3) Non Help-Seekers. The model was stable and demonstrated external validity, though conclusions were limited by the characteristics of the available validation source. Cluster member characteristics related to stigma, perceived barriers to care, sex, rank, social support, and symptom severity were examined through chi-squared analyses and ANOVAs. There were no statistically significant differences in these characteristics between clusters.

**Discussion:** Most participants sought out help from multiple sources, including behavioral health providers. However, 10% sought no help. Usage patterns suggest that service members at high risk for suicide may not prioritize confidentiality when seeking help. Suicide prevention recommendations for clinical, research, and policy are provided.

*Keywords:* help seeking, suicide, military

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# CHAPTER 1: Introduction

Suicide is the leading cause of death for active duty personnel within the United States (U.S.) Department of Defense (DoD) (10), and poses a significant challenge to readiness, morale, and retention within the Armed Forces. In the most recent reporting year available, 478 active duty, National Guard, and reserve service members died by suicide (178). Suicide attempts and suicide ideation represent an additional burden, as well as important risk factors for further suicide-related behaviors. Approximately 5% of service members report attempting suicide and 18% report thinking about suicide at some point (147). While risk for suicide can be increased by a variety of factors, a population of particular importance to study are those individuals who have a history of psychiatric hospitalization as well as prior suicide attempts, as they are known to be at the highest risk of suicide (80).

A variety of helping resources exist for service members at risk for suicide (189), including confidential and formal resources (e.g., chaplains), military-related but limited-confidentiality resources (e.g., mental health professionals and unit commanders), and informal personal resources (e.g., family and friends). Additionally, despite the presence of a number of helping resources within the DoD, many service members experiencing suicide-related thoughts and/or behaviors do not seek help (145). However, the patterns of help-seeking in the highest-risk groups of service members, including not seeking any help, are not yet known.

A variety of factors may influence rates of help-seeking for suicidal service members. Access to social support resources serve an important protective role for those at risk for suicide (23), however, individuals experiencing suicide-related thoughts and/or behaviors may have access to fewer social resources than non-suicidal individuals, may have problematic social skills, or may experience distorted perceptions (due to mental health conditions such as

depression) about members of their social support network (95). Barriers to care contribute to less-than-optimal service utilization, including perceived personal or community stigma against seeking mental health services, and structural barriers to care such as difficulty getting time away from work to seek care (1; 109; 111). Additional demographic factors such as military rank may affect service members' help-seeking habits (33).

The purpose of this dissertation study was to identify distinct subgroups (i.e., clusters) of service members at high risk for suicide based on their help-seeking patterns prior to a suicidal crisis resulting in psychiatric hospitalization. For military leaders, this research assists in making military suicide prevention policy decisions. By understanding the help-seeking behaviors of service members at the greatest risk for suicide, including the self-reported helpfulness of those help-sources, military suicide prevention programs can prioritize resources to those help-sources that are the most used and the most helpful. Those help-sources determined to be underutilized or unhelpful can be modified to become more effective. For service members, military suicide prevention trainings can target their marketing messages to encourage the use of help-sources that are the most likely to be helpful. For helping resources, knowledge of existing patterns of usage can enable resources that are commonly used together to tailor their messages to be supportive of associated sources of help. This is the first study to use a cluster analysis to examine the pre-hospitalization help-seeking behaviors of individuals hospitalized following a suicide-related event at civilian, military, and/or VA inpatient treatment units.

## PUBLIC HEALTH SIGNIFICANCE OF SUICIDE

The assessment, management, and treatment of suicide risk pose a significant challenge for healthcare providers both within the United States and globally. More than 788,000 individuals died by suicide worldwide at a rate of 10.7 per 100,000 in 2015, the most recent year

for which figures are available (238). In the U.S., suicide is the 10th leading cause of death overall, and the second leading cause of death for those ages 15-34 (44). Suicide accounted for 44,965 deaths in 2016 at a rate of 13.4 per 100,000 (44). Suicide is on the rise as a cause of death in the U.S., with a 24% increase from 2000-2012 (237). In addition to the human cost, U.S. suicides result in an estimated $93.5 billion in medical and work loss costs yearly, using the most current estimates (209). Beyond suicide alone, suicidal ideation and suicide attempts represent a significant burden of suffering which also contribute to elevated future risk for suicide.

**Suicide Attempts and Suicide Ideation**

Suicide attempts and suicide ideation also represent a significant healthcare burden (209). Reliable estimates of attempted suicide are difficult to obtain, but the World Health Organization estimates that approximately 0.3-0.6% of adults around the world attempt suicide each year (237). In one survey, 1 million American adults (0.5% of the U.S. population at the time) reported attempting suicide in the last 12 months (56) with an estimated rate of 213.8 per 100,000 person-years (44). Because suicide attempts are often underreported, however, these numbers are very likely underestimations (225). Estimates of suicide ideation in the U.S. indicate that approximately 3.7% of the adult population is expected to experience some degree of suicidal ideation in each one-year period (56).

Suicide attempts and suicide ideation are also robust risk factors of later death by suicide (80). Individuals who have attempted suicide at least once have a risk of eventual suicide 40 times higher than those who have not attempted (103). Although approximately 90% of individuals who survive their first suicide attempt will not later die by suicide, they may continue to remain at chronic risk for eventual death by suicide (166). Meta-analytic data suggests those who have report suicide ideation have an odds ratio of eventual death by suicide of 2.2 (80).

Moreover, the presence of prior suicide-related behavior serves as one of the most substantive risk factors for future suicide-related behavior.

An individual's risk for suicide can vary across a wide array of additional factors in addition to a history of suicidal ideation and attempts, including having the intent to die, communication about suicide, physical preparations for suicide, access to lethal means, severity of depression and hopelessness, non-modifiable factors such as demographics, current life stressors and other precipitating factors, medical comorbidities, sleep disturbances, as well as the presence of protective factors that mitigate risk (222). Many of these factors have been associated with some degree of increased risk for suicide across a large number of studies (90; 121; 135; 158; 173; 186; 200; 221; 225; 226). A recent meta-analysis of 365 studies over 50 years of research has demonstrated, however, that the examination of risk factors alone demonstrates very poor sensitivity in the prediction of eventual death by suicide - no single factor or known combination of factors provides meaningful predictive power of an individual's future suicide behavior (80). Because the base rate for suicide is low, even seemingly large increases in relative risk have limited clinical utility.

The population of individuals who have been psychiatrically hospitalized in connection with a suicide attempt or other suicide-related event is of special interest. In the meta-analysis of 50 years of suicide literature noted above, the *predictive* power of particular risk factors is lacking when applied to individuals, however, their findings have great importance when highlighting particular groups that require additional focus and resources. Franklin and colleagues (80) identified the top two suicide subcategories as (1) those having a prior psychiatric hospitalization and (2) those with a prior suicide attempt. For those with a prior psychiatric hospitalization, the weighted odds ratio of eventual death by suicide was 3.57. For

those with a prior suicide attempt, the weighted odds ratio was 2.24. The intersection of these two categories represents a powerful point of potential intervention. Because of the increased prevalence of death by suicide among those who have attempted or contemplated suicide previously, particularly those who also have a prior psychiatric hospitalization, these populations serve as important research participation groups to learn more about those at the highest risk for suicide. It is the aim of this study to better understand the help-seeking patterns of this exceptionally vulnerable population within the military.

**Suicide in the United States Military**

Suicide is a well-documented challenge faced by members of the U.S. military, and efforts to decrease the rate of suicide in the military has been noted as a top priority of the DoD (99). In 2016, the most recent year for which comprehensive data is available, 275 active duty service members died by suicide (178). When this is expanded to include reserve and National Guard elements, that number rises to 478. The active duty suicide rate of 21.1 per 100,000 can be compared to the 2013 civilian rate of 13.1 per 100,000 (43). While the overall rate of suicide is higher in DoD populations than in the civilian population, service members actually have a lower rate of suicide when compared with demographically matched civilian peers (182). However, a rising rate of military suicide over the last several years has decreased this gap. Indeed, since the decrease in combat deaths related to Operations Iraqi Freedom and Enduring Freedom, suicide is now the leading cause of death for active duty service members (179). The exact cause of this increase in military suicides is unknown.

**Suicide Attempts and Suicide Ideation in the United States Military**

Deaths by suicide represent the key target of suicide prevention efforts, but they are by no means the only metric of interest available to those interested in decreasing military suicide.

Suicide attempts and suicide ideation are important risk factors and indicators for possible continued suicidal behavior (80) as well as sources of suffering in their own rights. The most recent findings from RAND Corporation's DoD Health-Related Behaviors Survey report that, across all military branches, 5.1% of service members have attempted suicide at some point during their lives, and 18.1% reported suicidal ideation at some point during their lives (147). Suicide attempts in the past year were reported by 1.4% of service members, with 6.3% reporting suicidal ideation in the last year. Official DoD reporting tools identify 1,263 reported suicide attempts in 2016 across active duty, reserve, and National Guard components (178). However, this figure is very likely an underestimation, as many suicide attempts will have gone unreported to military authorities. RAND's recent findings report rates of suicide attempts and suicide ideation higher than military samples from previous years (27; 147), including the 2011 iteration of the same DoD survey (17). These rates are also higher than reported civilian rates of suicide attempts and suicide ideation (138).

Rates of suicide attempts and suicide ideation have differed somewhat across data-collection settings, military branches, and clinical/non-clinical samples. In a sample of predominantly Air Force personnel seen in a military outpatient mental health clinic, 7.3% had attempted suicide at some point, and 28.5% had experienced suicidal ideation (39). Another study using this same sample noted the potential role of trauma and hopelessness in increasing the severity of suicidal ideation in service members (35). Using a U.S. Army sample, Nock and colleagues (159) estimate a lifetime prevalence of 2.4% for suicide attempts, 5.3% for plans of suicide, and 13.9% for suicide ideation. The majority of the cases in the above study had pre-enlistment onset, and slightly less than half of total suicide attempts in their U.S. Army sample occurred prior to military enlistment. Speaking of the sample as a whole, approximately 1.3% of

soldiers indicate that they attempted suicide for the first time since joining the military. Of those who experienced suicidal ideation, 38.5% developed a suicide plan, and 17.1% attempted suicide. A mixed sample of active duty service members from all branches, as well as veterans, suggests that non-suicidal self-injury may serve as a possible intermediary step between suicidal ideation and suicide attempts for some service members (38).

Although DoD surveillance efforts for tracking rates of suicide attempts and ideation are not consistently carried out across all branches of the military, recent data from the Army STARRS program provides an illuminating view into suicide attempts within a large subset of the military population. The rate of suicide attempts in the U.S. Army has risen substantially over recent years (224), reaching 377.0 per 100,000 person-years between 2004-2009 (225). This rate is substantially higher than estimates of the civilian suicide attempt rate of 213.8 per 100,000 person-years (44). Demographic factors associated with increased risk for suicide attempts include female sex, white race, older age of enlistment, and younger current age (225). Other findings indicate that demographic risk factors for post-enlistment suicide attempts include female sex, and lower rank (159).

***Suicidality and Deployment***

A factor unique to military suicide prevention efforts is the role of deployments in risk for suicide. However, the effect of deployments – whether combat-related or otherwise – on suicide risk has not yet reached a consensus in the field. There is evidence to suggest that a history of combat deployments increases the risk for suicide and suicide attempts (133; 147; 159; 200; 208), although some have hypothesized that exposure to killing and death on deployment account for this increase in suicide, rather than the deployment itself (40). However, others have noted higher rates of suicidality in those who have never deployed (226), or found no connection

between deployment history and suicide (184). The Army Study to Assess Risk and Resilience in Servicemembers (STARRS) program of research has demonstrated that risk for suicide attempts was found to be higher both before and after deployment (225). This may indicate that at least some service members who can function adequately while in the field are more likely to attempt suicide upon their return home. However, definitive findings about the effect of deployments on suicide risk are not yet known.

**Suicide among Veterans**

Findings regarding suicide among those who previously served in the military provide additional context for the importance of military suicide prevention. A recent analysis from the Department of Veterans' Affairs (66) provides the most in-depth picture of suicide risk among U.S. military veterans to date. These data indicate that an average of 20 veterans died by suicide on each day of 2014. Veteran populations see some of the highest rates of suicide in the U.S., with a 2001-2009 rate of 27.9 to 29.9 per 100,000 (118). The proportion of veterans who have attempted suicide or experienced suicide ideation have been reported at 2% and 24%, respectively (13). The rate of suicide was highest among veterans whose ages most closely mirror the active duty population (ages 18-29), although 65% of the suicide deaths were in veterans age 50 or older; this is accounted for by the relatively larger population of older veterans from the Vietnam War era. Another estimate of the veteran suicide rate characterized those at highest risk within Veteran populations as including individuals at both ends of the age and experience spectrum – those very recently released from service as well as those between age 60 and 79 endorsed higher rates of suicide ideation than those still in service (27).

Generally, these data indicate that veterans experience a 21% increased risk for suicide compared to the U.S. adult population at large, when adjusted for age and gender (66). Notably,

female veterans experience a 240% increased risk for suicide when compared to U.S. civilian adult females, after adjusting for age, while veterans age 70 or older (regardless of gender) experienced rates of suicide lower than their civilian counterparts. Additional research is needed to account for these suicide rate disparities within the veteran population.

## HELP-SEEKING

The processes by which individuals get assistance have been defined in a variety of ways; indeed, one of the most prominent critiques of the help-seeking corpus is a lack of standardization in the methods of measuring and defining help-seeking (189). Early conceptualizations included help-seeking as a form of coping (148), while others have included an interpersonal process as a necessary condition for help-seeking to occur (188). For the purposes of this study, the definition of help-seeking proposed in Rickwood and Thomas' 2012 systematic review will be used: "In the mental health context, help-seeking is an adaptive coping process that is the attempt to obtain external assistance to deal with a mental health concern" (p. 180). This definition differentiates help-seeking from the use of individual cognitive or behavioral coping mechanisms, while being sufficiently broad to include a wide variety of behaviors. While a full review of Rickwood and Thomas' conceptualization of help-seeking will not be feasible in this paper, elements of the model are utilized to describe various help-seeking resources available to individuals in need. Because the present study involves an analysis of patterns of help-seeking across different sources of help, the way these help-sources are grouped is relevant to conceptualizing larger help-seeking behavioral patterns. Two classification methods will be discussed: (1) Rickwood and Thomas' classification of help-sources, stratified by professional training, and (2) a novel classification of help-sources, stratified by potential impact on the help-seeker's career.

**Sources of help – Professional delineations**

One effort to categorize the sources of help that individuals access or attempt to access resulted in the identification of three broad groups (in addition to self-help resources, which are not considered in the present discusion[1]): (1) informal, (2) semi-formal, and (3) formal (189). Under these groupings, help-sources are differentiated by their degree of specialization and associated levels of required education, ranging from highly specialized mental health providers (i.e., formal help-sources) to untrained friends or neighbors (i.e., informal). Formal, semi-formal, and informal categories of help can be readily identified within the framework of suicide prevention resources within the U.S. military:

1.) Informal resources include those with a personal, non-professional relationship, and therefore no expectation to provide mental health treatment. These individuals include family members, peers, friends, and romantic partners. In a military context, this category also includes members of a help-seeker's unit.

2.) Semi-formal resources include those with a professional relationship to the individual seeking assistance, but who do not have a professional responsibility or expectation to provide mental health treatment. Generally, these resources include supervisors, coaches, and academic counselors. While religious counselors and chat-based resources such as hotlines are not specifically identified as semi-formal resources in Rickwood and Thomas' original model, these sources as considered as such due to

[1] While self-help resources are recognized as an important resource available to individuals in need of help, they were not examined in the present investigation. This study provides recommendations to programmatic military suicide prevention efforts. Additionally, there is a paucity of research into the effectiveness of self-help resources for suicidal individuals. As such, emphasis is placed on the other help-source categories.

their nature as professional resources without an expectation of mental health treatment provision. These sources include military chaplains, suicide prevention hotlines (e.g., 1-800-273-8255), and military unit commands who may become involved in providing help to those in crisis.

3.) Formal help-seeking sources include individuals with an established professional responsibility to provide advice and treatment, and who have a primarily professional relationship to the person seeking assistance (189). These are individuals who have an expectation to provide treatment or counsel as part of their professional duties. In the military, this would include medical professionals and mental health providers, either as part of a military health clinic or health providers integrated within a military organization.

**Sources of help – Professional impact delineations**

Although the above classification of help-sources presented by Rickwood and Thomas accurately summarizes the options available within a wide variety of contexts, a proposed alternative categorization of help-sources was conceptualized to guide this dissertation research. This alternative method attempts to classify tiers of help-sources not by level of professional training, but by one of the functional barriers to accessing care within a military population – i.e., potential adverse military career-related consequences as perceived by the help-seeker. The concern that seeking help might adversely affect a service member's career has been previously noted as a prominent source of stigma in the military (111). In this categorization of help-sources, the major variable among the levels of care is the degree of presumed intersection between the help-source and the help-seeker's professional military life. This tiered categorization by potential for impact on the help-seeker's professional life is summarized in

Figure 1. The conceptualization is also compared with Rickwood and Thomas' (2012) categorization, as applied to military-relevant sources of help.

**Personal help sources** include individuals who have a limited connection to the help-seeker's professional life, and can be largely equated to the informal help-sources described by others (189). These include social connections with a primarily personal rather than professional relationship to the help-seeker, such as romantic partners, family members, and friends. These relationships function independently of military rank structure or military policy.

**Professional – Confidential help sources** include individuals who have a primarily professional relationship to the help-seeker, and who are perceived to have a limited capability to affect the help-seeker's military career. These resources include suicide hotlines (including telephone and online resources) as well as military Chaplains. Although Professional – Confidential sources are either a part of or are closely associated with the military, the ability for anonymity (as in military and civilian suicide hotlines) or absolute confidentiality (as is the case with military Chaplains) may serve to mitigate service member apprehension about potential professional effects resulting from seeking help. Chaplains are uniformed military officers, but the perceived potential for a Chaplain to negatively impact one's professional life is minimized by the knowledge of Chaplains' absolute confidentiality on all topics.

**Professional – Non-Confidential help sources** include individuals who have a primarily professional relationship to the help-seeker, and who are perceived to have a substantial capacity to affect the help-seeker's military career. These include sources typically considered formal help-seeking sources, such as psychotherapists, psychiatrists, and primary care providers. In a military context, medical personnel have the authority to limit a service member's eligibility for assignments that have elevated inclusion requirements, such as pilots, submariners, special

operations personnel, and service members with responsibilities related to nuclear technology. Additionally, medical personnel have the ability to recommend the suspension of a security clearance, which is a necessary precondition for work in certain fields.

This category also includes members of a help-seeker's chain of command. The commander of the help-seeker's unit has a particularly pronounced ability to impact his/her military career. With or without the recommendation of a medical professional, a commander has the authority to restrict or reassign an individual from his/her everyday career duties. A commander also has the authority to influence future career advancement opportunities by means of yearly evaluations. Through formal requests, commanders can order official mental health evaluations of service members. Each of these options has the potential to profoundly affect the course of a service member's career.

It should also be noted that the help-seeker's fellow unit members are included in the Professional – Non-Confidential help source category, including same-rank peers. Because U.S. service members are encouraged to speak with peers about suicidality and because unit members can be mobilized in an assigned capacity as first-responders to a fellow service member's suicidal crisis, use of this source of help is conceptualized as being closer to an official notification of a desire for help than the typical friend/peer relationship. Unit members are conceptualized as a particularly impactful source of help, including their potential impact on the help-seeker's military status. This assertion is supported by the finding that, among service members meeting screening criteria for a mental disorder, a majority of respondents indicated that the belief "Members of my unit might have less confidence in me" was a barrier to seeking care (109).

### *Psychiatric Treatment Approaches for Suicidal Individuals*

The present study focuses on help-seeking efforts generally rather than the use of specific treatment approaches for suicidal individuals. However, an understanding of some of the options available to individuals seeking help in medical or mental health settings provides useful context for decisions made by both patients and clinicians. A variety of methods have received research support as effective treatments for preventing or lessening suicidal behavior including suicidal ideation, attempts, and/or death by suicide (143). Individual and group psychotherapy is a common approach and has received support indicating its effectiveness in preventing suicide-related behaviors (42). Cognitive psychotherapy has been shown to reduce repeat suicide attempts by 50%, when compared with usual aftercare services (32). Suicide ideation has been decreased by interpersonal psychotherapy (219), cognitive-behavioral therapy (84) and dialectical behavior therapy (137). One review suggests that the most efficient elements of psychotherapy to decrease suicide-related behavior include limiting access to lethal means, maintaining contact through a hospitalization, and utilizing emergency call centers (70).

Psychopharmacological treatment has also demonstrated some success at reducing suicide-related behaviors (12). Tricyclic antidepressants and selective serotonin reuptake inhibitors are often prescribed to suicidal individuals (12), although there is evidence to suggest that certain antidepressants or combinations of antidepressants have no beneficial effect on adolescents (89), and may actually increase the risk for suicide attempts in some children (55). Long-term lithium use has also demonstrated some support for decreasing deaths by suicide (220).

***Social support***

Social support has been identified as a key concept relative to help-seeking. Help-seeking has often been defined within an interpersonal context (188), and from this conceptualization

nearly every effort to seek help could be seen as a manifestation of social support. However, social support most commonly refers to informal family and friend relationships that provide aid to individuals in a time of physical or emotional need (125). The definition used in this study focuses on the aspects of relationships instrumental to help-seeking, being "the qualitative content of relationships, such as the degree to which the social relationships provide emotional concern, understanding, caring, instrumental and practical aid, information and the like" (74)(p. 277-278). Conceptual characteristics of social support have been described as social embeddedness (the extent of an individual's network of relationships), perceived social support (subjective assessments of the availability and adequacy of one's relationships), and enacted social support (observable acts of support)(19). It has been suggested that the protective capacity of perceived social support may function through both increases to self-esteem and actual enacted support (125).

The availability of many of the personal help sources described previously (e.g., spouse, peers, friends) is reliant on the presence of social relationships in the help-seeker's life. The presence of social support resources has been found to predict response to a wide variety of stressors, including enhancing response to treatment for depression (136), increasing the ability to cope with a child's cancer diagnosis (162), and decreasing stress during pregnancy (161). The presence of these social support networks has also been demonstrated to serve as a protective factor for individuals at risk for suicide, including among physicians (128), depressed elderly individuals (160), and low income ethnic minorities (54). Among active duty and veteran populations, higher levels of social support have been associated with lower rates of suicide-related behavior and depression (23), including surrounding periods of deployment (63; 95; 96) and among service members with Posttraumatic Stress Disorder (PTSD) (146). While PTSD is

associated with increased rates of suicide generally, high levels of social support have been found to serve as a protective factor against the increased risk of suicide associated with PTSD in military veterans (63). While these findings anticipate that those experiencing suicide-related thoughts and/or behaviors would report less social support (95), the direction of causality cannot be definitively determined. That is to say, it is possible that those who have less social support are more likely to experience suicide-related thoughts and/or behaviors, and also that those who experience suicide-related symptoms may experience a decrease in social support.

**Help-Source Utilization**

Identifying possible sources of help for those in need is a necessary function, however, all of the resources in the world are not helpful if they are not used or are unavailable. Worldwide, it is estimated that 56.3% of depression, an important contributor to suicide, is untreated (127). Among one sample of U.S. citizens who endorsed suicidal ideation, more than half (52%) had not sought help in the last year (218). Of those who had not sought help, 75% did not feel help was necessary. This reluctance to seek help has been observed among the suicidal population as well (62). A meta-analysis of help-seeking behavior among adults experiencing suicide-related thoughts and/or behaviors (including suicide attempts, plans, and/or ideation) found that just 29.5% of individuals had used a mental health resource of some type within the last 12 months (110). In a large sample of Australian individuals with at least one lifetime suicide attempt or suicide ideation, less than 30% had sought help from official sources following their suicide-related behavior, and of these help-seekers, 39% had only one interaction with their help-source (60). Among those who die by suicide, about 24% have a mental health diagnosis at the time of death. The cause of this under-utilization of resources by those who stand to benefit the most from that help has been hypothesized to be an effect of help-negation, or the characteristic of the

most highly suicidal individuals to avoid seeking help (234). Help-negation has been observed as a negative correlation between the severity of suicide-related symptoms and intentions to seek care, and may be mediated by perceptions of social support (240), depressive symptoms, and hopelessness (234).

***Utilization of primary care resources***

Primary care resources are a help-source of particular interest because they are the healthcare resource with the broadest reach, and therefore great potential impact. Indeed, primary care centers not only provide care through primary care providers, they can also serve as gatekeepers to further care, providing referrals to psychiatrists, mental health clinics, and chaplains. Unfortunately, this broad reach does not always translate into high utilization for suicide prevention purposes. About 64% of individuals who die by suicide have contact with primary care services within the final year of their life (3), and 30% have primary care contact within four weeks of death (110). In a military sample, about 50% were found to have accessed medical resources within one month preceding death, and more than 25% had accessed medical resources within one week of death (185). If more of these individuals had utilized these resources for the purposes of treating their suicide-related symptoms, it is anticipated that fewer of them would have died, as primary care-focused interventions have been shown to be useful in decreasing both frequency and severity of suicidal ideation (34). Rates of patients seen in primary care endorsing suicidality are as high as 4% among all patients seen by mental health providers in integrated primary care settings (83), 5% among samples of older patients (170), and are much higher among patients with an identified mental health concern (36). In one study, 10% of individuals endorsing depression in a primary care facility attempted suicide over a five-year observation period (191). Despite primary care's broad reach, it is evident that these resources

are not used by help-seekers for suicide prevention purposes as widely as would be possible. More needs to be known about how best to make these resources more usable by those at risk for suicide.

***Military help-source utilization***

Personnel in the U.S. military have high utilization of health care services generally, partially due to service medical readiness requirements and the availability of medical care (73). However, mental health resources are underutilized. In a recent systematic review, Hom et al (111) found that 29.3% of service members who had experienced a mental health problem in the last year had sought mental health services. This can be compared with the general civilian population's rate of 38% utilization among those with a mental illness (232). This lower rate of service utilization is particularly striking given that all U.S. service members have access to free mental health services, while many citizens at large do not. An examination of one sample of U.S. Army personnel revealed that 9.5% had visited a military mental health professional in the preceding year, 7.3% had seen a chaplain, 4.4% had sought civilian mental health professional care, and 3.3% had sought help from a civilian religious leader (151). While lower rates of military health service utilization may be partially explained by military health standards for continued service, utilization rates are also lower than in the militaries of economically and culturally similar nations. For example, in a large sample of Canadian service members, 15% were found to meet criteria for one or more mental health disorders; 63% of these had contacted a mental health provider in the last year (77). Among service members in the United Kingdom (U.K.), 19% reported problems related to mental health, 31% of whom sought help (107). The factors that influence these comparatively low rates of help-seeking among U.S. service members are not known definitively.

*Military chaplains*

There is evidence to suggest that some service members are more likely to approach military chaplains than mental health resources if they perceive strong stigma against seeking help (155). One potential reason for this is the limitless confidentiality afforded to military chaplains. Mental health providers in the military are limited by legal reporting requirements typical of many civilian jurisdictions (e.g., threats of harm to others, child abuse, etc.), they are also obligated to report conditions seen as threatening to safe completion of an organization's mission. Chaplains, on the other hand, have no such limits on their confidentiality. One study among U.S. Army personnel found that approximately one third of soldiers seeking help for mental health or substance abuse problems did so from a chaplain (28). A study of deployed personnel from the U.K. found that non-medical personnel, including chaplains, were more likely to be accessed for help than medical professionals (152). Among a representative sample of U.S. Army infantry, seeking help from a chaplain was the second-most utilized help source, after military mental health professionals (151). Half of those seen by a chaplain screened positive for depression, 39% screened positive for PTSD, and one quarter screened positive for Generalized Anxiety Disorder (GAD) (151). Counterintuitively, those who professed a stronger religious conviction or religious behaviors were no more likely to seek care from a chaplain than those who do not display outwardly religious behaviors (151).

***Demographic influences on help-seeking - Sex***

Men and women differ in their utilization of help resources generally, as well as in utilization related to suicide (110). Women in the military have been shown to be significantly more likely to seek help than their male colleagues for general mental health concerns (107) as well as for care related to suicide (24; 145). When depressed, females have been found to

demonstrate help-seeking behavior at higher rates than males (46; 91; 149), even though men account for 79% of U.S. suicide deaths (237). One potential explanation for higher rates of help-seeking among women is a greater prevalence of attitudes positive toward psychological openness, or the likelihood of acknowledging and addressing psychological problems (141). Men and women appear to experience different amounts of stigma against help-seeking, but their experienced stigma also has qualitatively dissimilar characteristics (20). This suggests that resources, messages, and appeals designed for one sex may not have the same effect on another.

For instance, when they do seek care for suicidal ideation, men often do so once they have reached a higher level of severity than women (24). For suicidal men, accessing help sources may be more likely to occur via unsolicited encounters with healthcare sources, rather than purposeful efforts to ask for help (192). Adherence to elements of the traditional male gender role have been suggested as possible reasons for lower help-seeking in suicidal men, including stoicism, needs for autonomy and success, and aggressiveness (112; 114). It has been suggested that environments that encourage these values, including the military, may further discourage help-seeking (104). Emotional restriction may play a role in help-seeking among men, although it has been found that emotional restriction increases help-seeking stigma at low and moderate, but not high, levels of distress (104). Qualitative interviews with men who have attempted suicide have characterized their interactions with help-seeking as (1) seeking help because there is 'nothing to lose,' (2) receiving help incidental to other interactions with healthcare sources, and (3) actively avoiding help (192).

***Demographic influences on help-seeking - Military Rank***

Lower military rank has been associated with higher mental health service use (77). While rank and age are positively correlated and are often viewed as somewhat synonymous in

psychological research, there is reason to suspect that rank may play a role independent of age in influencing help-seeking. For example, older adults generally have more positive attitudes toward psychological help-seeking than younger adults (141), despite the fact that senior enlisted service members are less likely to use mental health services than junior enlistees (33), and commissioned officers are less likely to access these resources than enlisted ranks (107). The exact cause for this disparity is unknown. However, it raises questions about the modeling of healthy help-seeking behavior for junior personnel from those in positions of authority. Possible hypotheses include that those in senior positions may perceive greater stigma against seeking care, and/or they may seek mental health care outside of the military health system.

***Efforts to increase help-seeking***

A variety of efforts have been made to encourage populations at risk for suicide to seek help. These methods vary from programmatic efforts to encourage peer support as a cultural virtue (e.g., military suicide prevention programs focused on peer support; 14) to public education campaigns aiming to raise awareness of the presence of a problem for those who may be suffering (71). A meta-analysis by Hom et al (110) identified four broad categories of efforts to increase rates of help-seeking: (1) psychoeducation, (2) peer training, (3) gatekeeper training, and (4) screening. Efforts focused on psychoeducation may seek to increase mental health literacy or teach how to access available resources. Peer training and Gatekeeper training each focus on training those likely to have access to suicidal individuals how to effectively bring them to the right resources. Screening efforts, on the other hand, work to bring resources to the individuals at need, rather than encouraging individuals to find the right resources. While efforts to use screening to expedite contact with care may be promising, the 2014 U.S. Preventive

Services Task Force concluded that current evidence is not sufficiently strong to decisively demonstrate actual increases in help-seeking following screening.

Interestingly, the suicidal individual is not always the intended customer of the programs described above. While some individuals work to instruct or encourage the individual suffering, others seek to aid others in recognizing signs or symptoms of suicidality, or to provide motivation and training to act in protection of those at risk. Regardless of the intended audience, these interventions can focus on changing negative attitudes toward seeking care (e.g., stigma reduction) (94)), or may be focused on skill development (e.g., U.S. Army training to Ask, Care, and Escort suicidal individuals to mental health resources). These programs demonstrate the spectrum of interventions present in military suicide prevention efforts, ranging from individually-focused to programmatic efforts.

## Barriers to Care

Barriers to care can be broadly conceptualized as any factor that discourages individuals who need help from seeking or receiving that help. Many different factors can function as barriers to care, including inadequate access to treatment resources (110), logistical difficulties in utilizing resources to which one would otherwise be entitled to access (113), individual beliefs or attitudes that discourage individuals from seeking care (20; 104; 110), cultural stigma against seeking care (53; 111; 206), or a symptom severity that increases the difficulty of accessing care (142). For the purposes of this discussion, two prominent barriers to care are examined: (1) stigma, and (2) logistical barriers to care.

### *Stigma*

Utilizing a general definition, the word stigma refers to a negatively valenced "brand" applied to a person or subgroup by a social group (197). This label creates a "marked identity of

people with traits that are different than what is considered normal or ideal" (171). Within the context of military mental health care, a 2014 RAND Corporation working group fulfilling a request of the Department of Defense narrowed this definition to "a dynamic process by which a service member perceives or internalizes this brand or marked identity about himself or herself or people with mental health disorders. This process happens through an interaction between a service member and the key contexts in which the service member resides" (p. 8; 1). Most simply, stigma has been described as "the devalued status that society attaches to a condition or attribute" (216).

While a full review of individual factors affecting the presence of stigma-related beliefs is beyond the scope of this review, it will be beneficial to briefly identify some of the variables that have been associated with the strength of stigma-related beliefs from the existing corpus. For a more comprehensive review, the interested reader is directed to recent meta-analyses and systematic reviews on this topic (1; 110; 111).

Stigma against seeking help for mental health problems has been found to disproportionately affect those in the military (50), including for those experiencing depressive thoughts (201). In one large sample, 20% of service members reported that seeking mental health care would "definitely" harm their careers (28). One meta-analysis including over 90,000 participants calculated a median association between stigma-beliefs and help-seeking of $d$=-0.27 (50), suggesting that the presence of stigma-related beliefs may be a consistent deterrent to seeking help.

Stigma against seeking mental health care has been observed across multiple service branches (1), in other English-speaking militaries (29; 92; 113; 117), surrounding periods of deployment (109), and after service members have left the military (129; 163; 174; 193). Despite

strong indicators of the presence of stigma-related beliefs among service members, there is not a consensus that the presence of stigma against mental health treatment or mental health conditions results in decreased service use (1; 201); some have even found that an analysis of multiple studies indicated a higher service use among those with greater stigma against mental health care (193; 206).

Although the full relationship between stigma and service utilization is not yet known, this relationship may involve the changeable nature of stigma-salience among those most likely to access sources of help. One of the factors that predicts the strength of stigma-related beliefs is the presence of a mental health condition that would require care. In samples of deployed soldiers and Marines, those who screened positively for mental health disorders endorsed stigma-related beliefs at approximately twice the rate as those who did not (1). Similar to the concept of help-negation described earlier, those service members who have the greatest need to receive help are also those who are the most stigmatized against seeking it out. It is possible that beliefs related to seeking mental health care change as the necessity to seek care grows, but that those beliefs do not necessarily discourage seeking help unilaterally. More needs to be known about the relationship between stigma-related beliefs and patterns of seeking out help among suicidal individuals. One of the weaknesses of the existing literature is that many of these studies attempt to associate stigma-related beliefs with intention to seek care, rather than actual service utilization (206). One of the objectives of the present study was to elucidate the relationship between stigma-related beliefs and help-seeking by measuring actual help-service utilization.

*Content of stigma-related beliefs*

Stigma as a concept has been shown to be present across many military populations, and the content of that stigma also covers a variety of areas. A recent meta-analysis of the qualitative

literature has identified four common themes regarding the content of service members' stigma-related beliefs (53); corroborating findings from the quantitative literature can also be identified for each of these major themes:

**(1) Non-disclosure:** These beliefs demonstrate a value for keeping information about mental health challenges to oneself, for dealing with problems on one's own rather than including others, and perceived encouragement from leadership to not report mental health symptoms. This theme also encapsulates service members who viewed their psychological distress purely through the lens of somatic symptoms (29).

**(2) Individual beliefs about mental health:** Some service members espoused beliefs related to internalized stigma against themselves that was related to their mental functioning, such as 'I am weak,' or 'I am unfit for this job.' In a meta-analysis of stigma-related beliefs, 42.9% of those screening for a mental health disorder endorsed the belief that they "would be seen as weak" if they sought care (206).

**(3) Experiences of stigma:** Some service members reported perceived negative reactions from peers or leadership after seeking care. These stigma beliefs represented negative judgment levied against the service member because they had sought care, including a loss of respect. This judgment was also experienced by some from healthcare providers, including beliefs that civilian service providers would not be able to understand service member concerns.

**(4) Career concerns:** This very common theme included service members' concerns that seeking mental health care would negatively affect their careers, a category of beliefs that has been well-supported in the quantitative literature (1; 109-111; 129; 154; 206). This category includes beliefs centered on disclosure of mental health treatment

status: that treatment information would reach superiors and result in negative career affects. This theme includes concerns that the help-seeking service member could be removed from the military, reassigned to different duties, or lose a necessary security clearance. A meta-analysis of stigma-related beliefs in the military found that the statement "My unit leadership might treat me differently" was the most endorsed belief among service members with mental health problems, endorsed by 44.2% of individuals (206). The belief that seeking help "would harm my career" was endorsed by 33.4% of individuals across studies.

It should be noted that concerns related to career concerns are not groundless, as a service member's command may be notified of duty-limiting mental health concerns at any time. In one study of deployed soldiers, approximately 20% of those seeking care from mental health resources received some kind of duty limitation (195). In a recent sample of 38 treatment-seeking Marines, approximately 45% were found to have received a career-affecting recommendation as a result of treatment (e.g., restrictions on carrying weapons, non-deployable status, etc.), and those who had sought mental health treatment were more likely to have separated from military service than non-treatment-seeking controls (88). Another study found that 29% of service members receiving mental health services experienced some type of career-affecting recommendation as a result of their visit (87). These outcomes were most likely for those who had been command-directed to seek treatment, had greater symptom severity, and/or had a history of psychiatric hospitalization. However, findings in active duty populations indicate that those who self-refer to mental health resources have fewer contacts with command and fewer indicators of negative career effects than those who do not seek care independently and are instead referred from other sources (86; 194; 195). In regards to security clearances, recent

analysis from the Deployment Health Clinical Center indicates that in the period 2006-2012, only 0.17% of security clearances that were revoked or denied were done so for mental health reasons (120). It should also be noted that, as is the case with so much of the help-seeking literature, these findings are primarily related to seeking help from formal or non-confidential professional sources, and therefore may be less applicable to other sources with different requirements related to confidentiality (e.g., military chaplains, family members, etc.).

Stigma-related beliefs in individuals appear to change in accordance with proximity to the stigmatized symptoms. In a sample of service members following a deployment, those with new onset of mental health and/or substance-use problems experienced significantly higher levels of stigma than those without these symptoms, while those who had recovered from one of these conditions experienced significantly lower levels of stigma (117). This is echoed in the finding that stigma-related beliefs were approximately twice as prevalent in samples of service members with indications of a mental health disorder, compared to those with no indicator of disorder (1). These findings suggest that those experiencing worsening mental health symptoms (and therefore at greatest need for assistance) may also be those perceiving the greatest stigma against seeking help.

In addition to the above factors related to the content of stigma beliefs, a further theme related to factors that decreased stigma was identified within the qualitative literature (53). These included leadership that was perceived to understand the reality of mental health problems, societal understanding of mental health conditions, peers supportive of treatment, knowing other individuals who had successfully received treatment, and mental health providers who were culturally competent with military service members.

*Types of stigma*

Several subtypes of stigma have been suggested, informed by work in the field of HIV-related stigma (72; 216), including (1) *enacted stigma* (beliefs about performed acts of explicit discrimination or hostility), (2) *felt normative stigma* (an individual's subjective beliefs about the prevalence of stigma in the community), (3) *anticipated stigma* (the degree to which individuals believe stigma-motivated behavior will be applied to them) and (4) *internalized stigma* (the degree to which an individual accepts stigma as valid, and acts prejudicially toward the stigmatized group). When it is endorsed by a stigmatized group, internalized stigma can be further classified as (5) *self-stigma*, or accepted beliefs of inferiority. In one study, self-stigma was found to fully moderate the relationship between enacted (or public) stigma and intentions to seek help in a military sample (231). Internalized stigma and stigma related to treatment have been found to have the strongest negative effect on help-seeking behavior related to mental health care (50). This same study found that those in the military attributed a greater portion of their stigma to concerns about workplace discrimination, compared to other professions. These findings suggest that many service members believe that, were they to seek help, they would face negative external consequences at work. However, this belief may be substantially impacted by changes in a service member's self-prejudice, as it relates to mental health conditions.

***Structural barriers to care***

Structural barriers are any logistical challenge or impediment that increases the difficulty of accessing resources (111; 232). While having financial or insurance access to care is a significant barrier to care in the population at large (127; 232), military service member healthcare benefits largely remove this obstacle. However, other structural barriers relating to taking advantage of those entitlements remain. For example, the service member who has access to mental health care but is unable to take time off of work to attend treatment sessions is

experiencing a structural barrier to care. Other examples of structural barriers include not having transportation to access a help source, having insufficient money to pay for care, or not knowing how to access resources (109).

One complicating factor in assessing the presence of barriers to care is that psychopathology affects perceived structural barriers to care (113). Depressed individuals, for example, are more likely to report that they are functionally unable to or do not know how to access care (113). Structural barriers to care are more common in the veteran community (163), which may be a result of active duty service status' greater entitlement to healthcare resources and a certain degree of guaranteed financial resources. However, it should be noted that structural barriers to care for service members may change abruptly during times of training or deployment, creating unique challenges for those attempting to seek care for suicide-related behaviors (37).

**Models of Help-Seeking**

A variety of models have been applied to conceptualize individuals' help-seeking behavior. While a comprehensive review of these models is beyond the scope of this project, brief descriptions will be provided for context. The health belief model (115) accounts for influences on decision-making such as one's perceived susceptibility to a given risk and the perceived benefits of receiving an intervention, as well as the effects of cues to action (e.g., public information campaigns). The behavioral model of health services use (2; 8) examines potential patients' predisposition to utilize healthcare resources, factors that enable or impede the use of those resources, and an individual's need for care, paying particular attention to the characteristics of the healthcare system., the trans-theoretical or "stages of change" model (177) describes an individual's readiness to engage in a change of behavior at a given time. The social

organization strategy (169) applies a sociological approach to emphasize social relationships as determinants of individual medical decisions. Although each of these models provide some useful insight into the process of help-seeking, the model most frequently applied is the theory of planned behavior (6), previously referred to as the theory of planned behavior and reasoned action (4), or the reasoned action approach (5).

### *The Theory of Planned Behavior*

Application of the theory of planned behavior has received a large degree of support in the empirical literature (11), including in a large number of interventions focused on behavior change (102). The theory of planned behavior has undergone various revisions and additions over time, a full elucidation of which is beyond the scope of this review. However, the core elements can be simply stated in their relevance to application in the present research. Simply stated, this model posits that human behavior is driven by three principal considerations which in term influence behavioral intentions. These intentions, when aligned with actual behavioral opportunities ("Actual Behavioral Control") are the principal determinants of individual choices (5). The three primary considerations that inform behavioral intention consist of:

1) Beliefs about likely consequences following a given behavior, which affect positive or negative attitudes toward that behavior. In the context of the current focus on help-seeking behaviors among service members at increased risk for suicide, this would include personal attitudes related to seeking help for suicide, including internalized stigma.

2) Normative beliefs, which inform perceived subjective norms and culturally expected conduct. In the current study, anticipated stigma and beliefs about military unit attitudes toward help-seeking are conceptualized as falling within this category.

3) Control beliefs regarding factors that would encourage or discourage success, which inform the perceived difficulty of completing the behavior. Related to Bandura's concept of self-efficacy (15), this concept encapsulates the role of perceived social support in influencing help-seeking opportunities and behavior.

A full conceptualization of the application of the theory of planned behavior to help-seeking in suicidal service members can be seen in Figure 2.

## CLUSTER ANALYSIS

Cluster analysis is a powerful set of tools available to those seeking to identify distinct groups or subtypes within a parent group. Simply put, cluster analysis seeks to sort a sample into subgroups in such a way that the members within each subgroup are as homogenous as possible, while the subgroups themselves are as heterogeneous as possible (49). Unlike statistical methods used to test specific hypotheses, cluster analysis is an exploratory technique that attempts to identify and describe distinct subgroups based on group member characteristics.

Although other statistical methods are used to examine similar questions, they also include characteristics that made them less appropriate than cluster analysis for the purposes of this study. For example, discriminant function analysis is also used to identify the relationship between variables of interest and groups that naturally occur within the sample. However, there are important differences between these two methods. Through discriminant function analysis, variables are identified that predict known group membership. For example, an educator might be interested in determining which academic variables differentiate the members of different sports teams. Because categorical group membership is already known, the discriminant function analysis allows a researcher to understand which variables are predictive of group membership. However, groups must have already been identified beforehand. In discriminant function

analysis, group membership is given and the most important data variables are identified. Contrastingly, in cluster analysis data variables are given and group membership is identified. Because of the exploratory nature of the present study (that is, discovering group membership is the goal), cluster analysis was selected as the most appropriate method.

Cluster analysis is not a specific equation, but rather a process by which a set of data can be broken down into underlying subgroups (198). These subgroups can then be described to better understand the makeup of the complete sample. As such, a variety of statistical methods exist to identify clusters within a set of data (181). However, all methods attempt to identify homogenous subgroups from a larger heterogeneous sample. Different clustering procedures rely on different criteria to determine what 'counts' as a cluster. Some common clustering algorithms include calculations based on: (1) single linkage, or creating clusters based on sequential minimized distances between individual points (130); (2) complete linkage, or creating clusters based on similarity with all previously determined members of a cluster (116); (3) average linkage, or creating clusters based on similarity of a point to the average characteristics of points in the cluster (214); (4) centroid linkage, or creating clusters based on similarity to of a point to a calculated center point of the cluster (93); (5) minimum variance ("Ward's method"), or adding cluster members based on minimized increases to within-cluster variance (233). Regardless of what method is used to create the clusters, appropriate interpretation of the results is critical. Because cluster analysis may identify a much larger number of potential clusters than could be meaningfully interpreted, selection of the final number and nature of clusters requires appropriate use of theory, as well as statistical tools to determine how homogenous a subgroup must be to 'count' as a cluster (79; 81; 217).

**Applications of cluster analysis**

Cluster analysis has been used to describe typologies of individuals suffering from various conditions, including generalized anxiety disorder (25), gambling choices among problematic and non-problematic gamblers (45), eating disorders (168), and heroin users (61). Cluster analysis has become an increasingly popular methodology within the suicide literature in recent years. It has been used to create typologies of those who attempt suicide (48; 122; 139; 183; 236), intent-to-die in self-injurious behavior (9), and of those who die by suicide (16; 47; 144; 210), including among the elderly (211), individuals with bipolar disorder (199), and cases of 'suicide by cop' (68).

Despite this wealth of literature, there is a prominent gap in the literature relating to typologies of help-seeking behavior among suicidal individuals. Cluster analysis has been used to describe distinct heterogeneities among those who die by suicide or attempt suicide, resulting in descriptions of demographic and personality characteristics or suicide methods that can be used to aid in the tailoring of prevention efforts or targeted means restriction. However, no analysis of the subgroups of help-seeking behavior among suicidal individuals has been conducted. The current research met this need by identifying subgroups of help-seeking behaviors among service members demonstrating serious suicide-related behaviors.

Hierarchical cluster analysis is an exploratory method, and as such specific hypotheses regarding the characteristics of predicted clusters were not tested. However, prior theory and research (detailed in the literature review above) suggested potential relationships between the characteristics of suicidal individuals and patterns of help-seeking. These theorized characteristics are represented in Table 1.

Table 1. Proposed Clusters of Help-Seeking Behavior in Suicidal Service Members

| | **Cluster 1<br>Non-Discriminant<br>Help-Seekers** | **Cluster 2<br>Discriminant<br>Help-Seekers** | **Cluster 3<br>High Discriminant<br>Help-Seekers** | **Cluster 4<br>Non<br>Help-Seekers** |
|---|---|---|---|---|
| *Help Sources Utilized* | Professional - Non-Confidential [1]<br><br>Professional – Confidential [1]<br><br>Personal | Professional – Confidential [1]<br><br>Personal | Personal | None<br>(beyond current hospitalization) |
| *Demographics* | Sex: ↑ Female<br>Rank: Lower Rank | Sex: Bimodal<br>Rank: Multimodal | Sex: Bimodal<br>Rank: Multimodal | Sex: ↑ Male<br>Rank: Higher Rank |
| *Perceived Opportunities for Help*<br>*(Control Beliefs)* | Moderate Social Support<br><br>Low Barriers to Care | Moderate Social Support<br><br>Low Barriers to Care | High Social Support<br><br>High Barriers to Care | Low social support<br><br>High Barriers to Care |
| *Attitude Toward Help-Seeking*<br>*(Behavioral Beliefs)* | Low stigma | Moderate stigma | High stigma | High stigma |

*Notes*.

1. Professional resources (confidential or non-confidential) include both military as well as civilian resources (e.g., behavioral health providers in or out of the military healthcare system, phone helplines affiliated/not affiliated with the military)

## PURPOSE OF THE STUDY

The purpose of this dissertation study was to identify and to characterize the subgroups – or clusters – of service members hospitalized following a suicide-related event based on their help-seeking patterns preceding psychiatric inpatient care. To accomplish this goal, hierarchical cluster analysis was used.

### Study Rationale and Significance

Suicide is a significant problem within the Department of Defense (10). Those with a history of psychiatric hospitalization and a prior suicide attempt are at especially high risk (80). A variety of helping sources are available to those at risk for suicide (189), but patterns of use and subgroups within the intended population of suicidal service members have not been identified. While cluster analyses have been performed in a variety of studies, including those related to suicide, these studies have focused on creating typologies of individuals who attempt or die by suicide. To date, no studies have used a cluster analysis methodology to examine the help-seeking patterns among individuals psychiatrically hospitalized following a suicide-related event at civilian, military, and/or VA inpatient treatment units. The present research addresses this issue by using a sample of service members psychiatrically hospitalized for suicide-related events receiving care at two separate military inpatient treatment units.

By examining all help-resources, including those not administered by the military (e.g., family and peer resources), a more complete picture of help-seeking within the DoD can be given. The implications for clinicians and researchers are provided for this identification of subgroups. Through knowledge of common patterns of help-seeking,

clinicians can focus suicide safety planning interventions on those sources of help most likely to be used by service members experiencing a suicidal crisis. The present research will also be of interest to researchers of modifiers help-seeking behavior, including stigma, perceived barriers to care, and social support.

**Military Relevance**

Objective 5.4 of the *Department of Defense Strategy for Suicide Prevention* is to "Strengthen efforts of all DoD Components to increase access to and delivery of quality programs and services for Military Community personnel with mental and substance use disorders" (64, p. 15). The present study contributes to the achievement of this goal. Through yearly training requirements, the DoD has communicated a commitment to educating the armed forces about suicide prevention. The findings of this research identify the sources of help most and least utilized by a sample of active duty service members, drawn from all DoD branches, at the highest levels of risk for suicide. Additionally, the subjective helpfulness and/or harmfulness of these resources is identified. These findings enable military administrators and policymakers to prioritize resources to the help-sources most likely to be accepted and used by service members at risk for suicide, and allows them to identify underutilized resources potentially in need of improvement. This study was conducted among an exclusively DoD service member population hospitalized following a suicide-related incident. Participants were drawn from all uniformed services.

# CHAPTER 2: Aims and Hypotheses

## SPECIFIC AIMS AND HYPOTHESES

**Aim 1:** To describe the self-reported help-seeking patterns, health services utilization, social support, and perceived barriers to care of service members admitted for inpatient psychiatric care following a suicide-related event.

**Aim 2:** To use hierarchical cluster analysis to identify clusters among service members admitted for inpatient psychiatric care following a suicide-related event, based on patterns of help-resource utilization in the period preceding admission to inpatient psychiatric care associated with a suicide-related event.

**Aim 3:** To assess the internal stability and external validity of the clusters.

*Hypothesis 3a:* The clusters identified in Aim 2 will demonstrate internal stability. More specifically, the number and structure of clusters derived from the 1st group of randomly selected inpatients will be similar (i.e., stable) to the 2nd group of randomly selected inpatient cases, as determined by split-half analysis.

*Hypothesis 3b:* The clusters identified in Aim 2 will demonstrate external validity. More specifically, the clusters will differ in composite scores of the Cornell Services Index, another measure of healthcare utilization.

**Aim 4:** To evaluate correlates associated with each cluster.

*Hypothesis 4:* The clusters identified in Aim 2 will differ with respect to the following variables: sex, rank, perceived stigma, perceived barriers to care, and perceived social support.

# CHAPTER 3: Methods

## OVERVIEW OF STUDY AND EXPERIMENTAL DESIGN

This study utilized data from the Institutional Review Board (IRB) approved Post Admission Cognitive Therapy (PACT) for the Inpatient Treatment of Military Personnel and DEERS Eligible Adult Dependents with Suicidal Behaviors multi-site, single-blind randomized controlled trial (RCT). This trial investigated the efficacy of a brief psychotherapy intervention for individuals psychiatrically hospitalized following a suicide-related event. Potential participants were approved for recruitment by attending psychiatric personnel, and consenting patients were first administered a number of baseline self-report questionnaires by Bachelor's or Master's level research assistants. In addition, study participants completed clinician-administered measures delivered by Master's or Doctoral level clinicians.

This study was cross-sectional in nature and involved secondary data analyses to identify typologies among the help-seeking behavior exhibited in the period preceding a psychiatric hospitalization due to a suicide-related event. The study relied on a subset of the original RCT data collected. Specifically, baseline data on self-report questionnaires were drawn from active duty service members. Quantitative data analytic methods were used in this study. The main outcomes of interest were self-reported patterns of pre-hospitalization help-seeking behavior, as well as associated attitudes related to social support, stigma, and perceived barriers to care.

## STUDY PARTICIPANTS

Participants for this study included 135 active duty service members admitted to a military treatment facility (MTF) following a suicide-related event. These events included suicide attempts or suicide ideation in the presence of a plan and intent to carry out that plan. Participants were adults who provided informed consent at a baseline assessment completed 48-72 hours after admission. Participants were recruited from two MTFs.

Individuals excluded from the study included those with serious medical or cognitive impairments (e.g., active psychosis, severe traumatic brain injury), those expected to be discharged from the MTF within 72 hours of admission, and those unable to provide consent. Medical eligibility to participate was determined by the admitting inpatient physician or based on group consensus within the research team.

## RECRUITMENT

Potential participants were deemed eligible for recruitment and eventually approached through a multi-step process in order to maximize the protection of patients in a sensitive inpatient setting. As part of daily morning report on the inpatient unit, those admitted for suicidal ideation and/or attempts were briefed to study case managers by unit psychiatrists, psychiatric residents, or nurse practitioners. Case management personnel also reached out to unit social workers about prospective participants. Permission to approach potential participants was only given for those patients deemed appropriate for the study by these unit clinical personnel. If the attending psychiatrist was one of the collaborators of the larger PACT study, written permission by another

psychiatrist not affiliated with the study was required before a patient was approached for participation.

Those individuals deemed appropriate for inclusion in the study were then approached by the attending psychiatrist or other member of the inpatient treatment team in order to assess the patient's interest in speaking with a case manager about participation in a research study. Study case management personnel then spoke with those who agreed to be approached for recruitment purposes. The nature of the study was presented to them, including informed consent about the risks and benefits of the study and the limits of confidentiality, and the patient was invited to participate. Interested participants were asked to review and sign an IRB-approved Consent and Health Insurance Portability and Accountability (HIPAA) Authorization Form. Potential participants were assured that their participation or lack of participation would not influence the current or future care they would receive from hospital staff. A CONSORT flow diagram (202) including the relevant recruitment processes of the present study has been included as Figure 3. The largest group of potential participants excluded from the study were those who did not meet the inclusion/exclusion criteria, most notably those who were not on the inpatient unit long enough to participate in the randomized controlled trial from which these data were drawn.

## DATA COLLECTION

The assessments used in this study represented segments of a larger assessment protocol lasting approximately 3-5 hours, completed within 48-72 hours of admission. Data collection methods included in this study consisted of administration of self-report

questionnaires.[2] All self-report measures were administered by clinically-trained interviewers with a minimum of a Bachelor's degree. To aid in administration in an inpatient setting with a vulnerable population, these questionnaires were sometimes administered to participants verbally.

Before administration of study assessments, individuals who consented to participate were administered a screening measure to determine their eligibility for further participation. The purpose of this screening step was to assure that the severity of individuals' suicidal ideation was sufficient to meet the purpose of the larger study. To move beyond screening, participants must have endorsed a lifetime history of suicidal ideation, a plan to die by suicide, intention to carry out that plan, and preparation to complete the plan, as assessed by the Columbia-Suicide Severity Rating Scale (C-SSRS) screener. Those who did not endorse a history of these symptoms were thanked for their participation and were not included in any further involvement.

## MEASURES

Measures administered to study participants included the following:

The Actual Help-Seeking Questionnaire (AHSQ) (188; 190)– This self-report measure asked individuals to identify the sources of help they attempted to communicate suicide-related thoughts and feelings to prior to hospitalization, selecting all applicable options from a list of available sources (i.e., Intimate partner; Friend; Parent; Other relative or

[2] Additional clinician-administered and self-report measures were included as part of the baseline assessment. However, the present study used only a portion of the baseline data.

family member; Chaplain; Phone help line (e.g., Lifeline); Other unit members (not including command); Primary care physician; Behavioral health professional; Unit command (e.g., NCOs); Other). For each support endorsed, participants were asked to indicate if the support was helpful (yes/no) and/or harmful (yes/no). This measure has previously been used to study a variety of military populations (26; 59; 175). The AHSQ has sometimes been broken into scales indicating formal help-seeking, informal help-seeking, and no help-seeking (235). Scale scores have been shown to be internally consistent, and AHSQ scores demonstrate convergent and discriminant validity (188).

Perceived Barriers to Care (PBTC) (109): Published in 2004 (109), the PBTC consists of 13 self-report items examining service members' attitudes toward seeking mental health services. Items on the PBTC were rated 1-5 (Strongly Disagree to Strongly Agree), with possible scores ranging from 13-65. Higher scores indicated greater perceived barriers to care. These attitudes included statements related to functional barriers to care (e.g., "*It is difficult to schedule an appointment*."), concerns about stigma against seeking help (e.g., "*My unit leadership might treat me differently*."), and the effectiveness of mental health care (e.g., "*Mental health care doesn't work*."). The PBTC was created using a sample of more than 6,000 soldiers and Marines in the period before or following their deployment to Iraq or Afghanistan, and has been applied to a wide variety of military samples (33; 117; 228).

Factor analysis of the PBTC has shown mixed results, with one study (30) identifying two factors (Barriers to care; Stigma) in an Army sample, while another noted three factors (Perceived unit stigma and harm to career; Organizational/cultural barriers

to care; Individuals' barriers to care) in a marine population (228). These findings support the notion that the PBTC measures a broad overall conceptualization of barriers to seeking mental health care.

Duke Social Support and Stress Scale (DUSOCS)(167): This measure contained 24 items related to various sources of social support, including family members, friends, and co-workers. Participants were asked how supportive each source of social support is (None; Some; A Lot; There is No Such Person), as well as how stressed the participant felt by that source of social support (None; Some; A Lot; There is No Such Person). Higher scores on the 10-item Support scale indicated a greater degree of perceived support from personal relationships, while higher scores on the 10-item Stress scale indicated a greater degree of perceived stress from personal relationships. Each scale also included two items identifying one particularly supportive/stressful relationship, if applicable. The DUSOCS Support scale has been positively correlated with measures of physical, mental, and social health, as well as measures of self-esteem, and has been negatively associated with measures of anxiety and depression (167). This association between social support and self-esteem has been replicated using other measures of social support, and has been posited as a protective factor against suicidal ideation (125). The DUSOCS Stress scale has been positively associated with anxiety, depression, and pain, and has been negatively associated with measures of physical, mental, and social health, perceived health, and self-esteem (167).

Military Stigma Scale (MSS) (213): This 26-item self-report measure examined public- and self-stigma in service members. Items were scaled on a Likert-like scale from Definitely Disagree to Definitely Agree. Possible MSS scores ranged from 26-104, with higher scores indicating higher endorsed stigma. Items on the MSS covered a range of statements related to stigma, including those related to beliefs about the mental health care (e.g., "*A person seeking mental health care is seen as weak*."), career-related concerns (e.g., "*I am open to seeking services, but I worry about how it could hurt my career*."), and worries about the perception of others (e.g., "*People I respect would think less of me if they knew I had mental health problems*."). Elements of the MSS have been applied to a variety of military populations (205; 231). The MSS was created using a sample of over 1,000 soldiers and has been found to contain two factors, labeled Public Stigma ($\alpha = .94$) and Self-Stigma ($\alpha = .89$). These scales were each components of a higher order Stigma factor, and had a correlation of .67. Together, they accounted for 52% of the variance in scores (213).

It should be noted that although the MSS and the PBTC cover related concepts, each measure provided distinct benefits. While the PBTC contained some questions related to stigma, it covered a wider range of factors including non-stigma related barriers to care, such as structural barriers to seeking care. The MSS focused on beliefs related to public and self-stigma, and conducted a more robust assessment of these beliefs. Each measure provided advantages not present in the other.

Cornell Services Index (CSI) (212): This measure examined healthcare service utilization via a broad array of information, including types of providers, sites of service, reasons for

service, length of visits, and frequency of service utilization, among others. Information was gathered about both medical and psychological services over the last 90 days. Respondents provided information on up to seven medical issues that led to visits. Psychological service utilization was gathered by the breadth and frequency of utilization of a variety of services, including individual and group psychotherapy, medication visits, intake evaluations, etc. The CSI was developed on a sample of 1,279 adults in an outpatient mental health clinic, and demonstrates strong inter-rater reliability, with kappa values ranging from .86-1.00. Test-retest reliability is also strong, with Phi correlations ranging from .54-1.00. The CSI has been used to measure healthcare utilization in a variety of populations, including among service members hospitalized following suicidal self-directed violence (85), veterans at elevated risk for suicide (58), service members suffering a mild traumatic brain injury (187), those seeking cognitive behavioral therapy for depression (75), and those seeking treatment for post-traumatic stress disorder (132).

## HUMAN SUBJECTS PROTECTION

### Data Safety Monitoring Board

Given the extremely high stakes of any research involving an acutely suicidal population, the highest standards of data gathering and oversight were utilized. An independent Data Safety Monitoring Board (DSMB) was an important element of this. The DSMB consisted of individuals otherwise independent of the project who have expertise conducting research and monitoring suicidal participants in clinical trials, managing data, and who seek to advance participant rights. The DSMB served as an independent monitor of data management procedures, methodological and ethical

concerns, implementation of safety measures to protect human subjects, and to recommend to modify or terminate the study if necessary. No such action was deemed necessary.

**Data Safety**

Data from assessments gathered on paper documents were either immediately transported in a locked briefcase by study personnel or were stored in a locked storage container in an office of the inpatient unit before transfer in a locked briefcase to USUHS facilities. All paper documents were stored in locked cabinets behind two locks. Documents containing protected health information were stored in locked filing cabinets separate from participant assessment files. Digital recordings of assessments were stored on DoD-approved hard drive units and backed up to compact disc. Each of these materials were stored in locked cabinets in USUHS facilities. Electronic files were entered into the SmartStudy electronic clinical data capture system, an encrypted internet-based transmission and storage service. Data were stored on the Altarum Secure Network (ASN), managed by KAI.

# CHAPTER 4: Data Analytic Plan

## DATA ANALYTIC PLAN

**Aim 1:** To describe the self-reported help-seeking patterns, health services utilization, social support, and perceived barriers to care of service members admitted for inpatient psychiatric care following a suicide-related event.

### Statistical Analyses for Aim 1

Aim 1 was accomplished through the reporting of descriptive statistics. The following variables are reported, with parenthetical data sources indicated: Help-seeking patterns and health services utilization (AHSQ); social support (DUSOCS); perceived barriers to care (PBTC); and perceived stigma (MSS). Participant demographic information is also reported.

**Aim 2:** To use hierarchical cluster analysis to identify clusters among service members admitted for inpatient psychiatric care following a suicide-related event, based on patterns of help-resource utilization in the period preceding admission to inpatient psychiatric care associated with a suicide-related event.

### Statistical Analyses for Aim 2

Aim 2 was accomplished through hierarchical cluster analysis, a method previously used in suicide typological research (47; 78; 95). The methods described below are in accordance with best practices for cluster analysis described by Aldenderfer and Blashfield (7). Hierarchical cluster analysis was selected as the clustering method in order to best meet the goal of examining cluster patterns as they present themselves in the

novel dataset. While an iterative clustering method (e.g., a K-means cluster analysis) may also have been appropriate, it would have required specifying the appropriate number of clusters a-priori. At the current stage of research, this would have relied too heavily on supposition, without prior research to guide it. It is hoped that future research may build on the clusters identified here, including making use of additional clustering methodologies. Euclidian squared distance was selected as the measure of similarity for the analysis. A review of cluster analyses in health psychology found that Euclidian distance and Euclidian squared distance are the most commonly used measure of similarity in psychological studies, and are generally the most appropriate for the types of data gathered in the social sciences (49).

The hierarchical agglomerative cluster analysis was conducted using SPSS version 24 to group participants according to help-seeking patterns, as defined by responses on the AHSQ. Ward's method (233) was utilized. This method calculates clusters by grouping data points in such a way as to minimize variance within each cluster, gradually combining the most-alike data points to minimize marginal increases in Euclidian squared distance as data points and cluster agglomerate. Examination of the resulting dendrogram detailing cluster composition aids in final cluster identification and selection.

**Aim 3:** To assess the stability and external validity of the clusters.

*Hypothesis 3a:* The clusters identified in Aim 2 will demonstrate stability. More specifically, the number and structure of clusters derived from the 1st group of

randomly selected inpatients will be similar (i.e., stable) to the 2nd group of randomly selected inpatient cases, as determined by split-half analysis.

*Hypothesis 3b:* The clusters identified in Aim 2 will demonstrate external validity. More specifically, the clusters will differ in composite scores of the Cornell Services Index, another measure of healthcare utilization.

**Statistical Analyses for Aim 3**

The purpose of Aim 3 was to establish the merits of the cluster structure beyond application to the current sample alone. To accomplish this, two goals must have been met: (1) stability of the cluster model (Hypothesis 3a), and (2) external validity (Hypothesis 3b).

***Stability of the model***

In recent years, assessing stability has become one of the most popular methods by which to select the appropriate number of clusters within a given model (230). In hierarchical cluster analysis, stability refers to the degree to which a similar cluster structure is created on different portions of the same dataset. If different, randomly-selected portions of the data create clusters with similar structures and sorting rules, the cluster model is assessed to be stable.

Hypothesis 3a was accomplished through split-half analysis. Half of the total sample was randomly selected for inclusion in the cluster analysis to identify help-seeking subgroups. A second hierarchical cluster analysis was performed on the remaining half of the sample for the purpose of establishing the stability of the clusters. After creation of each model, the members of the unused half were added to the clusters

based on proximity to the cluster centroid. As the number of identified clusters was equal in both models, the kappa coefficient (51) was calculated to identify the agreement between each model's identified clusters. Kappa coefficient interpretation standards proposed by Landis and Koch (131) were applied. After split-half analysis, all cases were utilized for a final cluster analysis in order to create a maximally inclusive model, mitigating the influence of chance distribution. If the initial split-half analysis had suggested an unstable model, however, split-half analysis would no longer be available as a measure of internal validity of this final model. In this case, a bootstrapping approach could have been used as an alternative method of identifying stability (100). Under this scenario, it would have been necessary to transition to a k-means cluster analysis method.

***External validity of the model***

Establishing the external validity of a cluster analysis has been identified as a best practice (49). Specifically, a measure that has not been included as an input variable of the cluster analysis but that measures the same construct as a variable that has been included can be used. By examining how responses on this external data source compare across the clusters, intuitive judgments can be made to establish whether the clusters are in fact differentiating based on real-world characteristics.

Hypothesis 3b was approached by looking for between-group differences, with groups specified as the clusters identified in Aim 2. This was accomplished through chi-squared analyses and ANOVAs. The independent variable (IV) for all analyses was group membership, (Categorical, number of levels determined by cluster analysis). It was hypothesized that the clusters would differ in their healthcare utilization across six variables: the presence of any service utilization (calculated by medical or psychological

resources), breadth of service utilization (calculated by medical or psychological resources), and frequency of service utilization (calculated by medical or psychological resources). DVs for each analysis are summarized below:

**Presence of service utilization: Medical services.** Differences in medical service utilization between identified clusters was examined through a chi-squared test (DV: Presence of service utilization; Binary variable).

**Presence of service utilization: Psychological services.** Differences in psychological service utilization between identified clusters was examined through a chi-squared test (DV: Presence of service utilization; Binary variable).

**Breadth of service utilization: Medical services.** Differences in breadth of medical services utilization between identified clusters were examined through a 1-factor ANOVA (DV: Number of different types of medical resources accessed; Continuous).

**Breadth of service utilization: Psychological services.** Differences in breadth of psychological services utilization between identified clusters were examined through a 1-factor ANOVA (DV: Number of different types of psychological resources accessed; Continuous).

**Frequency of service utilization: Medical services.** Differences in frequency of medical services utilization between identified clusters were examined through a 1-factor ANOVA (DV: Frequency of visits to any medical resource; Continuous).

**Frequency of service utilization: Psychological services.** Differences in frequency of psychological services utilization between identified clusters were examined through a 1-factor ANOVA (DV: Frequency of visits to any psychological resource; Continuous).

**Aim 4:** To evaluate correlates associated with each cluster.

*Hypothesis 4:* The clusters identified in Aim 2 will differ with respect to the following variables: sex, rank, perceived stigma, perceived barriers to care, and perceived social support.

**Statistical Analyses for Aim 4**

Hypothesis 4 was accomplished through chi-squared analyses and ANOVAs. The independent variable (IV) for all analyses was group membership (Categorical, number of levels determined by cluster analysis). For any categorical dependent variables (DVs) with very few responses in a given response category, cells were combined to aid in patient privacy as well as statistical practicality. DVs are summarized below:

**Sex**. Differences in sex between identified clusters were examined through a chi-squared test (DV: Gender; Binary variable).

**Rank**. Differences in rank between identified clusters were examined through a chi-squared test (DV: Rank; Categorical (5): Enlisted (E1-E4); Enlisted (E5-E6); Enlisted (E7-E9); Officer or Warrant Officer (O1-O10 or W1-W5); Cadet or Midshipman). These rank breakdowns were selected to mirror categorization systems used by others (108).

**Social support.** Differences in social support between identified clusters were examined through a 1-factor ANOVA (DV: DUSOCS score; Treated as Continuous).

**Perceived barriers to care.** Differences in perceived barriers to care between identified clusters were examined through a 1-factor ANOVA (DV: PBTC score; Treated as Continuous).

**Perceived stigma**. Differences in perceived stigma between identified clusters were examined through a 1-factor ANOVA (DV: MSS score; Treated as Continuous).

### Statistical software

Data analysis for this study was completed using the *Statistical Package for the Social Sciences*, version 24 (SPSS) statistical software. Power analyses for chi-squared tests were conducted using G*Power version 3.1 (76). Power analyses for ANOVAs were conducted using Stata data analysis and statistical software.

### POWER ANALYSIS

G*Power version 3.1 statistical software (76) was used for a chi-square sensitivity power analysis in order to determine the detectable effect size, given the known sample size. The requirements for the most stringent analysis were used (4x4 chi-square analysis with 9 degrees of freedom). Using the parameters of 80% power, .05 error probability and a sample size of 126, this analysis was adequately powered to detect a medium-to-large effect size (w=0.35). All other chi-square comparisons were powered to detect smaller effect sizes.

Post-hoc sensitivity analyses for ANOVA comparisons of between-cluster variables were conducted to determine the detectable effect size, given the known cluster sizes. Using the parameters of 80% power, .05 error probability, total sample size of 135, and cluster sizes of 81, 23, and 31, ANOVAs using full cluster membership were adequately powered to detect medium effect sizes ($\delta$=0.27). This interpretation corresponded to standard effect-size estimates put forth by Cohen (52).

# CHAPTER 5: Results

Participants in the present study included 135 active duty U.S. service members admitted to a military treatment facility (MTF) following a suicide-related event. These participants were primarily male (*n*=95; 70.4%), white or Caucasian (*n*=88; 65.2%), not Hispanic or Latino (*n*= 116; 85.9%), and had attended some college (*n*=48; 35.6%). Approximately half of participants had never been married (*n*=64; 47.4%), with the remaining being currently married (*n*=51; 37.8%), separated/annulled/divorced (*n*=19; 14.1%), or cohabitating (*n*=1; 0.7%). The mean age of participants was 27.9 years (SD=7.76).

In terms of branches of military service, participants were from the U.S. Army (*n*=49; 36.3%), Navy (*n*=38; 28.1%), Marine Corps (*n*=23; 17.0%), Air Force (*n*=22; 16.3%), and Coast Guard (*n*=3; 2.2%). Participants had served an average of 90.9 months in the military (SD=86.0), with responses ranging from two months to 33 years. Approximately half of participants were in ranks E1-E4 (*n*=66; 48.9%). Most participants (*n*=76; 56.3%) had never deployed, while those who had deployed had done so from 1 (*n*=19, 14.1%) to 10 times (*n*=3; 2.2%). A description of demographic information for the full sample, as well as broken down by cluster membership, can be found in Table 3.

## AIM 1

Table 4 includes help-source utilization in the 30 days preceding a suicidal crisis. Table 6 presents sample size, means, and standard deviations for the remaining measures included in Aim 1 for the full sample and broken down by cluster membership.

### Help-Seeking

Help-seeking efforts in the 30 days preceding the suicidal crisis that led to hospitalization were measured via the AHSQ. The mean number of help-sources utilized by participants was 3.2 (SD=1.97), ranging from 0-8 help-sources. Across the entire sample, the most commonly utilized sources of help were behavioral health professionals (64.4%), friends (53.3%), intimate partners (47.4%), unit command (36.3%), other unit members (26.7%), and chaplains (22.2%). The least utilized resources were phone help lines (6.7%) and primary care physicians (14.8%), and non-parent, non-spouse relatives (16.3%). The "Other" option was endorsed by 11.1% of individuals, and included such responses as a neighbor, professor, or civilian ecclesiastical leader.

Individuals who did not endorse any help-seeking accounted for 10.4% of the total sample. For those who do not endorse seeking any help for their suicidality, the AHSQ gives the opportunity to give up to two reasons why help was not sought. While a comprehensive analysis of these responses is beyond the scope of this study, a brief overview of responses could be illustrative. Common themes of responses included stigma (e.g., "Felt that seeking help would be detrimental, there would be a stigma," "Didn't want to be made fun of"), the nature of the symptoms (e.g., "Sudden onset of symptoms," "I wasn't depressed," "Felt irregular to think this way, waiting for it to possibly pass," "Didn't feel like talking to anyone"), belief that seeking help was not effective (e.g., "[mental health] treatment would not help;" "Wasn't sure help would work"), and perceived personal failings (e.g., "Weak," "Pride," "Denial").

Among those who utilized a given help-source named on the AHSQ, the sources indicated as helpful by the greatest proportion of users were non-parent, non-spouse relatives (81.1%), phone help lines (77.8%), other unit members (77.8%), unit command

(77.6%), friends (75%), and behavioral health providers (74.7%). The help-sources indicated as helpful by the lowest proportion of users were chaplains (60.0%), intimate partners (60.9%), parents (63.3%) and primary care physicians (65%).

Among those who utilized a given help-source named on the AHSQ, the sources indicated as harmful by the greatest proportion of users were parents (40.0%), primary care physicians (35.0%), and unit command (31.3%). The help-sources indicated as harmful by the lowest proportion of users were phone help lines (0%), non-parent, non-spouse relatives (13.6%), and other unit members (13.9%).

On the AHSQ, it is possible to indicate that a given help-source was both helpful and harmful. Among those who utilized a given help-source named on the AHSQ, the sources indicated as both helpful and harmful by the greatest proportion of users were unit command (35.7%), behavioral health professionals (32.1%), friends (32.1%), and primary care physicians (32.1%). The help-sources indicated as both helpful and harmful by the lowest proportion of users were phone help lines (0%), chaplains (3.6%), and other unit members (7.1%). Interpretation of these figures should be viewed with caution, as there were influenced by low rates of endorsement. Full data related to the helpfulness and/or harmfulness of help-sources can be found in Table 5.

**Social Support**

Social support was measured via the DUSOCS. The mean social support score for all participants was 37.5 (SD=21.8). The sources of social support most frequently endorsed as providing "A Lot" of support were spouses or significant others (43.8%), parents (34.2%) and other friends (31.4%). The sources of social support most frequently endorsed as providing "None" were neighbors (66.9%), other blood relatives (45.5%) and

relatives by marriage (34.7%). The sources of social support most frequently endorsed as "There is No Such Person" were children or grandchildren (58.7%), church members (56.7%), and spouses or significant others (33.1%).

A large majority of the sample (81.8%) indicated that they have "one particular person whom you trust and to whom you can go with personal difficulties." These individuals were most commonly identified as spouses or significant others (30.3%), co-workers (30.3%), or parents (15.2%).

**Perceived Barriers to Care**

Beliefs about barriers to care were assessed through the PBTC. The mean score on the PBTC was 34.3 (SD=10.35). The statements most commonly endorsed as "Agree" or "Strongly Agree" were "My unit leadership might treat me differently" (62.3%), "Members of my unit might have less confidence in me" (57.8%), and "I would be seen as weak" (54.0%). The statement least commonly endorsed was "Mental health care doesn't work" (2.2%).

Using the component analysis completed by VanSickle et al (228), subscale scores were generated: Perceived unit stigma and harm to career (M=18.87; SD=7.04); Organizational/cultural barriers to care (M=9.5; SD=3.04); Individuals' barriers to care (M=5.92; SD=2.10).

**Stigma**

Stigma-related beliefs were assessed through the MSS. The mean total score for all participants was 63.0 (SD=17.33). This total score was broken down into Public Stigma (M=42.1; SD=12.20) and Self-Stigma (M=20.9; SD=6.99). The statements most commonly endorsed as "Somewhat Agree" or "Definitely Agree" were "I would feel

okay about myself if I made the choice to seek professional help" (80.2%), "There are things I am afraid to talk about because of what others will think" (77.7%), "People would judge me poorly if they knew that I received mental health services" (72.8%), and "I would worry about my personal problems being part of my military records" (71.9%). The statements least commonly endorsed were "Seeking psychological help would make me feel less intelligent" (22.3%), "If I went to a therapist, I would be less satisfied with myself" (23.1%), and "My self-confidence would be harmed if I got help from a mental health provider" (24.8%).

**Correlation Between Perceived Barriers to Care and Stigma**

There was a positive correlation between total PBTC score and total MSS score, $r=.709$, $n=121$, $p<.001$, indicating a strong correlation. Comparisons between total MSS score and the PBTC subscales were also considered. The factors identified by Vansickle et al.(228) were used for these analyses. There was a positive correlation between the PBTC: Perceived Unit Stigma and Harm to Career subscale score and total MSS score, $r=.724$, $n=121$, $p<.001$, indicating a strong correlation. There was a positive correlation between the PBTC: Individual Barriers subscale score and total MSS score, $r=.470$, $n=121$, $p<.001$, indicating a moderate correlation. There was a positive correlation between the PBTC: Organization/Cultural Barriers to Care subscale score and total MSS score, $r=.388$, $n=121$, $p<.001$, indicating a moderate correlation. These values are within the range typically recommended for correlations between variables used in a cluster analysis of $r<.90$ (198).

**AIM 2**

The hierarchical agglomerative cluster analysis was conducted based on AHSQ responses, utilizing Ward's method and Euclidian squared distances as the measure between cases. The ten primary categories of help-sources named in the AHSQ were used as input criteria. Due to their extremely heterogeneous nature, "Other" responses were not used as input variables for the cluster analysis. The resulting dendrogram can be seen in Figure 4. Initial examination of this dendrogram suggested a four-cluster solution. However, after completion of split-half analysis (described in Aim 3, below), a three-cluster solution was determined to be the most appropriate. Selected identifying demographic characteristics are presented below; full demographic characteristics of each cluster can be found in Table 3. Differences between clusters on help-seeking patterns are presented below. Differences between clusters on other variables are discussed in Aim 4.

**Characteristics of the Clusters: Help-Seeking Patterns**

***Cluster 1***

Cluster 1 consisted of 81 individuals and was characterized by the widest utilization of help sources, including personal and professional resources. Members of Cluster 1 were generally male (70.4%), Caucasian (61.7%), not Hispanic or Latino (86.4%), had some college (35.8%), and had a mean age of 27.7 years (SD=7.5 years. Most members of this group had never been married (55.6%). The most common branch of service was the Army (34.6%), being lower enlisted rank (48.1%) and having never deployed (60.5%). In terms of suicide symptomology, members of Cluster 1 had a mean SSI suicide severity score of 28.29 (SD=5.28), and a mean of 4.88 (SD=2.80) psychiatric diagnoses at the time of assessment. After removal of an outlier of 104 suicide attempts, Cluster 1 had a mean of 1.83 (SD=2.03) lifetime suicide attempts.

Members of Cluster 1 accessed a mean of 4.1 help-sources (SD=1.69). Members of this cluster had by far the highest proportion of individuals who utilized friends as a source of help (82.7%), high utilization of behavioral health providers (81.5%) and, compared to the other clusters, had the highest rates of help-source utilization for intimate partners (37%; see Sub-clusters below), parents (29.6%), other relatives (25.9%), chaplains (30.9%), phone help lines (9.9%), unit command (45.7%), other unit members (34.6%), primary care providers (19.8%), and other sources (11.6%).

*Sub-clusters*

Examination of the make-up of Cluster 1 suggests the possibility of conceptualizing this cluster as two sub-clusters stratified by marital status (See Figure 5). When Cluster 1 is separated into its two major sub-clusters, overall help-source utilization patterns remains similar, with the most notable exception of intimate partner utilization. Members of sub-cluster 1a were married or co-habitating at a higher rate (44.5% vs 22.3%). Concurrently, a high proportion of members of sub-cluster 1a endorsed seeking help from an intimate partner (72.2%) while those of sub-cluster 1b did not (8.9%)[3]. As such, Cluster 1's overall utilization of intimate partners as a help-source (37%) can be somewhat misleading, and reflective of the bi-modal distribution contained within the cluster. Despite this, the utilization patterns within the overall cluster were relatively similar, with the exception of intimate partner usage. Further details of the characteristics of these sub-clusters can be seen in Table 7.

[3] The lower rates of marriage in sub-cluster 1b may be partially explained by the lower age of sub-cluster 1b (M=26.0; SD=6.84), compared to sub-cluster 1a (M=29.75; SD=7.90).

***Cluster 2***

Cluster 2 consisted of 23 individuals and was characterized by near universal utilization of intimate partner and behavioral health provider help-sources, but decreased rates of utilization of other sources. Members of Cluster 1 were generally male (65.2%), Caucasian (87.0%), not Hispanic or Latino (82.6%), had some college (39.1%), and had a mean age of 28.7 years (SD=8.4 years. Most members of this group were married (56.5%). The most common branch of service was the Army (47.8%), being lower enlisted rank (43.5%) and having never deployed (43.5%). In terms of suicide symptomology, members of Cluster 2 had a mean SSI suicide severity score of 29.03 (SD=3.81), a mean of 5.89 (SD=2.77) psychiatric diagnoses at the time of assessment, and a mean of 3.63 (SD=8.92) lifetime suicide attempts.

Members of Cluster 2 accessed a mean of 3.0 help-sources (SD=1.40). This cluster had the highest proportion of members who endorsed seeking help from intimate partners (100%) and behavioral health providers (91.3%). They had more modest utilization of unit command (34.8%) and chaplains (21.7%), and low rates of utilization of friends (0%), other relatives (0%), phone help lines (0%), other unit members (8.7%) and primary care physicians (8.7%).

***Cluster 3***

Cluster 3 consisted of 31 individuals and was characterized by very low utilization of help-sources. Members of Cluster 1 were generally male (74.2%), Caucasian (58.1%), not Hispanic or Latino (87.1%), had a high school diploma or equivalent (38.7%), and had a mean age of 27.8 years (SD=8.0 years). Most members of this group had never been married (41.9%). The most common branch of service was the

Army (32.3%), being lower enlisted rank (54.8%) and having never deployed (54.8%). In terms of suicide symptomology, members of Cluster 3 had a mean of 6.54 (SD=20.51) lifetime suicide attempts, a mean SSI suicide severity score of 29.61 (SD=3.56), and a mean of 5.54 (SD=2.98) psychiatric diagnoses at the time of assessment. After removal of an outlier of 102 suicide attempts, Cluster 3 had a mean of 2.39 (SD=2.73) lifetime suicide attempts.

Members of Cluster 3 accessed a mean of 1.1 help-sources (SD=1.12). Notably, all of the individuals in the total sample who did not seek any help for their suicidality were captured in Cluster 3; 45.2% of the cluster was made up of these individuals. The help-source most endorsed were intimate partners (35.5%), followed by other unit members (19.4%) and friends (16.1%). This group was also characterized by no involvement with behavioral health or chaplains, and limited involvement with unit command (12.9%).

## AIM 3

### Split-Half Analysis

A split-half analysis was conducted to assess the stability of the clusters. Half of the data were randomly selected ($n$=68), and a confirmatory hierarchical cluster analysis was conducted using the same parameters as the main cluster analysis (i.e., Ward's method using squared Euclidian distance as the measure of closeness to the centroid, with AHSQ data as the input variable). The remaining half of the data ($n$=67) were used to create a second confirmatory hierarchical cluster analysis using the same parameters. A comparison of the two dendrograms generated in the split-half analysis can be found in Figure 6. Frequencies of membership within each cluster of the split-half analysis is

shown in Figure 7. Full agglomeration schedules for each of these cluster analyses are found in Figures 8 and 9. Examination of the dendrograms for these two analyses indicated the possibility of 3- or 4-cluster solutions in each half of the data. As such, calculating the agreement between the models for both of these solutions was determined to be worthwhile. A non-iterative k-means cluster analysis was used to sort each half's data points into clusters based on closeness to the cluster centroids identified in the other cluster analysis. That is, data used to create the first confirmatory cluster analysis was applied to the centroids identified in the second confirmatory cluster analysis, and vice versa. Agreement in cross-tabulation between the two halves of the data was then calculated via the kappa statistic. Cross-tabulations for the 3- and 4-cluster solutions are shown in Figures 10 and 11. Using standards proposed by Landis and Koch (131), agreement in the 4-cluster solution was determined to be fair ($k$=.371). Agreement in the 3-cluster solution was determined to be moderate ($k$=.456). As such, a 3-cluster solution was assessed to support the most stable reflection of the data for the final hierarchical cluster analysis using the complete dataset.

An additional option for final cluster selection would have been a 2-cluster solution. Under such a solution, Cluster 1 would have been unchanged, and the hypothetical second cluster would have consisted of what are here described as Clusters 2 and 3. Examination of the characteristics of these clusters reveals two related, but distinct, groups. One of the unique characteristics of Cluster 3 is the inclusion of individuals who did not seek help from any sources. Nearly half of Cluster 3 consists of these individuals, and all of the individuals in the sample who did not seek any help are contained within Cluster 3. Because this group was considered to be a distinct and

important subgroup, it would not have been appropriate to combine it with Cluster 2, which was characterized by more widespread utilization of help-sources. For this reason, the 2-cluster solution was deemed less adequate than the 3-cluster solution.

**External Validation**

In an effort to validate the clusters against another measure of help-source utilization independent of that used in the cluster analysis, data from the Cornell Services Index (CSI) was used. The CSI provided an opportunity to examine help-source utilization in the same sample and look for patterns similar to those observed in the cluster analysis. However, because the CSI and the AHSQ measure different sources of help across different time periods, perfect agreement between these two measures was not expected. While the AHSQ asked for suicidality-related help-seeking over the 30-day period preceding the suicide-related incident that led to hospitalization, the CSI measured all services accessed within the 90-day period preceding administration. The AHSQ included a wide variety of sources of help, including informal and social sources, while the CSI only gathered data about sources typically contacted during a medical or behavioral health appointment. The AHSQ asked about sources of help contacted specifically in relation to suicidality, while the CSI gathered information about help-sources contacted for any reason. Additionally, perhaps because it was a lengthy measure administered near the end of baseline data collection, CSI-respondents were a smaller sample than that used in the cluster analysis (110 vs 135). Despite these limitations, it was decided the CSI would still serve as a useful external validation source against which to compare differences of medical and behavioral health source usage across the clusters.

In order to represent information from the CSI more fully, three avenues were selected against which to compare the clusters: Presence of service utilization; Breadth of service utilization; Frequency of service utilization. The presence and frequency of service utilization were scoring methods suggested by the author of the CSI (212), while the breadth of service utilization was selected as a means to approximate the service usage patterns observed in the identified clusters. Descriptive statistics for responses to the CSI can be found in Table 8. Results of statistical tests using CSI data can be found in Table 9.

***Presence of service utilization***

*Medical services*

To measure whether participants accessed any medical services, binary responses to the following item were used: "Have you used any Medical Services in the past 3 months?" Overall, 65.5% ($n$=72) of participants responded affirmatively to this item. Across the three clusters, positive responses were endorsed by 64.2%, 63.2%, and 70.8% of responding cluster membership, respectively. A chi-square test of these data reports no significant differences between the presence of medical service utilization by cluster membership $\chi^2(2) = 0.40$, $p = .819$.

*Psychiatric services*

To measure whether participants accessed any psychiatric services, binary responses to the following item were used: "Have you sought help for emotional problems from anyone else in the past 3 months?" Overall, 68.2% ($n$=75) of participants responded affirmatively to this item. Across the three clusters, positive responses were endorsed by 76.1%, 78.9%, and 37.5% of responding cluster membership, respectively. A

chi-square test of these data reports a significant difference between the presence of psychiatric service utilization by cluster membership $\chi^2(2) = 13.38$, $p=.001$.

A direct comparison of the previously-reported AHSQ and CSI data for Cluster 3 was of interest. AHSQ responses (n=31) indicated that 0% of Cluster 3 sought help from a behavioral health provider in the 30 days preceding hospitalization. However, CSI responses (n=24) indicated that 37.5% of Cluster 3 accessed psychiatric resources in the 90 days preceding hospitalization. Clusters 1 and 2 did not report such drastic differences in utilization at 30- and 90- days, as depicted in Tables 4 and 8. Because Cluster 3 had the greatest disparity between help-seeking reported within 30- and 90-days, additional consideration of their service usage was worthwhile. Among the individuals in Cluster 3 who reported receiving psychological services over the last 90 days, the most common reasons for doing so was for medication management (16.1% of the total cluster; n=5), individual psychotherapy (12.9% of the total cluster; n=4), individual psychotherapy (6.5% of the total cluster; n=2), and group psychotherapy (6.5% of the total cluster; n=2).

***Breadth of service utilization***

*Medical services*

To measure the breadth of medical services accessed by participants, a sum of types of medical treatment accessed was calculated. Overall, a mean of 1.19 (SD=1.26) types of medical treatment were accessed. Between the three clusters, the mean number of types of medical treatment accessed were 1.24 (SD=1.34), 0.94 (SD=0.91), and 1.25 (SD=1.26), respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on number of medical treatment types

accessed. There was no significant effect of cluster membership on number of medical treatment types accessed at the $p<.05$ level, $F$ (2, 107) = 0.425, $p$=.655.

*Psychiatric services*

To measure the breadth of psychiatric services accessed by participants, a sum of types of psychiatric treatment accessed was calculated. Overall, a mean of 1.69 (SD=1.65) types of psychological treatment were accessed. Between the three clusters, the mean number of types of psychiatric treatment accessed were 1.88 (SD=1.65), 2.21 (SD=1.62), and 0.75 (SD=1.33), respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on number of psychiatric treatment types accessed. There was a significant effect of cluster membership on number of psychiatric treatment types accessed at the $p<.05$ level, $F$ (2, 107) = 5.775, $p$=.004. A Tukey post hoc test revealed a statistically significant difference in the number of psychiatric services utilized by members of Cluster 1 and Cluster 3 ($p$=.009), as well as between members of Cluster 2 and Cluster 3 ($p$=.009). There was no statistically significant difference in the number of psychiatric treatment types accessed between Clusters 1 and 2.

***Frequency of service utilization.***

*Medical services*

Frequency of medical services utilization (regardless of type of service) in the last 90 days was calculated. Overall, medical services were used a mean of 2.42 (SD=3.53) times. Between the three clusters, medical services were used a mean of 2.63 (SD=4.06), 1.58 (SD=1.64), and 2.50 (SD=3.98) times, respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on frequency of

medical services utilization. There was no significant effect of cluster membership on frequency of medical services utilization at the $p<.05$ level, $F$ (2, 107) = 0.656, $p$=.521.

*Psychiatric services*

Frequency of psychiatric services utilization (regardless of type of service) in the last 90 days was calculated. Overall, psychiatric services were used a mean of 14.21 (SD=30.83) times. Between the three clusters, psychiatric services were used a mean of 14.85 (SD=25.65), 24.74 (SD=53.71), and 4.08 (SD=12.57) times, respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on frequency of psychiatric services utilization. There was no significant effect of cluster membership on frequency of psychiatric services utilization at the $p<.05$ level, $F$ (2, 107) = 2.483, $p$=.088.

**AIM 4**

To evaluate correlates associated with each cluster, a series of chi-squared tests and ANOVAs were conducted. Detailed results for ANOVAs can be found in Table 10.

**Sex**

Overall, the sample was 70.4% male. The percentage of males in each cluster were 70.4%, 65.2%, and 74.2%, respectively. A chi-square test of these data showed no significant difference in gender by cluster membership $\chi^2(2) = 0.510, p = .775$.

**Rank**

Overall, the largest portion of participants were in ranks E1-E4 (48.9%). Ranks E1-E4 also had the largest portion of participants within each cluster, with 48.1%, 43.5%, and 54.8% coming from this rank category, respectively. A chi-square test was performed

to examine differences in rank by cluster membership. Because of low cell counts, the rank categories were collapsed into the following groupings for this analysis: E1-E4; E5-E9; W1-O10 (including Cadets/Midshipmen). No significant difference in rank by cluster membership was found $\chi^2(4) = 3.799$, $p = .434$.

**Social support**

Overall, the mean DUSOCS social support score of the sample was 38.8 (SD=16.89). Mean scores in each cluster were 40.48 (SD=16.35), 37.50 (SD=17.32), and 35.18 (SD=17.99), respectively. DUSOCS sub-scale scores were as follows: The DUSOCS family support scale mean was 32.31 (SD=20.28), lower than the non-family support scale mean of 38.80 (SD=16.89). For context, a score in this range might result from a participant indicating that four types of family or non-family social relationships delivered "a lot" of support, or that eight types of relationships delivered "some" support. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on DUSOCS social support score. There was no significant effect of cluster membership on DUSOCS social support score at the $p<.05$ level, $F$ (2, 118) = 1.045, $p=.355$.

**Perceived barriers to care**

Overall, the mean PBTC score of the sample was 34.30 (SD=10.35). Mean scores in each cluster were 33.93 (SD=10.72), 35.00 (SD=8.21), and 34.74 (SD=11.02), respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on PBTC score. There was no significant effect of cluster membership on PBTC score at the $p<.05$ level, $F$ (2, 132) = 0.132, $p=.876$.

### Perceived stigma

Overall, the mean MSS score of the sample was 62.97 (SD=17.33). Mean scores in each cluster were 62.61 (SD=17.55), 63.17 (SD=17.52), and 63.81 (SD=17.18), respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on MSS score. There was no significant effect of cluster membership on MSS score at the $p<.05$ level, $F$ (2, 118) = 0.049, $p=.952$.

## EXPLORATORY ANALYSES

After examination of initial findings, the following analyses were conducted in order to better understand possible differentiating factors behind the patterns of help-source utilization observed in the cluster analysis. Data for these analyses was gathered as part of the same baseline assessment data-pool used in the other analyses described herein. Detailed results for these analyses can be found in Tables 10-15.

### Lifetime Suicide Severity

In order to examine differences in suicide symptom severity between the clusters, scores on the Scale for Suicide Ideation (SSI) were examined. The SSI is a psychometrically valid measure of the intensity of suicide-related attitudes and behaviors (22). Specifically, the score for lifetime suicide severity at the participant's self-identified "most severe point" was used. Overall, the mean SSI score of the sample was 28.71 (SD=4.71). Mean scores in each cluster were 28.29 (SD=5.28), 29.03 (SD=3.81), and 29.61 (SD=3.56), respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on SSI score. There was no significant effect of cluster membership on SSI score at the $p<.05$ level, $F$ (2, 107) = 0.744, $p=.478$.

**Lifetime Suicide Attempts**

In order to examine differences in suicide attempt history between the clusters, the total number of lifetime suicide attempts was examined, as measured on the Columbia-Suicide Severity Rating Scale (C-SSRS). The C-SSRS is a widely used measure of suicide-related behavior based on well-defined definitions (176). Overall, the mean number of lifetime suicide attempts of the sample was 4.10 (SD=14.16). However, two outliers (102 and 104 suicide attempts) skewed this statistic substantially; the median number of 1 suicide attempt (reported by 32.7% of the sample) is also worthwhile to consider. With these two outliers removed, the mean number of lifetime suicide attempts was 2.27 (SD=4.23). These outliers were left out of the following analyses. The minimum number of lifetime suicide attempts was 0 ($n$=21; 19.1%), the maximum number was 40 ($n$=1; 0.9%). Mean scores in each cluster were 1.83 (SD=2.03), 3.63 (SD=8.92, and 2.39 (SD=2.73), respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on number of lifetime suicide attempts. There was no significant effect of cluster membership on lifetime suicide attempts at the $p<.05$ level, $F$ (2, 105) = 1.355, $p$=.262.

**Psychiatric Diagnoses**

In order to examine differences in participant psychiatric diagnoses between the clusters, the total number of diagnoses indicated by the Mini-International Neuropsychiatric Interview (MINI) was examined. The MINI (106; 134; 207) is a psychometrically valid diagnostic interview tool based on criteria from the Diagnostics and Statistics Manual, Fourth Edition (DSM-IV) and International Classification of Diseases, Tenth Revision (ICD-10). Overall, the mean number of diagnoses of the sample

was 5.20 (SD=2.84). Mean scores in each cluster were 4.88 (SD=2.80), 5.89 (SD=2.77), and 5.54 (SD=2.98), respectively. A one-way between-subjects ANOVA was conducted to compare the effect of cluster membership on number of psychiatric diagnoses. There was no significant effect of cluster membership on number of psychiatric diagnoses at the $p<.05$ level, $F$ (2, 108) = 1.173, $p=.313$.

**Likelihood of Future Help-Seeking**

In order to examine the relationship between past help-seeking and perceived likelihood of future help-seeking, responses on the General Help Seeking Questionnaire (GHSQ) were examined. The GHSQ is a psychometrically valid measure of help-seeking intentions closely related to the AHSQ (235). In a previous study, approximately 65% of individuals who indicated intention to seek care from a mental-health professional on the GHSQ were found to do so within the following three months (101). On this measure, participants are asked how likely it is that they would seek help if they were having suicidal thoughts. Help-source categories were those used in the AHSQ, with an additional "I would not seek help from anyone" option. Response options were on a Likert-like scale ranging from 1 (Extremely Unlikely) to 7 (Extremely Likely). Overall, the help-sources rated the most likely to be used in the future were Behavioral Health Providers (M=5.61; SD=1.50), Other (M=4.93; S=2.31), Intimate Partner (M=4.86; SD=2.30), and Friend (M=4.76; SD=2.18). The sources least likely to be used in the future were Phone Help Lines (M=2.68; SD=1.88) and Other Relatives (M=2.76; SD=1.92). The mean response to the prompt "I would not seek help from anyone" was 2.32 (SD=1.68).

In order to examine between-cluster differences in perceived likelihood of future help-seeking, a MANOVA between cluster membership and GHSQ responses was conducted. There was a statistically significant difference in the self-reported likelihood to seek help from a friend based on cluster membership, $F$ (2, 128) = 10.10, $p$ <.0005. A Tukey post hoc test revealed a statistically significant difference in this category between Cluster 1 (M=5.53) and Cluster 2 (M=3.39), $p$<.0005. The difference between Cluster 1 (M=5.53) and Cluster 3 (M=4.28) approached significance, $p$=.055.

**Recruitment Site**

One possible influence on cluster membership is the site of recruitment for the study. 102 and 33 participants were recruited between the two sites. In order to examine differences between cluster membership based on recruitment site, a chi-squared test was conducted. No significant difference in cluster membership by recruitment site $\chi^2(2) = 2.437$, $p = .296$. This indicates a non-effect of recruitment site on cluster membership. However, with only 33 participants recruited out of a total of 135 from one of the recruitment sites, it is impossible to definitively rule out the possibility that recruitment site had an effect on cluster membership.

# CHAPTER 6: Discussion

## STUDY FINDINGS

The present study identified three clusters of individuals hospitalized following a suicidal crisis, based on patterns of help-source utilization in the 30 days preceding the suicidal crisis. Non-Discriminant Help-Seekers, the largest group, were described as individuals utilizing a wide variety of help-resources across multiple types, including professional and informal sources. Discriminant Help-Seekers were characterized as those who utilized a prominent professional resource (Behavioral Health Providers) and a prominent informal resource (Intimate Partners/Spouses). Non Help-Seekers were characterized as those individuals who had little or no help-seeking prior to their suicidal crisis. The model was found to be stable and to show some external validity, although conclusions were limited by the characteristics of the available validation source.

None of the proposed correlates of help-seeking utilization were found to be predicted by cluster membership. Future help-seeking in a suicidal crisis using friends as the source of help was predicted by cluster membership.

### Help-Seeking Preceding a Suicide-Related Event

One of the major objectives of this study was to describe the help-seeking patterns of active duty service members in the period leading up to a suicide-related event. Of particular note, the present study examined help-seeking behavior in the period immediately preceding a suicidal crisis, indicating those sources of help that were most and least likely to be utilized when the need may have been greatest. There were several notable findings. The overwhelming majority of the sample reached out to help from someone, most service members accessed multiple sources of help for their suicidal

crises, and many did so across different types of sources (e.g., professional, informal). Approximately 10% of the sample did not seek help from any identified help-source. For those who identified a reason for not seeking help, themes included feeling stigma against seeking care, having symptoms that prevented or did not seem in line with seeking help for suicidality (e.g., not feeling depressed), believing that seeking help was not effective, and perceived personal failings.

***Categorization of help-sources: Lack of emphasis on confidentiality***

Preferences for help-sources did not unilaterally fall along the framework put forward by Rickwood and Thomas nor the organization of help-sources proposed for this study (see Figure 1). Both of these systems place help-sources along a continuum, whether it be the degree of professional training of a help-source or a help-source's potential to impact a service member's career. Using these systems of categorization, it might be reasonable to expect that rates of utilization would increase or decrease as one moves from help-sources at one end of the continuum to the other. The patterns of help-source utilization observed in this study did not reflect this logic. Instead, the most-used resources were at opposite ends of the spectra. Speaking of the sample as a whole, the most-utilized resource (Behavioral Health Professionals) fell into the Formal or Professional – Non-confidential categories, while the second-most used resource (Friends) fell into the Informal or Personal categories. The two help-sources shared in the middle categories of the conceptualizations depicted in Figure 1 (Chaplains and Help Lines) were some of the least-utilized resources. These findings echo those of others focusing on those with high-severity suicide-related behaviors, who have noted these

patients' preference for professional counselors and family members when seeking help (18).

This finding suggests that, among service members seeking help for a suicidal crisis, maximizing the legal limits of confidentiality is not the driving force for help-source selection. Instead, other factors such as familiarity, comfort with the source, or expectations of usefulness may be at play.[4] Clinical, ethical, and legal discussions of differences in the limits of confidentiality support a robust literature (41; 153); however, it seems possible that other factors may drive help-source selection more than, or in addition to, assuring confidentiality alone.

***Behavioral Health Providers***

Utilization of behavioral health resources was unexpectedly high. Approximately 64% of the sample had utilized specialty mental health services, which was greater last-12-month utilization than previously reported samples of civilians with mental illness (38%; 232), suicidal civilians (30%; 110), service members with mental health problems (29%; 111), and a non-clinical sample of soldiers (10%; 151). Much has been said regarding stigma against seeking mental health care in the military (1); given a military sample, it might be expected that a lower proportion of participants would have reached out to mental health resources, perhaps in lieu of other anonymous resources such as chaplains or suicide hotlines. However, previous research has demonstrated that increased severity of psychopathology, as well as the presence of mood disorders, is

[4] It is possible that participants did feel that confidentiality was very important, but that behavioral health providers were sufficiently confidential to meet their needs, though if this were the case, friends must also have been considered to be appropriately confidential.

predictive of seeking help from behavioral health professionals, as opposed to other sources of help (150). It is therefore particularly important to keep in mind the severity of suicidality seen in the sample used in this study. The average participant had indications of multiple psychiatric diagnoses, as well as a history of several prior suicide attempts. This high level of behavioral health utilization in the presence of high symptom severity, as well as the observed lack of effect of stigma on cluster membership suggests that for the majority of severely suicidal individuals, behavioral health providers may have been the most attractive, the most accessible, or perhaps the least threatening help-source.

Another consideration is that the actions of the help-sources, relative to participants' help-seeking, may have affected the rates at which individuals reached the inpatient setting. For example, suicidal individuals who approached behavioral health providers may have been more likely to be hospitalized than other suicidal individuals who did not access that resource, leading to an over-representation of these individuals in this sample. Indeed, a patient being hospitalized may be considered a treatment success if it prevented that patient's death by suicide.

### *Primary Care Physicians*

Low utilization of primary care physicians as a point of contact for help in a suicidal crisis was observed across all clusters. This finding is particularly striking given that 65.5% of the sample had some utilization of a medical service (for any reason) within 90 days preceding their suicidal crisis. This is comparable to previous findings of medical resource utilization preceding deaths by suicide (110; 185).

### *Rate of Utilization*

The present sample utilized help-sources at a greater rate than those reported in non-clinical military samples (28; 151) or general clinical (but not necessarily suicidal) military samples (111). In many instances, this sample accessed help-sources such as behavioral health providers or chaplains at double the rate of previous studies. However, these overall rates include those who did not seek any help. When examining only those who sought help for a problem (Clusters 1 and 2), the rate of utilization of chaplains is approximately equal to the 30% reported elsewhere (28). These differences in the proportion of individuals who sought help may be due to the particular severity of the present sample's suicidality.

Comparison with prior samples shows higher rates of help-seeking from some sources, but decreased help-seeking from others. Individuals in this sample more frequently sought help from partners, family, friends, and mental health professionals than in previous samples of veterans (175), civilian nearly-lethal attempters (18), and USAF suicide decedents (144). However, utilization of primary care providers was lower in this sample (15%) than in samples of veterans (43%; (175) and USAF suicide decedents (24%; (144).

Phone help lines were rarely used (7% of sample), yet this was actually higher than civilian samples of nearly-lethal suicide attempters treated in an ER (4%; (18), psychiatrically hospitalized youth (3-4%; (57), and a sample of non-clinical college students (1%; (105). Clinicians may pay particular note to these findings, as help lines are often included in suicide safety plans. While high intent to use suicide crisis lines has been reported (119), it appears evident that actual use of this resource, even among a high severity sample of suicidal individuals, is certainly not a guarantee. The usefulness of

suicide help lines may be increased through effective training, including role playing in session, and making a practice call together with the patient. Future research should identify reasons for the relative low utilization of these resources.

Comparisons between the present sample and the aforementioned studies should be made with appropriate caution. The studies cited include different populations (e.g., civilian, military, or veteran), differing levels of symptom severity (e.g., individuals with suicidal ideation, suicide attempts, or suicide decedents), as well as differences along other variables that have important impacts on help-source utilization. Some of these include access to resources, geography, and differences in socioeconomic status. As such, an inference that differences in utilization between samples is due to any single factor would be inappropriate.

### *Acceptability of Help-Sources*

Participant ratings of the helpfulness and/or harmfulness of various resources suggest service member perceptions of the acceptability of various help-sources. Help-sources were viewed as helpful by a large majority of users in most cases, with no help-source endorsed as helpful by fewer than 60% of users. Six out of ten sources identified on the AHSQ were rated as helpful by at least 75% of users. While the relative magnitude of helpfulness was not measured by the AHSQ, these data clearly indicate that the vast majority of suicidal service members who reached out felt that they received at least some help. At the same time, however, these data might be considered in light of whether or not any harm was perceived as a result of seeking help. From this perspective, combining the "Harmful" and "Both harmful and helpful" figures highlights the sources

with the greatest proportion of users who perceived at least some type of harm, including Parents (57%), Unit Command (52%), and Primary Care Physician (45%).

*Help-sources with low utilization*

Interestingly, some of the sources indicated as helpful by the greatest proportion of users were also the sources least utilized by participants. Specifically, the help-sources endorsed as helpful by the greatest proportion of users were non-parent, non-spouse relatives, phone help lines, other unit members, unit command, friends, and behavioral health professionals. While some of these sources were also highly utilized, non-parent, non-spouse relatives and phone lines were used by only 16.3% and 6.7% of the total sample, respectively. This low rate of suicide hotline utilization here echoes findings among civilian clinical samples of those with a nearly-lethal suicide attempt (18). Despite their low utilization, phone help lines also had the distinction of not being viewed as harmful by any members of the sample. This suggests that some of the resources that would be most acceptable to users are currently underutilized by service members in a suicidal crisis.

One possible solution to the underutilization of suicide hotlines among service members may be to adjust the technology or marketing of the resource to one more acceptable to younger individuals. The Department of Veterans Affairs (VA) has reported substantial growth in the use of their national veteran suicide hotline through targeted marketing. However, users who reported their ages were aged 40-69, substantially older than the present sample (126). This suggests that suicide hotlines may seem more approachable to middle-aged users, rather than the younger adults more common on active duty status. As such, existing alternative resources that maintain the accessibility,

convenience, and confidentiality of a hotline might be emphasized among younger active duty populations (for example, among junior enlisted service members), such as the Military Crisis Line's text message (838255) and online chat options (https://www.veteranscrisisline.net/ActiveDuty.aspx). Additional suicide prevention technologies aimed at younger generations include the use of virtual reality communities and gaming as avenues for communication with helping resources (140).

### *Resources Rated as Helpful and Harmful*

One of the striking findings related to the acceptability of suicide prevention resources was that nearly all sources of help had a proportion of users who felt that the resource was both helpful and harmful. For some help-sources, this was a substantial proportion of users. Indeed, the most utilized resources were also those with the greatest proportion of users who felt the source was both helpful and harmful. 32.1% of those who communicated their suicidality to behavioral health professionals felt that doing so was both helpful and harmful. That proportion is the same for friends and primary care physicians and is slightly higher (35.7%) for those who communicated their suicidality to unit commands. The degree of overlap between helpful and harmful assessments of reaching out to friends and family may be indicative of challenges identified in prior research (97), including experiencing stigma from the helping individuals, inappropriate support, the helper's lack of knowledge, and the perceived burden placed on the individual providing support. Understanding patient assessments of the helpfulness or harmfulness of potential help-seeking may be conceptualized as a cost-benefit analysis framework (115). Under this view, patients only engage in care for which the health

benefits are perceived to overcome the consequent costs, including social, financial, professional, or otherwise.

**Perceived Barriers to Care**

PBTC responses in the current sample varied when compared to other samples, with some perceived barriers to care reported more frequently and others less frequently than prior research. However, examination of the components of perceived barriers to care proposed by VanSickle et al (229) suggest important patterns. Of the three factors identified in the PBTC, Individual Barriers to Care and Organization / Cultural Barriers to Care did not produce consistently higher or lower rates of endorsement than Hoge et al.'s original 2004 sample of active duty servicemembers (non-clinical), another active duty sample of service members with and without mental health problems (123), or a mixed sample of veterans (175). However, the present sample had higher rates of endorsement ("agree" or "highly agree") than each of the above samples for all items in the Perceived Unit Stigma and Harm to Career factor. This finding suggests that the service members who participated in this study were facing very strong perceived disincentives from their military organizations against seeking help.

**Stigma**

The stigma-related beliefs against seeking mental health treatment endorsed by the present sample are as strong or stronger than samples reported elsewhere. Of particular note, however, is the role of beliefs related to public stigma, or the stigmatized beliefs presumed to be espoused by others in one's social community. This sample's MSS public stigma scores (M=42, SD=12.2) can be compared to Skopp et al.'s sample of deployed service members (M=31, SD=11.4) or Karaffa & Koch's sample of police

officers (M=37, SD=9.9); self-stigma subscale scores are comparable between these studies. These elevated public stigma scores suggest the particular relevance of perceived military culture and command climate in the help-seeking behaviors of those at highest risk for suicide. This is supported by the elevated Perceived Unit Stigma and Harm to Career PBTC subscale scores already noted. Military efforts to decreased stigma may combat this by encouraging policies that appropriately protect service members military careers following help-seeking, as well as by highlighting realistic career effects of help-seeking among suicidal individuals.

## Cluster Analysis

A hierarchical cluster analysis of help-seeking efforts in the 30 days preceding a suicidal crisis was conducted. Following best-practice guidelines for cluster analysis methodology (7), the model was found to be internally stable. The cluster analysis suggested a 3-cluster model, rather than the 4-cluster model originally proposed. Based on their patterns of help-seeking, clusters were characterized as Non-Discriminant Help-Seekers, Discriminant Help-Seekers, and Non-Help Seekers.

### *Correlates of Cluster Membership*

Given the lack of statistically significant differences between the clusters in any of the measures aimed at capturing attitudes or symptom-severity, it is not possible to say with certainty what differentiated these three groups beyond their help-seeking habits. As depicted in Table 1, differences in sex, rank, perceived social support, perceived barriers to care, and perceived stigma were anticipated as correlates of cluster membership. However, none of these were detected, aside from differences in Non-Family Social Support between Clusters 1 and 2. This surprising finding may be the result of several

potential factors. While the study was adequately powered to detect moderate effect sizes, it is possible that the effect of the variables mentioned above was more subtle, and therefore may have been detected through a more robust sample size. The measures or methods utilized may also have been insufficient to detect more subtle effects. For example, it is possible that stigma-related beliefs measured at different stages of the help-seeking process would reveal a greater differentiation in help-source utilization. It may also be the case that these variables are not correlated with help-seeking cluster membership and that other, un-examined variables accounted for the observed differences in help-seeking. Attitudinal variables such as openness may be an important aspect of help-seeking that was not measured in this study (172).

Prior research in help-seeking behaviors suggests possible hypotheses for future research. Some have hypothesized that dissatisfaction with past help-seeking or a predisposition to harbor anger can contribute to suicide-related behavior (98). While some between-clusters variance in satisfaction rates was observed in this sample, cell sizes were too small in many cases to make meaningful conclusions. Future research may explore this further.

One factor that may play an important role in influencing help-seeking but was not directly captured in these data is a military unit's organizational climate. Unit cohesion, an aspect of organizational climate, has been associated with lower perceived barriers to care and lower self-reported stigma (239). The behavior and public statements of leaders regarding help-seeking can have a direct effect, as military leaders' testimonials of past help-seeking has been identified as an influence by service members who later sought help (241).

It is possible that the actions of one help-source may have influenced the likelihood of contacting other help-sources. For example, friends or family members counseling suicidal individuals often do not feel confident in knowing what to say, and may or may not recommend that a suicidal loved one seek further care (165). Prior studies using veteran samples have found higher severity symptoms and lower levels of social support in treatment-seeking individuals, however, the authors also hypothesized that stigma may have differing effects on help-seeking behavior at different timepoints (67). The stigma-related beliefs of the service members included in this study may have appeared to be more homogenous than would be captured in other studies, because these attitudes were measured in a mental health care setting following a suicidal crisis, rather than before the crisis or away from a setting of psychological aid. These findings present intriguing opportunities for future research to explore.

*Demographics*

This sample was largely male and lower-enlisted rank, reflecting the demographics of the military population generally (65). No differences were found in help-source utilization patterns based on sex or rank. Interpretation of the latter is limited, however, due to low counts of higher-ranking service members. Accordingly, these findings may be most appropriately applied to populations of lower-enlisted service members. Despite the limitation of low cell counts for higher-ranking service members, however, the proportion of participants in each rank category closely follow the rank breakdown for deaths by suicide in the DOD (178).

*Perceived Barriers to Care*

There were no significant differences in cluster membership by PBTC responses for either PBTC total score or PBTC subscale scores. Unfortunately, there are no published findings that include mean PBTC scores for all of the items used in this study, so direct comparisons to existing literature are limited. The propensity of researchers to modify the PBTC is an issue that has been noted in meta-analyses attempting to use this measure (206). However, some comparisons based on prior research can still be made. Hoge et al (109) administered the PBTC to both a sample of deployed soldiers and Marines, and to a sample of soldiers and Marines soon after their return from a deployment. Speaking of the sample overall, a comparison with published data from Hoge et al. suggests that the present study's inpatient sample endorsed greater perceived barriers to care than the general sample of deployed soldiers and Marines. The present sample endorsed greater agreement with the PBTC statements on nearly every item, and agreement with each PBTC statement was, on average, 12 percentage points higher. When compared to the sample of recently-deployed soldiers who screened positively for indicators of a mental disorder, the opposite was true. Those with indicators of a mental disorder in Hoge et al.'s sample endorsed greater agreement for each statement on the PBTC, with an average of 12.2% more of the sample agreeing with each PBTC statement than in the present study. These conclusions should be viewed with some caution, however, as Hoge et al.'s samples are drawn from different populations than the present study and at different times, and only summary statistics could be compared, rather than raw data. Taken together, there are indicators that the present sample of psychiatrically hospitalized service members perceived greater barriers to care than those who did not

have a mental disorder, but fewer barriers to care than those recently deployed, the majority of which had not received any professional help.

Those observed in this study, consisting of a mixed group of high- and low-frequency users of healthcare resources, contributes to the mixed findings of others regarding the effect of stigma on healthcare utilization (1; 193; 206). It is possible that the population of service members psychiatrically-hospitalized for a suicide-related crisis represents those who experienced fewer perceived barriers to care. It is also possible that these individuals' attitudes related to care were once similar to those reported by Hoge et al., but that attitudes changed once care had been sought or received. This supports DeViva et al.'s suggestion that stigma may affect service members' attitudes differently at different choice points related to seeking care (67).

*Stigma*

No difference in stigma-related beliefs based on group membership was found. This finding echoes that of others who have not detected an effect of stigma on help-seeking (123), but conflicts with those who have observed differences in stigma based on the presence of a history of behavioral health usage (213). While some have found an effect of stigma on treatment seeking (31), this effect was uniquely accounted for by stigmatizing beliefs about others who seek treatment; other factors relating to stigma such as self-stigma and stigma related to one's career did not predict treatment seeking. Comparison to these studies is complicated, however, by the shared experience of the present sample- all participants were in the process of utilizing a health source at the time of assessment, though these data do not detail the route by which participants were brought to the inpatient unit. Despite this, the lack of statistically significant differences

in stigma based on cluster membership, despite the stark differences in help-source utilization between clusters suggests that factors other than stigma-related beliefs play a substantial role in the utilization of help-sources preceding a suicidal crisis.

*Social Support*

A lack of significant differences in social support between clusters is an interesting and somewhat counter-intuitive finding, as it might be anticipated that individuals with a greater social network would be likely to access more resources. It may be the case that each of the three clusters perceived approximately equal amounts of social support, despite varying rates of marriage and utilization of informal and formal sources of help. However, analysis of the types of social support identified on the chosen social support measure may provide insight. The DUSOCS identifies 10 possible sources of social support from which respondents can indicate how supported they feel. However, 6 of these 10 are family members, while the wide variety of military relationships that may (or may not) provide social support can only be represented in the "co-workers" or "other friends" categories. Other categories relevant to felt social support such as chaplains, superiors, or unit commands are not clearly represented. Each of these are categories, not relationships; multiple relationships within one category (such as multiple supportive siblings, coworkers, or church members) do not make any additional contribution to the score. As such, the measure may have provided an overly-limited field of responses, resulting in insufficient variance to detect potential differences in actual social support.

*Severity of Suicidality*

Of the three measures chosen to represent suicide severity, none were statistically significant correlates of cluster membership. There was relatively little variance among the groups, which may be reflective of the elevated level of risk present in this inpatient sample. Prior studies have noted a decrease in help-seeking with increased severity of suicidality (234; 240), however, the relative homogeneity of this sample may be responsible for this disparity in findings. The present sample consisted of individuals at particularly elevated-risk, many of whom had multiple prior attempts. For comparison, a meta-analysis of suicide death research found that individuals with a prior psychiatric hospitalization had a weighted odds ratio of 3.57 for later death by suicide; those with a prior suicide attempt had a weighted odds ratio of 2.24 (80).

*Future Help-Seeking*

In response to the question of whether past patterns of help-seeking are indicative of future usage of help-resources, there was a statistically significant difference in the reported likelihood of seeking help from a friend. Cluster 1, which had by far the highest utilization of friends as a help-source, was more likely to have endorsed seeking help from a friend once again than the other two clusters, particularly Cluster 2 (which did not include anyone who had sought help from a friend). This is present even though friends were rated as one of the most helpful sources. This supports the intuitive finding that individuals in stress may be unlikely to reach out to new sources of help that they have not already tried. This may be a reflection of cognitive rigidity, which has been hypothesized as a contributing factor to suicidality (223); it is hoped that further research may be able to expand on the relationship between rigidity and help-source selection.

***Cluster Structure and Characteristics***

As depicted in Table 1, four clusters were anticipated, including Non-Discriminant Help-Seekers, Discriminant Help-Seekers, Highly Discriminant Help-Seekers, and Non- Help-Seekers. The cluster analysis indicated a 3-cluster solution, with the last of the clusters proposed above (Highly Discriminant Help-Seekers and Non-Help-Seekers) combined to create the third cluster. The anticipated help-source utilization of the clusters was generally supported, with notable exceptions. As previously noted, those who were highly discriminant in their help-seeking and those who did not seek help were grouped in the same cluster. Additionally, those described as Discriminant Help-Seekers utilized Behavioral Health and Unit Command resources more than anticipated, and used several help-sources less-often than anticipated, particularly help-lines and some personal help-sources. It was anticipated that one of the defining characteristics of the clusters would be a delineation of help-source utilization by the confidentiality of the help-sources. The results of the cluster analysis provide little support for this notion. As depicted in Table 2, while those labeled as Non-Discriminant Help-Seekers did indeed seek help from nearly all sources, including those with limited confidentiality and a high degree of potential impact on service member's career, individuals in the Discriminant Help-Seekers group *also* sought help from those same resources. Clusters were differentiated by the types of resources used, as well as by the number of sources used, but the confidentiality of the help-sources was not the sole determining factor.

Table 2. Observed Clusters of Help-Seeking Behavior in Suicidal Service Members

| | Non-Discriminant Help-Seekers | Discriminant Help-Seekers | Highly Discriminant / Non- Help-Seekers |
|---|---|---|---|
| *Help Sources Utilized by >20% of Cluster* | Professional - Non-Confidential<br>**Behavioral Health**<br>**Unit Command**<br>**Other Unit Member**<br>**Primary Care**<br>**Physician**<br><br>Professional – Confidential<br>**Chaplain**<br>Phone Help-line<br><br>Personal<br>**Intimate Partner**<br>**Friend**<br>**Parent**<br>**Other Relative** | Professional - Non-Confidential<br>**Behavioral Health**<br>**Unit Command**<br><br>Professional – Confidential<br>**Chaplain**<br>Phone Help-line<br><br>Personal<br>**Intimate Partner**<br>Friend<br>Parent<br>Other Relative | **Did Not Seek Help**<br><br>Personal<br>**Intimate Partner**<br>Friend<br>Parent<br>Other Relative |
| *Number of Help Sources Used* | 4 help sources accessed (mean) | 3 help sources accessed (mean) | 1 help source accessed (mean) |

*Cluster 1: Non-Discriminant Help-Seekers*

The most populous group of service members hospitalized following a suicide attempt or serious intent to die by suicide were those who had reached out to a multitude of sources leading up to their suicidal crisis. These individuals sought help from the largest number and the largest variety of help-sources. Nearly all members of this cluster communicated their suicidality to a behavioral health professional in the 30 days preceding the suicidal crisis that led to their hospitalization, and this group was by far the most likely to seek help from a friend. While less than half sought help from unit command or other unit members, this was the highest rate of utilization of these sources in the sample.

The first cluster was conceptualized as containing Non-Discriminant Help-Seekers. Because the proposed attitudinal, demographic, and symptom-related correlates of help-seeking patterns were not found to be statistically significant predictors of group membership, additional options will be considered. Several possibilities may explain their relatively high help-seeking efforts. This group may contain those individuals with the fewest reservations against seeking help or the greatest desire to obtain help. It is possible that this group may contain the individuals with the most helping resources available, though some imbalances of resources are removed by merit of military structure and benefits. The participants in this cluster may have had social support networks that recommended reaching out to additional resources. At this time, definitive statements about the cause for their higher help-source utilization relative to the other clusters are not possible.

A more granular examination of help-source utilization within Cluster 1 indicated that this cluster is best understood as two sub-clusters differentiated by utilization of the intimate partner help-source. Both sub-clusters demonstrated Cluster 1's hallmark broad utilization of help-sources, but the members of one sub-cluster were twice as likely to be married, and sought help from an intimate partner at a much higher rate. Despite this, overall usage patterns of these two sub-clusters were similar, and they were considered as part of the same Non-Discriminant Help-Seekers.

*Cluster 2: Discriminant Help-Seekers*

Cluster 2 was conceptualized as containing Discriminant Help-Seekers. While the clusters proposed prior to data analysis anticipated a distinction between Discriminant Help-Seekers and High Discriminant Help-Seekers (see Table 1), this distinction was not observed. The originally proposed Discriminant Help-Seekers group was conceptualized to consist of individuals who utilized personal and confidential professional help-sources, while the High Discriminant Help-Seekers were expected to utilize only personal relationships. Instead, members of this cluster nearly universally utilized both intimate partners (a personal help-source) and behavioral health professionals (a professional help-source with limited confidentiality). The next most commonly utilized help-source was unit command, reported by 35% of group membership. Beyond this, there was comparably limited utilization of other help-sources. This group was termed Discriminant in that cluster members largely utilized what is conceptualized to be the closest personal relationship (intimate partner) and the most specialized professional relationship (behavioral health professional). Members of Cluster 2 demonstrated a help-seeking pattern akin to Cluster 1 in that they accessed multiple sources, but were more selective

(and homogenously so) in that selection. The notion of limited disclosure to selective individuals is supported by prior research indicating that less than 25% of suicidal individuals' social networks are considered confidantes for help-seeking purposes (82). It is possible that the members of Cluster 2 represent those individuals with a highest threshold of trust than those in Cluster 1.

*Cluster 3: Non Help-Seekers*

Cluster 3 was conceptualized as containing non help-seekers. Members of this group were best characterized by their relative lack of help-source utilization. In contrast to the other clusters, none of the members of this cluster communicated with behavioral health providers about their suicidality in the 30 days preceding the suicidal crisis. None of them spoke with chaplains, and less than 10% of this cluster approached primary care physicians, phone help lines, parents, or other relatives. This cluster contained all of the participants who did not report seeking help for their suicidality from any help-sources, making up 45.2% of this cluster and 10.4% of the sample as a whole. Cluster 3 was noteworthy for having the largest decrease in mental health utilization from the 90-day period to the 30-day period preceding hospitalization. As such, it may be the case that a defining characteristic of Cluster 3 is not just the low utilization of help resources, but also the cessation of help-seeking in the 90-day period preceding a suicidal crisis.

*Appropriateness of help-seeking clusters for other stigmatizing conditions*

Individuals experiencing suicidality face stigma as a barrier to accessing care, but suicidality is not the only clinical condition for which stigma can impact help-seeking. As such, it may be beneficial to consider the appropriateness of these clusters on other conditions. Two conditions will be considered: human immunodeficiency virus (HIV)

and obesity. These comparisons are intended as considerations for future research, rather than definitive statements about help-seeking patterns within these conditions.

*Appropriateness of help-seeking clusters for HIV*

HIV-positive status can be a highly stigmatized condition, and this perceived stigma affects healthcare behavior (124). However, it is not anticipated that the clusters identified in this study would maintain applicability when applied to the population of HIV-positive individuals. Participants in this study who reached out to friends, loved ones, or family members generally felt that it was helpful. In HIV-positive individuals, however, there are indications that there are stronger associations between stigma and discussion of HIV-positive status with friends and loved ones. Indeed, individuals who disclose their HIV-positive status to a greater range of non-romantic social contacts experience a greater degree of stigma related to their condition (227). Another study found that greater internalized stigma was associated with decreased disclosure of HIV-status to sexual partners (164). There was no association between help-source utilization and stigma-related beliefs in the present study, however. Given the strong interpersonal valence of HIV-status, as well as the implications for romantic partners that are not present with suicidality, it is not expected that the pattern of help-seeking observed in this study would apply to HIV-positive individuals.

*Appropriateness of help-seeking clusters for obesity*

Obesity has also been associated with a high degree of stigma, including within the military (203). However, there are indications that, like HIV, specific characteristics of the nature of the condition may result in patterns of help-seeking dissimilar to those seen in suicidal individuals. Many individuals with obesity experience stigma from

healthcare providers, including those who specialize in obesity (204). One study found that the two sources of stigma most commonly endorsed by individuals with obesity were family members and healthcare professionals (180). This stigma has been seen to discourage seeking healthcare that might otherwise help to reduce obesity (69). Because the source of stigma is so closely associated with the individuals who might otherwise be the frontline source of treatment, it is not expected that the patterns of help-seeking in obesity would be the same as those within suicidality. Among suicidal individuals in the present study, mental health providers were frequently used, and frequently endorsed as helpful. Among individuals with obesity, however, healthcare workers may be viewed as a greater hinderance than a help. Indeed, perceived stigma from healthcare providers has been identified by some individuals as a discouragement from engaging in dieting or other healthy weight-reduction strategies (180). While stigma is present in each of these conditions, there is reason to suspect that patterns of help-seeking may be highly contingent on the specific nature of each condition.

## Cluster Stability and External Validation

### *Stability of the model*

In order to examine whether identified data clusters represent real-world patterns of behavior or simply patterns unique to this sample, measures of stability and external validity were pursued. Standards put forth by Aldenderfer and Blashfield (7) prescribe the use of split-half analysis to accomplish the aim of establishing stability. Results of this split-half analysis placed stability in the moderate range ($k$=.456). While it is hoped that the clusters identified in this unique and high-risk population will help to effectively

target intervention strategies, additional future cluster analyses may improve and expand upon the model identified here.

***External validation of the model***

Identification of an appropriate external validation measure for comparison with the AHSQ presented a challenge. The CSI was decided upon as an additional measure of help-seeking behavior, including a variety of physical and psychological healthcare sources. This data was used to confirm observations of physical and psychological healthcare utilization from the AHSQ, the primary data source used in the identification of the clusters. None of the ANOVA or chi-squared tests involving medical help-source utilization were statistically significant. Given the low utilization of primary care physicians as a source of suicidality in this sample, this finding is to be expected. However, measures of psychological care demonstrated statistically significant differences between the clusters, replicating what was seen in patterns of usage as recorded by the AHSQ. Binary endorsement of seeking psychological care (for suicidality or any other reason) was indicated by 76.1%, 78.9%, and 37.5% of Clusters 1, 2, and 3, respectively. These figures reproduce the pattern demonstrated in the clusters, in which Cluster 3 is differentiated by its markedly decreased utilization of behavioral health resources. A measure of breadth of service utilization revealed a statistically significant decrease in the number of psychological services utilized by members of Cluster 3, again demonstrating consistency with the cluster modeling, despite relying on a different measure of healthcare utilization.

Measuring general healthcare utilization in this sample was not a primary aim of the present study. However, data gathered by the CSI allows some comparisons with

another military sample to be made. The current sample was found to have made use of medical resources at approximately the same rate as those recovering from a mild traumatic brain injury (mTBI), while approximately twice as many of the present sample had made use of psychological resources (187). Among those who had used medical resources, the current sample had a much lower frequency of utilization than the mTBI sample (a mean of approximately 2.5 visits versus approximately 10 visits in a 90-day span). For those who had used psychological resources, the present sample had many more visits (a mean of approximately 14 visits versus approximately 7 visits in a 90-day span). However, conclusions that can be drawn from these data are limited, as the samples used in each of these studies are substantially different.

## Implications

### *Clinical Implications*

Individuals and organizations in a position to treat those at risk for suicide may benefit from several findings of the present study. Despite the presence of stigma-related beliefs, most participants in this study of high-risk individuals felt that reaching out for help was helpful after they had done so, including both those who had sought help from a variety of sources and those who had very limited help-seeking. While hopelessness is a key characteristic of suicidality (21), it appears that most encouragement or support received from outside sources is still perceived as worthwhile and beneficial. Any step to seek help is likely to pay dividends, even for those who may be very reluctant to reach out. Because of the presence of stigma related to career-affecting outcomes, patients may be hesitant to reach out to military resources in a moment of crisis. However, of the

individuals who sought help from unit command, over three-quarters found it helpful (although 20% found it both helpful and harmful).

The merits of suicide prevention methods cannot be evaluated based on these labels alone, as what is termed helpful by a patient in the short-term does not necessarily translate to clinical effectiveness or evidence-based best practices. Indeed, even the resources deemed harmful may not have been ineffective. Clinician-instigated hospitalization, for example, may cause frustration and a breach of trust, but for some individuals will have saved a life. The description of a help-source as being both helpful and harmful is also insufficient, as the relative value of these labels is not established. The life-saving intervention that also resulted in mild frustration is certainly more helpful than harmful. While the labels helpful and harmful are overly vague, these findings nevertheless add support to the notion that a wide variety of resources are viewed as acceptable to service members exhibiting a high degree of suicide-related behaviors.

These findings assist clinicians to be better informed in their recommendations of which help-sources are the most likely to be utilized by patients. Telephone help lines for suicide are commonly recommended to patients as a resource in a moment of crisis, yet in the current sample they were some of the least utilized help-sources. Though suicide hotlines were not found to be harmful by the participants in this study who accessed them, clinicians serving this high-risk military population should carefully consider the likelihood of utilization for the recommendations they provide. At the very least, these findings should encourage clinicians to prepare their suicidal clients to contact a wide variety of resources, as some of the most ubiquitous are unlikely to be used. This echoes existing best-practice suicide prevention clinical guidelines (196; 215).

Similarly, clinicians should be aware that high-risk patients who disclose suicidality in a therapeutic setting may also have shared that information with others or may be willing to do so. In the present sample, participants reached out to three help-sources on average. Clinicians can use this to good effect by helping patients to appropriately involve family members, friends, or unit resources to strengthen the service member's support network before a suicidal crisis.

### *Research Implications*

Despite identification of the help-seeking patterns that precede hospitalization in connection with a suicidal crisis, important questions remain for future research. Numerous variables have been examined as potential explanations for observed patterns of help-seeking, including sex, rank, social support, perceived barriers to care, stigma-related beliefs, severity of suicide-related symptoms, number of psychiatric diagnoses, and lifetime history of suicide attempts. Unfortunately, the present data do not provide a definitive explanation regarding why subjects selected their given help-sources. Future research should explore this question further, including determining the relative roles of internal and external determinants of help-seeking behavior, clarifying the weight given to confidentiality when selecting between help-sources, examining changes in stigma-related beliefs throughout the help-seeking process, determining the relationship between the number of help-sources accessed and later clinical outcomes, and exploring the effect of intimate partners on other help-sources accessed.

One question of particular interest regards how to maximize the effectiveness of the full gamut of suicide prevention options available, given the apparent preference for behavioral health providers. When evidence-based psychotherapy is supported by

additional resources, that care improves. For example, past programs within the DoD and VA have demonstrated the benefits of collaboration between mental health providers and chaplains (157), and the majority of behavioral health providers in these settings believe that greater understanding between the two disciplines would be beneficial (156). It is expected that greater collaboration across social, professional, and military contexts would only further advance care. However, this remains to be tested empirically.

Pressing questions about seeking help during a suicidal crisis remain, particularly regarding the individuals characterized as Non Help-Seekers. Future research may examine the effect of help-seeking efforts prior to 30 days before a suicidal incident as an influencing factor on present help-seeking decisions. Additionally, more needs to be known about the effect of the exact pathways leading to a current suicide-related hospitalization. For example, it will be important to understand which patterns of help-seeking were associated with various hospitalization conditions: voluntary vs involuntary hospitalization, hospitalization referral-source (self, command, or clinician referred), as well as eventual treatment outcomes. These findings would help to further inform improvements to clinical as well as programmatic suicide prevention efforts. Because this study relied on secondary data analysis for initial exploration, future studies may be better prepared to determine these pathways with greater certainty. Future longitudinal studies may also track future clinical outcomes of suicidal service members based on past patterns of help-seeking, hospitalization pathways, and past satisfaction with sought help. It is possible that beliefs related to the helpfulness or harmfulness of help-seeking may change at different points along the treatment-seeking timeline; longitudinal data is

needed before more definitive statements can be made about the long-term acceptability of a given help-source.

### *Policy Implications*

Information about which sources of help are most often used by those suffering a suicidal crisis should help to inform military suicide prevention efforts. Military suicide prevention efforts are aided by a current infrastructure that provides yearly training on suicide prevention to all service members. These trainings should focus emphasis on the help-sources most likely to be utilized by service members at greatest risk for suicide. Yearly trainings might also educate service members about the general satisfaction of those who seek help. For example, many service members may be surprised to find that about 78% of those who sought help from their unit command found it helpful. Similarly, sharing the rates of satisfaction about other help-sources may help service members experiencing suicidality to feel that others experiencing similar symptoms have found help, and were glad about their decision to reach out. These trainings may be expanded to also include information conceptualized as honest informed consent – while it is encouraging to report satisfaction, military suicide prevention programs may also consider reporting the proportion of individuals who did not find a given help-source helpful, or who found it both helpful and harmful. Certainly, care should be taken to maximize the clinical utility of suicide prevention briefs, to encourage those in need to seek help. However, it may be possible to do so while also maximizing the likelihood of individuals finding care that they felt was useful. This may be done by emphasizing the wide variety of help-sources available. Suicide prevention messaging may stress that if

one source is not helpful, there are always additional options available that have been helpful to others.

For example, spouses or intimate partners were a commonly used source of help among those who had such a relationship, and they were generally viewed as helpful. Focused training may help these frequently accessed resources to be more effective in preventing suicide. Most intimate partners are not formally trained in counseling a loved one considering suicide, and may not feel confident in their ability to do so. Future military suicide prevention efforts may expand to include gatekeeper trainings for family members and loved ones, rather than for uniformed personnel only. These trainings might include content related to recognizing the warning signs of increasing suicidality, how to speak with a loved one openly about suicidality, how and when to contact a loved one's military command, as well as training on what other resources are available and how to contact those resources. These gatekeeper trainings can be administered through existing outreach organizations that serve military families, such as Military OneSource, the United Services Organizations (USO), and Blue Star Families. Given the wide-spread use of intimate partners as a source of help for suicidal service members, suicide prevention trainings aimed at informing family members may be considered an integral part of military suicide prevention efforts.

Similarly , military peer-intervention efforts can be informed by the finding that other unit members were utilized as a help-source by about one quarter of those who are eventually hospitalized following a suicidal crisis, though this effort was seen as helpful by the large majority of individuals. Similarly, chaplain-focused suicide prevention efforts can be informed by the knowledge that only about 20% of those at highest risk for

suicide approached chaplains in the 30 days leading up to hospitalization. Approximately 60% of those who did so felt that speaking with a chaplain about their suicidality was helpful.

These findings may also be useful in resource-allocation efforts among the various DoD suicide prevention efforts. Funding support can be prioritized to those resources that are the most used and the most helpful. Underutilized programs can be modified to become more effective and more acceptable to those suffering a suicidal crisis. For example, while telephone help lines are frequently referenced as a tool for those suffering from suicidal thoughts, these data suggest that they are infrequently used by those at greatest risk for suicide. However, there is no data from the present study to suggest that the use of telephone hot lines is harmful, simply that they are less-often utilized.

**Study Limitations**

This study had important limitations that should be considered when interpreting its findings. Most importantly was the particular nature of the participants enrolled in this study. The individuals included in these analyses had a high number of indicated psychiatric diagnoses, and approximately half of the sample had a lifetime history of two or more suicide attempts. The inclusion criteria were stringent in only including those with either a recent suicide attempt or severe ideation with intention to die and action towards a plan. Although the present sample was demographically reflective of the military as a whole, it reflects a population with psychiatric challenges that are not representative of the typical service member. Therefore, findings from this selective

group may have limited generalizability to the military as a whole, as well as to the general population.

If a broader dataset more representative of all suicidal service members were obtained, it can be conjectured that the clusters of help-source utilization might have similar identifying characteristics, but different relative cluster sizes. Because this sample consisted of individuals with severe suicidality, it is possible that a more general sample would have a smaller proportion of individuals who had sought out care from Mental Health Providers. Instead, the set of individuals who had not sought help might make up a larger proportion of the sample. However, additional information is needed to see if this pattern holds out in a more general sample.

Identification of clusters based on patterns of help-seeking in a suicidal population was one of the key aims of the present study. However, when interpreting those clusters, certain limitations must be taken into account. Opportunities to validate the clusters based on an external source were limited. Use of the CSI as an external measure of healthcare utilization to validate clusters created from the AHSQ was imperfect, as the two measures examined different sources of help, over different periods of time, and for different reasons. While information gathered from the CSI remained consistent with the help-seeking patterns suggested in the cluster analysis, it was a sub-optimal method of external validation for the model. Unfortunately, no currently available measure of help-seeking contains both the breadth of formal and informal help-sources featured in the AHSQ as well as the depth of detail featured in the CSI. Future research might include elements of both measures or a novel measure customized to standardize the period of measurement.

Other measures included limitations that may have affected the results of this study. The AHSQ divides possible sources of help into a variety of categories, however, some of these categories are vaguely defined, leading to possible confusion, inaccuracy, or miscalculation. Specifically, Unit Members and Friends are listed as different sources of help, but an individual could easily be included in both of these categories. Future research should account for this possibility during data collection.

A potential limitation of the cluster analysis was the correlation between two measures used to create the clusters, MSS and PBTC. Correlations between total scores on the measures were large, with correlations between MSS scores and PBTC subscale scores in the moderate range. However, these correlations were within the standard typically applied to cluster analyses, Pearson's $r<.90$ (198).

An additional limitation of this study was the unknown effect of equifinality within the sample. The 135 participants in the study were similar in many ways, including current place of treatment, symptom severity, stigma-related beliefs, and perceived barriers to care. However, variance within the path by which they reached the inpatient unit was not accounted for. Unfortunately, patients' specific pathway to hospitalization was not captured in the available data. In one instance, a participant may have reached the inpatient unit because of successful utilization of the help-source network. For example, a unit member may have confided about their intense suicidality with a co-worker who then referred the service member to seek help from a behavioral health provider, who helped the service member seek additional resources from the inpatient unit. In another instance, a service member may have reached out to a friend for help, experienced a stigmatized response, and then neglected to reach out further until

their symptoms became so intense that they attempted suicide but were found, leading to their admission to the inpatient unit. Both of these hypothetical individuals reached the inpatient unit, but did so through very different means, including stark differences in the effect of active help-seeking on their final treatment placement. It is hoped that future research may more fully account for the variety of paths that lead to the inpatient unit for suicidal individuals by clearly determining the cause and pathway of hospitalization.

The homogeneity in symptom severity of the sample also means that other individuals at clinically significant levels of suicidality were not included in the analysis. Inclusion criteria for this study were stringent, ensuring that only those with the greatest current severity were included. However, this potentially excluded many individuals who were at clinically significant risk for suicide, but still did not reach the extent of severity required for participation. For example, an individual with persistent suicidal ideation and a plan, but no present intent to act, may not have been included in the study. Because risk for suicide does not always progress on a linear trajectory, this means that individuals excluded from the study may still have had experiences worthwhile to the purpose of this study. Indeed, it is conceivable that some of the individuals not included in this study could someday be at significant risk for death by suicide; their experiences with help-seeking would be worthwhile to capture.

**Strengths of the Study**

Despite the limitations noted above, the present study also had many strong elements that support the merits of its findings. To date, no prior research has described typologies within the help-source utilization patterns of military suicide attempters. The cluster analysis, central to the purpose of the study, was found to be internally stable.

While the method for external validation was limited, as noted above, the findings within that limited scope of applicability related to healthcare utilization were consistent with what would be expected from the model. Three archetypes of help-seeking among service members at the most serious risk for suicide were identified and described.

The present study represented a meaningful contribution to the literature of suicidology and help-seeking. One of the reasons for this is its robust examination of a population notoriously excluded from most clinical research. Individuals hospitalized shortly after a suicidal crisis of notable intensity represent one of the highest-risk clinical categories, and therefore may stand to benefit greatly from more research. However, more must be known about this important clinical population. The present study adds to our knowledge of this group, including identifying some of the best avenues for helpful intervention in the period immediately preceding a suicidal crisis.

**Conclusion**

Suicide represents a substantial barrier to the mission of the Department of Defense, and an incalculable burden to the lives and families of service members who are affected by it. There are a variety of means by which suicidal individuals in the military can seek help, but their actual patterns of utilization were not previously known. This study characterized the patterns of help-seeking by individuals experiencing a suicidal crisis through their efforts to seek aid in the period preceding eventual inpatient hospitalization. In doing so, three major clusters were identified, and characterized as Non-Discriminant Help-Seekers, Discriminant Help-Seekers, and Non Help-Seekers. The perceived helpfulness or harmfulness of each of these resources to those who sought help was discussed, and the characteristics of each group were established. These findings

assist military policy makers allocate suicide prevention resources to the help-sources most likely to be utilized by those service members at greatest risk for suicide, and assist clinicians in producing safety plans more effectively. Future research should build upon these findings by determining with greater clarity the internal and external influences on help-seeking decisions.

Table 3. Participant Characteristics

| Demographic | Total Sample (N=135) | Cluster 1 (n=81) | Cluster 2 (n=23) | Cluster 3 (n=31) |
|---|---|---|---|---|
| Age, in years | | | | |
| M (SD) | 27.90 (7.7) | 27.68 (7.5) | 28.70 (8.4) | 27.8 (8.0) |
| Range, years | 18 - 50 | 18 - 50 | 18 - 46 | 19 - 48 |
| Gender | | | | |
| Male | 95 (70.4) | 57 (70.4) | 15 (65.2) | 23 (74.2) |
| Female | 40 (29.6) | 24 (29.6) | 8 (34.8) | 8 (25.8) |
| Race [a] | | | | |
| Asian | 9 (6.7) | 5 (6.3) | 1 (4.3) | 3 (9.7) |
| Black or African American | 22 (16.4) | 14 (17.5) | 1 (4.3) | 7 (22.6) |
| Native Hawaiian/Other Pacific Islander | 3 (2.2) | 3 (3.8) | 0 (0.0) | 0 (0.0) |
| White or Caucasian | 88 (65.7) | 50 (62.5) | 20 (87.0) | 18 (58.1) |
| Two or more | 11 (8.2) | 7 (8.8) | 1 (4.3) | 3 (9.7) |
| Other | 1 (0.7) | 1 (1.3) | 0 (0.0) | 0 (0.0) |
| Ethnicity [a] | | | | |
| Hispanic or Latino | 18 (13.3) | 10 (12.3) | 4 (17.4) | 4 (12.9) |
| Not Hispanic or Latino | 116 (85.9) | 70 (86.4) | 19 (82.6) | 27 (87.1) |
| Education Level | | | | |
| High School Diploma | 39 (28.9) | 21 (25.9) | 6 (26.1) | 12 (38.7) |
| Some College, no degree | 48 (35.6) | 29 (35.8) | 9 (39.1) | 10 (32.3) |
| Associate's Degree | 18 (13.3) | 10 (12.3) | 5 (21.7) | 3 (9.7) |
| Bachelor's Degree | 21 (15.6) | 14 (17.3) | 3 (13.0) | 4 (12.9) |
| Graduate or Professional Degree | 9 (6.7) | 7 (8.6) | 0 (0.0) | 2 (6.5) |
| Marital Status | | | | |
| Never Married | 64 (47.4) | 45 (55.6) | 6 (26.1) | 13 (41.9) |
| Married – 1st marriage | 34 (25.2) | 16 (19.8) | 9 (39.1) | 9 (29.0) |
| Married – 2nd marriage | 15 (11.1) | 9 (11.1) | 4 (17.4) | 2 (6.5) |
| Married – 3rd + marriage | 2 (1.5) | 0 (0.0) | 0 (0.0) | 2 (6.5) |
| Cohabitating/unmarried | 1 (0.7) | 1 (1.2) | 0 (0.0) | 0 (0.0) |
| Separated | 9 (6.7) | 5 (6.2) | 2 (8.7) | 2 (6.5) |
| Annulled | 1 (0.7) | 1 (1.2) | 0 (0.0) | 0 (0.0) |
| Divorced | 9 (6.7) | 4 (4.9) | 2 (8.7) | 3 (9.7) |

*Notes*. Data is presented as *N* (valid %) unless indicated otherwise. Due to rounding, percentages may not equal 100%.
a. N=134

Table 3. Participant Characteristics, Continued

| Demographic | Total Sample (N=135) | Cluster 1 (n=81) | Cluster 2 (n=23) | Cluster 3 (n=31) |
|---|---|---|---|---|
| Branch | | | | |
| Army | 49 (36.3) | 28 (34.6) | 11 (47.8) | 10 (32.3) |
| Air Force | 22 (16.3) | 15 (18.5) | 2 (8.7) | 5 (16.1) |
| Navy | 38 (28.1) | 27 (33.3) | 4 (17.4) | 7 (22.6) |
| Marine Corps | 23 (17.0) | 9 (11.1) | 5 (21.7) | 9 (29.0) |
| Coast Guard | 3 (2.2) | 2 (2.5) | 1 (4.3) | 0 (0.0) |
| Rank | | | | |
| E1-E4 | 66 (48.9) | 39 (48.1) | 10 (43.5) | 17 (54.8) |
| E5-E6 | 36 (26.7) | 21 (25.9) | 8 (34.8) | 7 (22.6) |
| E7-E9 | 12 (8.9) | 5 (6.2) | 2 (8.7) | 5 (16.1) |
| W1-O10 | 16 (11.9) | 11 (13.6) | 3 (13.0) | 2 (6.5) |
| Cadet/Midshipman | 5 (3.7) | 5 (6.2) | 0 (0.0) | 0 (0.0) |
| Deployments | | | | |
| 0 | 76 (56.3) | 49 (60.5) | 10 (43.5) | 17 (54.8) |
| 1 | 19 (14.1) | 13 (16.0) | 3 (13.0) | 3 (9.7) |
| 2 | 13 (9.6) | 5 (6.2) | 5 (21.7) | 3 (9.7) |
| 3 | 10 (7.4) | 6 (7.4) | 2 (8.7) | 2 (6.5) |
| 4 | 8 (5.9) | 3 (3.7) | 1 (4.3) | 4 (12.9) |
| 5 | 4 (3.0) | 2 (2.5) | 1 (4.3) | 1 (3.2) |
| 6 | 1 (0.7) | 1 91.2) | 0 (0.0) | 0 (0.0) |
| 7 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| 8 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| 9 | 1 (0.7) | 1 (1.2) | 0 (0.0) | 0 (0.0) |
| 10 | 3 (2.2) | 1 (1.2) | 1 (4.3) | 1 (3.2) |

*Notes*. Data is presented as *N* (valid %) unless indicated otherwise. Due to rounding, percentages may not equal 100%.

Table 4. Help-Seeking in the 30 Days Leading up to a Suicidal Crisis

| Measure | Total Sample (N=135) | Cluster 1 (n=81) | Cluster 2 (n=23) | Cluster 3 (n=31) |
|---|---|---|---|---|
| AHSQ | | | | |
| Partner | 64 (47.4) | 30 (37.0) | 23 (100.0) | 11 (35.5) |
| Friend | 72 (53.3) | 67 (82.7) | 0 (0.0) | 5 (16.1) |
| Parent | 30 (22.2) | 24 (29.6) | 4 (17.4) | 2 (6.5) |
| Other Relative | 22 (16.3) | 21 (25.9) | 0 (0.0) | 1 (3.2) |
| Behavioral Health | 87 (64.4) | 66 (81.5) | 21 (91.3) | 0 (0.0) |
| Chaplain | 30 (22.2) | 25 (30.9) | 5 (21.7) | 0 (0.0) |
| Phone Help Line | 9 (6.7) | 8 (9.9) | 0 (0.0) | 1 (3.2) |
| Unit Command | 49 (36.3) | 37 (45.7) | 8 (34.8) | 4 (12.9) |
| Other Unit Members | 36 (26.7) | 28 (34.6) | 2 (8.7) | 6 (19.4) |
| Primary Care | 20 (14.8) | 16 (19.8) | 2 (8.7) | 2 (6.5) |
| Other | 15 (11.1) | 11 (13.6) | 3 (13.0) | 1 (3.2) |
| No Help-Seeking | 14 (10.4) | 0 (0.0) | 0 (0.0) | 14 (45.2) |

*Notes*. Data is presented as *N* (valid %) unless indicated otherwise. Due to rounding, percentages may not equal 100%.

Table 5. Self-Reported Helpfulness and/or Harmfulness of Help-Sources

| Help-Source | Total (N=135) | Cluster 1 (n=81) | Cluster 2 (n=23) | Cluster 3 (n=31) |
|---|---|---|---|---|
| Partner | n=64 | n=30 | n=23 | n=11 |
| Helpful | 39 (60.9) | 18 (60) | 16 (69.6) | 5 (45.4) |
| Harmful | 15 (23.4) | 8 (26.7) | 3 (13.0) | 4 (36.4) |
| Both Helpful and Harmful | 5 (7.8) | 3 (10) | 1 (4.3) | 1 (9.1) |
| Friend | n=72 | n=67 | n=0 | n=5 |
| Helpful | 54 (75.0) | 51 (76.1) | 0 (0.0) | 3 (60.0) |
| Harmful | 17 (23.6) | 17 (25.4) | 0 (0.0) | 0 (0.0) |
| Both Helpful and Harmful | 9 (12.5) | 9 (13.4) | 0 (0.0) | 3 (60.0) |
| Parent | n=30 | n=24 | n=4 | n=2 |
| Helpful | 19 (63.3) | 17 (70.8) | 2 (50.0) | 0 (0.0) |
| Harmful | 12 (40.0) | 8 (33.3) | 3 (75.0) | 1 (50.0) |
| Both Helpful and Harmful | 5 (16.7) | 4 (16.7) | 1 (25.0) | 0 (0.0) |
| Other Relative | n=22 | n=21 | n=0 | n=1 |
| Helpful | 18 (81.8) | 17 (81.0) | 0 (0.0) | 1 (3.2) |
| Harmful | 3 (13.6) | 3 (14.3) | 0 (0.0) | 0 (0.0) |
| Both Helpful and Harmful | 3 (13.6) | 3 (14.3) | 0 (0.0) | 1 (100.0) |
| Behavioral Health | n=87 | n=66 | n=21 | n=0 |
| Helpful | 65 (74.7) | 48 (72.7) | 17 (81.0) | 0 (0.0) |
| Harmful | 20 (23.0) | 16 (24.2) | 4 (19.0) | 0 (0.0) |
| Both Helpful and Harmful | 9 (10.3) | 8 (12.1) | 19 (90.5) | 0 (0.0) |
| Chaplain | n=30 | n=25 | n=5 | n=0 |
| Helpful | 18 (60.0) | 16 (64.0) | 2 (40.0) | 0 (0.0) |
| Harmful | 6 (20.0) | 5 (20.0) | 1 (20.0) | 0 (0.0) |
| Both Helpful and Harmful | 1 (3.3) | 1(4.0) | 0 (0.0) | 0 (0.0) |

Table 5. Self-Reported Helpfulness and/or Harmfulness of Help-Sources, Continued

| Help-Source | Total (N=135) | Cluster 1 (n=81) | Cluster 2 (n=23) | Cluster 3 (n=31) |
|---|---|---|---|---|
| Phone Help Line | n=9 | n=8 | n=0 | n=1 |
| Helpful | 7 (77.8) | 7 (87.5) | 0 (0.0) | 0 (0.0) |
| Harmful | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| Both Helpful and Harmful | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| Unit Command | n=49 | n=37 | n=8 | n=4 |
| Helpful | 38 (77.6) | 28 (75.7) | 7 (87.5) | 3 (75.0) |
| Harmful | 15 (31.3) | 12 (32.4) | 1 (14.3) | 2 (50.0) |
| Both Helpful and Harmful | 10 (20.8) | 8 (21.6) | 0 (0.0) | 2 (50.0) |
| Other Unit Members | n=36 | n=28 | n=2 | n=6 |
| Helpful | 28 (77.8) | 23 (82.1) | 2 (100.0) | 3 (50.0) |
| Harmful | 5 (13.9) | 3 (10.7) | 0 (0.0) | 2 (33.3) |
| Both Helpful and Harmful | 2 (5.6) | 2 (7.1) | 0 (0.0) | 0 (0.0) |
| Primary Care Physician | n=20 | n=16 | n=2 | n=2 |
| Helpful | 13 (65.0) | 10 (62.5) | 2 (100.0) | 1 (50.0) |
| Harmful | 7 (35.0) | 6 (37.5) | 0 (0.0) | 1 (50.0) |
| Both Helpful and Harmful | 2 (10.0) | 2 (12.5) | 0 (0.0) | 0 (0.0) |
| Other | n=15 | n=11 | n=3 | n=1 |
| Helpful | 12 (80.0) | 9 (81.8) | 2 (66.7) | 1 (100.0) |
| Harmful | 3 (20.0) | 2 (18.2) | 1 (33.3) | 0 (0.0) |
| Both Helpful and Harmful | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |

*Notes*. Help-sources indicated as both helpful and harmful are included in all three helpfulness categories; percentages may not add up to 100%.

Table 6. Social Support, Barriers to Care, and Stigma

| | Total Sample | | Cluster 1 | | Cluster 2 | | Cluster 3 | |
|---|---|---|---|---|---|---|---|---|
| Measure | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| DUSOCS | (N=121) | | (n=74) | | (n=20) | | (n=27) | |
| Family Support | 37.54 | 21.81 | 36.29 | 22.33 | 44.64 | 19.92 | 35.71 | 21.43 |
| Non-Family Support | 32.31 | 20.28 | 37.43 | 16.35 | 20.00 | 18.92 | 27.41 | 21.23 |
| Social Support Score | 38.80 | 16.89 | 40.48 | 16.35 | 37.50 | 17.32 | 35.18 | 17.99 |
| PBTC | (N=135) | | (n=81) | | (n=23) | | (n=31) | |
| Total | 34.30 | 10.35 | 33.93 | 10.72 | 35.00 | 8.21 | 34.74 | 11.02 |
| Unit Stigma/Harm to Career | 18.87 | 7.04 | 18.28 | 7.23 | 19.74 | 6.32 | 19.77 | 7.09 |
| Org/Cultural Barriers | 5.92 | 2.10 | 5.99 | 2.27 | 5.52 | 1.62 | 6.03 | 1.97 |
| Individual Barriers | 9.50 | 3.04 | 9.65 | 2.97 | 9.74 | 2.61 | 8.94 | 3.52 |
| MSS | (N=121) | | (n=74) | | (n=20) | | (n=27) | |
| Total | 62.97 | 17.33 | 62.61 | 17.55 | 63.17 | 17.52 | 63.81 | 17.18 |
| Public Stigma | 42.08 | 12.20 | 41.91 | 12.67 | 42.27 | 12.40 | 42.37 | 11.12 |
| Self-Stigma | 20.89 | 6.99 | 20.69 | 6.73 | 20.91 | 7.39 | 21.44 | 7.63 |

Table 7. Characteristics of Cluster 1 Sub-Clusters

| Measure | Sub-cluster 1a (n=36) | Sub-cluster 1b (n=45) |
|---|---|---|
| AHSQ | | |
| Partner | 26 (72.22) | 4 (8.89) |
| Friend | 34 (94.44) | 33 (73.33) |
| Parent | 17 (47.22) | 7 (15.56) |
| Other Relative | 12 (33.33) | 9 (20.00) |
| Behavioral Health | 26 (72.22) | 40 (88.89) |
| Chaplain | 12 (33.33) | 13 (28.89) |
| Phone Help Line | 5 (13.89) | 3 (6.67) |
| Unit Command | 16 (44.44) | 21 (46.67) |
| Other Unit Mems | 23 (63.89) | 5 (11.11) |
| Primary Care | 10 (27.78) | 6 (13.33) |
| Other | 7 (19.44) | 4 (8.89) |

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

Table 8. Cornell Services Index Responses

| CSI Composite Response | Total Sample (N=110) | Cluster 1 (n=67) | Cluster 2 (n=19) | Cluster 3 (n=24) |
|---|---|---|---|---|
| Medical Services Accessed | | | | |
| Yes | 72 (65.45) | 43 (64.18) | 12 (63.16) | 17 (70.83) |
| No | 38 (34.55) | 24 (35.82) | 7 (36.84) | 7 (29.17) |
| Psychiatric Services Accessed** | | | | |
| Yes | 75 (68.18) | 51 (76.12) | 15 (78.95) | 9 (37.50) |
| No | 35 (31.81) | 16 (23.88) | 4 (21.05) | 15 (62.50) |
| Types of Medical Services Used | | | | |
| M(SD) | 1.19 (1.26) | 1.24 (1.34) | .95 (.91) | 1.25 (1.29) |
| Types of Psychiatric Services Used** | | | | |
| M (SD) | 1.69 (1.65) | 1.88 (1.68) | 2.21 (1.62) | .75 (1.33) |
| Frequency of Medical Services Used | | | | |
| M (SD) | 2.42 (3.53) | 2.63 (4.06) | 1.58 (1.64) | 2.50 (2.98) |
| Frequency of Psychiatric Services Used | | | | |
| M (SD) | 14.21 (30.83) | 14.85 (25.65) | 24.74 (53.71) | 4.08 (12.57) |

*Notes*. Data is presented as *N* (valid %) unless indicated otherwise. Due to rounding, percentages may not equal 100%.
**$p < .01$

Table 9. ANOVA Results for Aim 3 Analyses

| *Variable* | | *Sum of Squares* | *df* | *Mean square* | *F* | *Sig.* |
|---|---|---|---|---|---|---|
| Types of Med. Services Used | Between Groups | 1.36 | 2 | .68 | .425 | .655 |
| | Within Groups | 171.63 | 107 | 1.60 | | |
| | Total | 172.99 | 109 | | | |
| Types of Psych. Services Used | Between Groups | 28.79 | 2 | 14.39 | 5.775 | .004 |
| | Within Groups | 266.70 | 107 | 2.49 | | |
| | Total | 295.49 | 109 | | | |
| Freq. of Med. Services Used | Between Groups | 16.46 | 2 | 8.23 | .656 | .521 |
| | Within Groups | 1342.30 | 107 | 12.55 | | |
| | Total | 1358.76 | 109 | | | |
| Freq. of Psych. Services Used | Between Groups | 4594.16 | 2 | 2297.08 | 2.483 | .088 |
| | Within Groups | 9899.03 | 107 | 925.140 | | |
| | Total | 103584.19 | 109 | | | |

Table 10. ANOVA Results for Aim 4 Analyses

| *Measure* | | *Sum of Squares* | *df* | *Mean square* | *F* | *Sig.* |
|---|---|---|---|---|---|---|
| DUSOCS | Between Groups | 595.25 | 2 | 297.625 | 1.05 | .355 |
| | Within Groups | 33622.38 | 118 | 284.94 | | |
| | Total | 34217.63 | 120 | | | |
| PBTC | Between Groups | 28.66 | 2 | 14.33 | .132 | .876 |
| | Within Groups | 14327.49 | 132 | 108.54 | | |
| | Total | 14356.15 | 134 | | | |
| MSS | Between Groups | 29.76 | 2 | 14.88 | .49 | .952 |
| | Within Groups | 35989.09 | 118 | 304.99 | | |
| | Total | 36018.85 | 120 | | | |

Table 11. Indicators of Symptom Severity

| | Total Sample (N=110) | | Cluster 1 (n=67) | | Cluster 2 (n=19) | | Cluster 3 (n=24) | |
|---|---|---|---|---|---|---|---|---|
| *Variable* | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Lifetime Suicide Severity | 29.61 | 5.27 | 28.29 | 5.28 | 29.03 | 3.81 | 29.61 | 3.56 |
| Lifetime Suicide Attempts | 2.27 [a] | 4.23 | 1.83 [a] | 2.03 | 3.63 | 8.92 | 2.39 [a] | 2.73 |
| Psychiatric Diagnoses | 5.54 [b] | 2.84 | 4.88 [c] | 2.80 | 5.89 | 2.77 | 5.54 | 2.98 |

*Notes.*
a. Two outliers were not included: 104 (from Cluster 1) and 102 (from Cluster 3) suicide attempts
b. n=111
c. n=68

Table 12. Suicide Attempt Breakdown

| *Lifetime Suicide Attempts* | Total Sample (N=110) | Cluster 1 (n=67) | Cluster 2 (n=19) | Cluster 3 (n=24) |
|---|---|---|---|---|
| 0 | 21 (19.4) | 14 (21.2) | 5 (26.3) | 2 (8.7) |
| 1 | 36 (33.3) | 23 (34.8) | 4 (21.1) | 9 (39.1) |
| 2 or more | 53 (47.3) | 30 (44.0) | 10 (52.6) | 15 (52.2) |

*Notes*. Data is presented as *N* (valid %) unless indicated otherwise. Due to rounding, percentages may not equal 100%.

Table 13. ANOVA Results for Indicators of Symptom Severity

| *Variable* | | *Sum of Squares* | *df* | *Mean square* | *F* | *Sig.* |
|---|---|---|---|---|---|---|
| Lifetime Suicide Severity | Between Groups | 33.24 | 2 | 16.62 | .744 | .478 |
| | Within Groups | 2389.26 | 107 | 11.33 | | |
| | Total | 1411.50 | 109 | | | |
| Lifetime Suicide Attempts | Between Groups | 48.15 | 2 | 24.07 | 1.355 | .262 |
| | Within Groups | 1865.07 | 105 | 17.76 | | |
| | Total | 1913.21 | 107 | | | |
| Psychiatric Diagnoses | Between Groups | 18.83 | 2 | 9.417 | 1.17 | .313 |
| | Within Groups | 866.81 | 108 | 8.026 | | |
| | Total | 885.64 | 110 | | | |

Table 14. Likelihood of Future Help-Seeking

| | Total Sample (N=135) | | Cluster 1 (n=81) | | Cluster 2 (n=23) | | Cluster 3 (n=31) | |
|---|---|---|---|---|---|---|---|---|
| Help-Source [a] | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Partner [b] | 4.86 | 2.30 | 4.57 | 2.29 | 5.96 | 1.75 | 4.77 | 2.50 |
| Friend*** | 4.76 | 2.18 | 5.33 | 1.94 | 3.39 | 2.27 | 4.28 | 2.18 |
| Parent | 3.19 | 2.18 | 3.22 | 2.24 | 2.91 | 1.88 | 3.32 | 2.29 |
| Other Relative [c] | 2.76 | 1.92 | 3.00 | 1.96 | 2.22 | 1.80 | 2.55 | 1.82 |
| Behavioral Health | 5.61 | 1.50 | 5.60 | 1.49 | 6.00 | 1.41 | 5.35 | 1.58 |
| Chaplain | 3.19 | 2.21 | 3.25 | 2.19 | 3.17 | 2.29 | 3.06 | 2.29 |
| Phone Help Line | 2.68 | 1.88 | 2.75 | 1.84 | 2.78 | 2.02 | 2.42 | 1.93 |
| Unit Command | 2.83 | 2.07 | 2.88 | 2.07 | 3.13 | 2.34 | 2.48 | 1.86 |
| Other Unit Members | 2.75 | 1.95 | 2.96 | 1.98 | 2.43 | 1.78 | 2.42 | 1.95 |
| Primary Care | 3.38 | 2.02 | 3.35 | 2.01 | 3.43 | 2.15 | 3.42 | 2.01 |
| Other [d] | 4.93 | 2.31 | 4.60 | 2.67 | 5.50 | 2.12 | 5.67 | 1.16 |
| Would Not Seek Help [e] | 2.32 | 1.68 | 2.35 | 1.74 | 2.10 | 1.34 | 2.39 | 1.78 |

*Notes*.
a. Responses range from 1 (Extremely Unlikely) to 7 (Extremely Likely)
b. N=132 for total sample; n=79 for cluster 1; n=30 for cluster 3
c. N=134 for total sample; n=80 for cluster 1
d. N=15 for total sample; n=10 for cluster 1; n=2 for cluster 2; n=3 for cluster 3
e. N=132 for total sample; n= 80 for cluster 1; n=21 for cluster 2
***$p < .001$

Table 15. MANOVA Results for Likelihood of Future Help-Seeking

| *Measure* | *F(2, 125)* | *Sig.* | *Partial Eta Squared* |
|---|---|---|---|
| GHSQ | | | |
| Partner | 2.69 | .072 | .041 |
| Friend | 10.10 | <.001 | .139 |
| Parent | .144 | .866 | .002 |
| Other Relative | 1.71 | .184 | .027 |
| Behavioral Health | 1.03 | .359 | .016 |
| Chaplain | .06 | .946 | .001 |
| Phone Help Line | .27 | .766 | .004 |
| Unit Command | .76 | .470 | .012 |
| Other Unit Members | .95 | .391 | .015 |
| Primary Care | .03 | .971 | .000 |
| Would Not Seek Help | .25 | .776 | .004 |

*Note*. Due to low cell counts, data from the 'Other' help-source category was not included in this analysis.

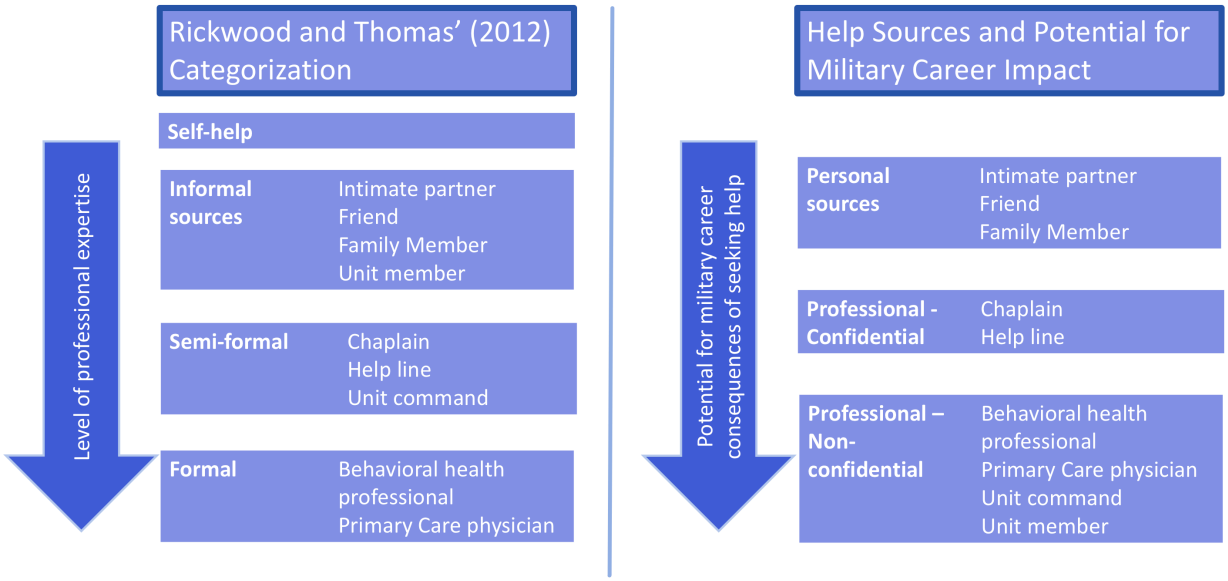


Figure 1. Comparison of categorization frameworks for help sources.

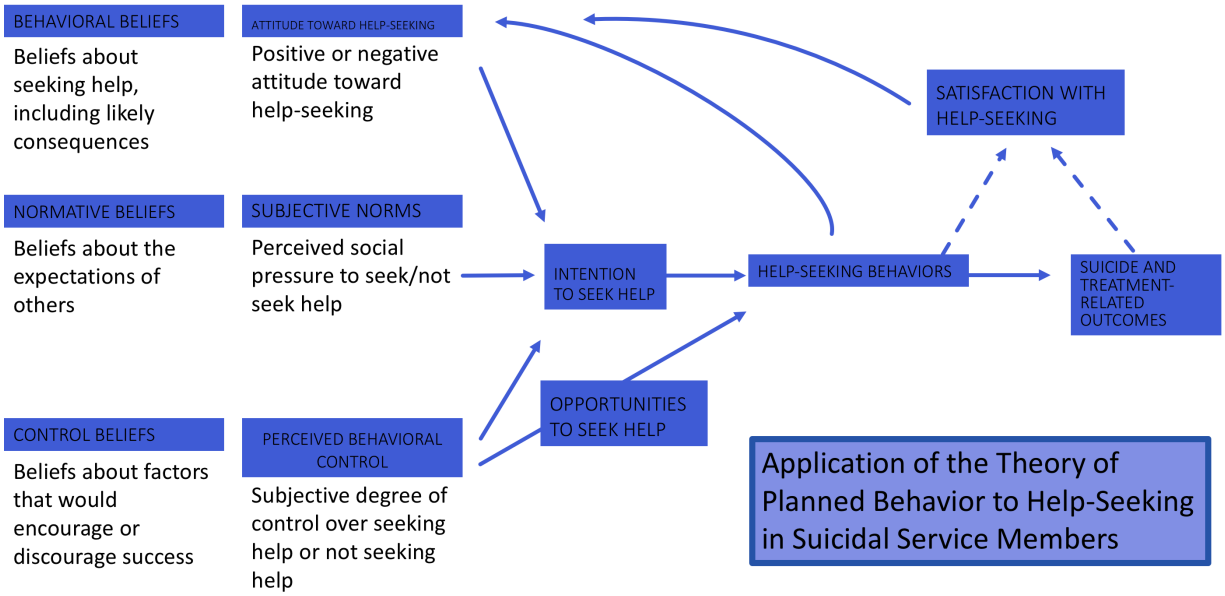


Figure 2. Application of the Theory of Planned Behavior to help-seeking in suicidal service members.

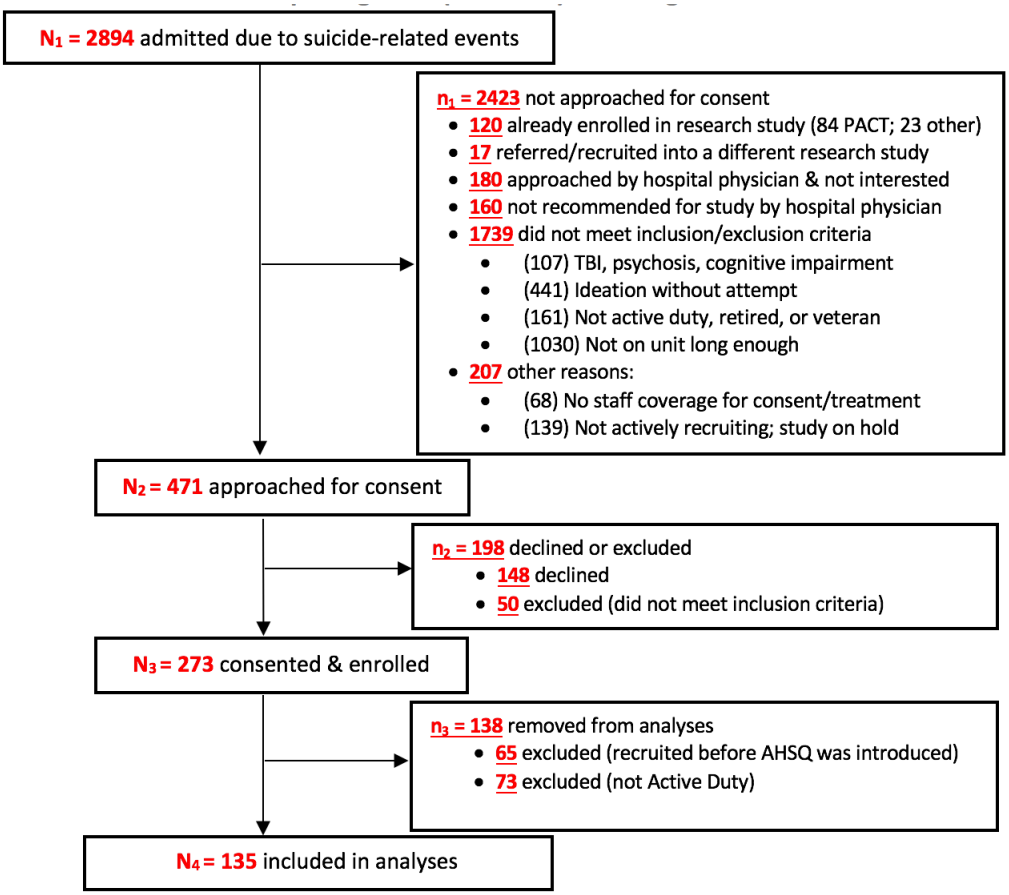


Figure 3. CONSORT flow diagram representing recruitment.

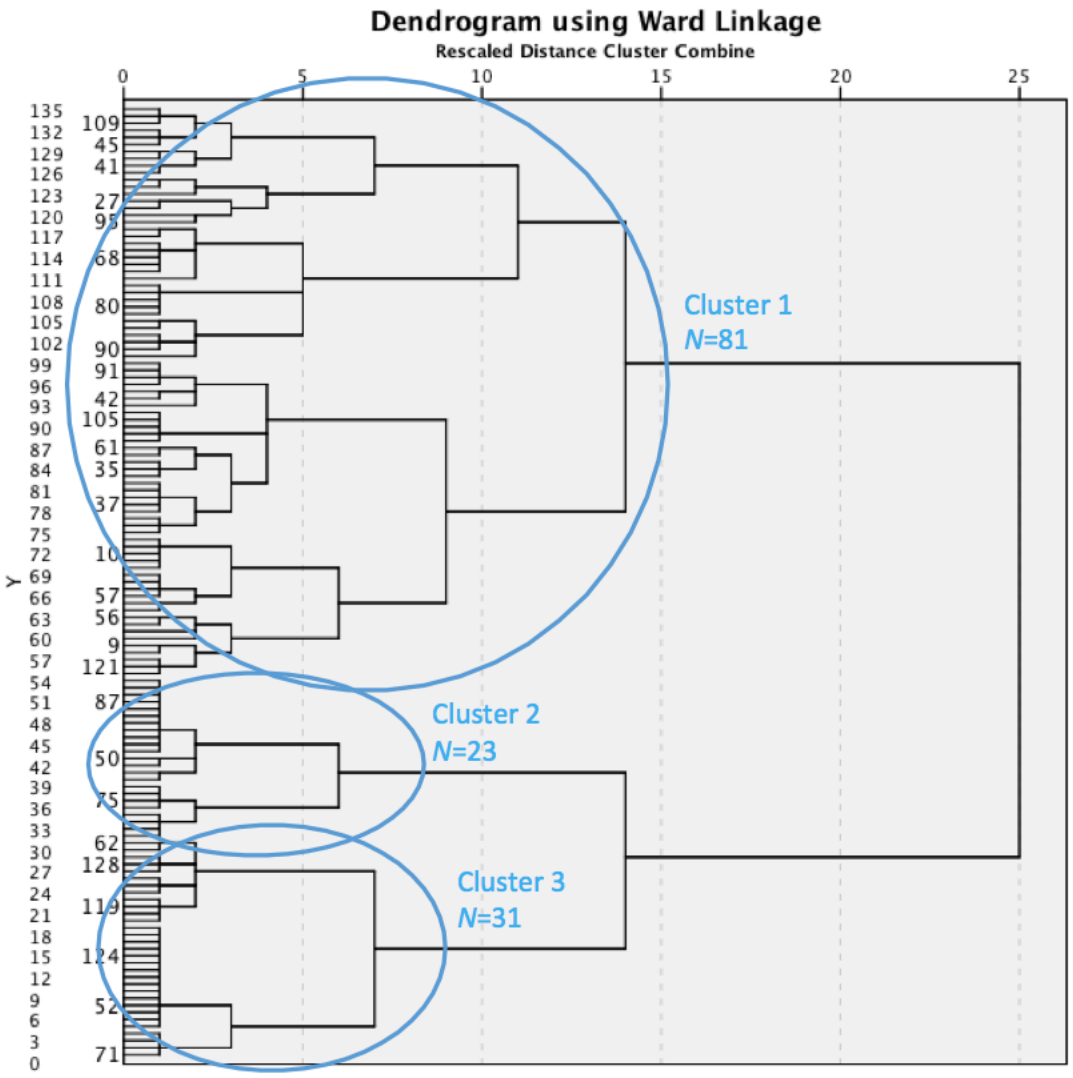


Figure 4. Dendrogram Depicting Cluster Structure

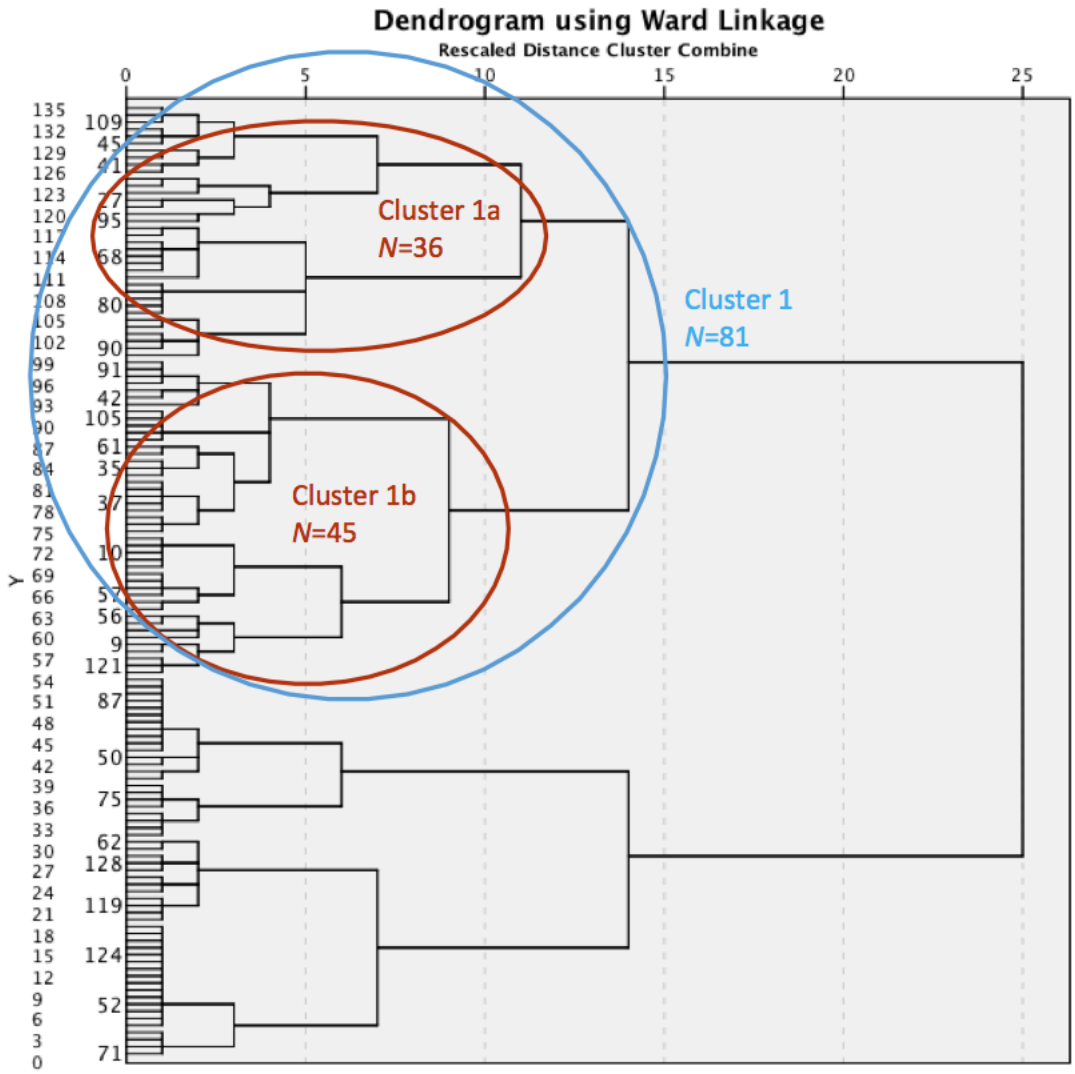


Figure 5. Dendrogram Depicting Cluster 1 Sub-Cluster Structure

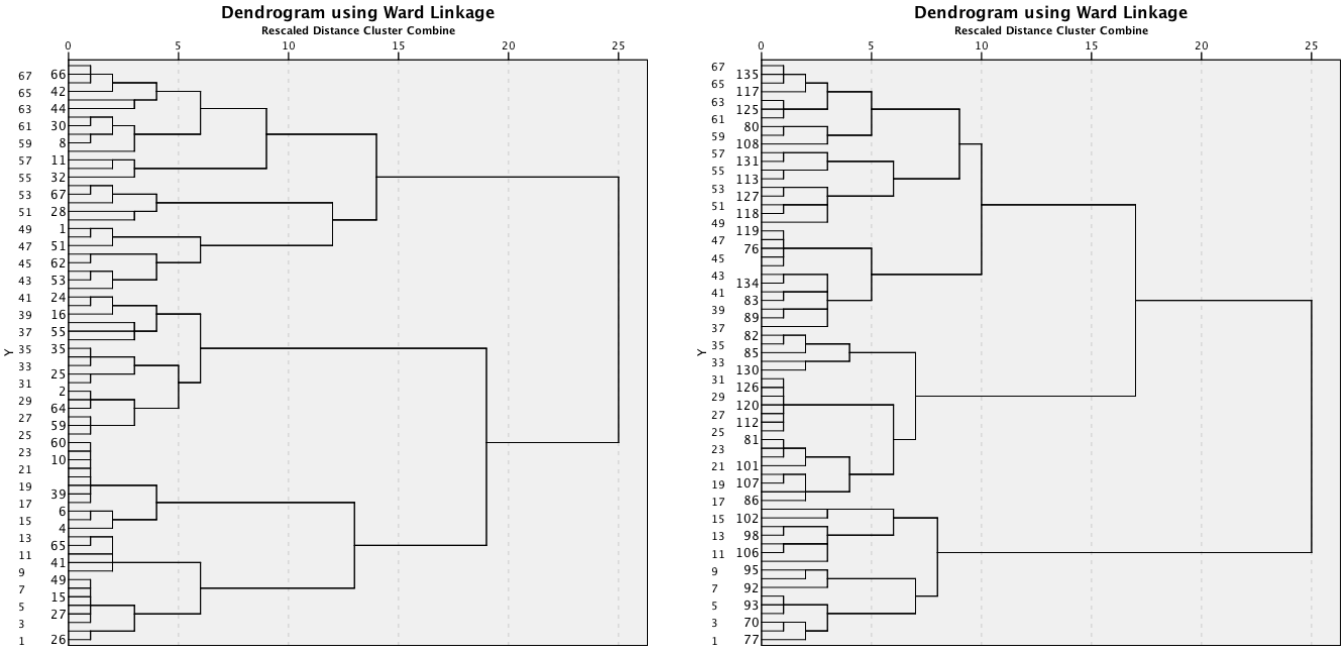


Figure 6. Dendrograms Depicting Cluster Structure of Split-Half Analysis Confirmatory Cluster Analyses

**Ward Method**

| filter_$ = 1 (FILTER) | | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|---|
| Not Selected | Valid | 1 | 27 | 39.7 | 39.7 | 39.7 |
| | | 2 | 17 | 25.0 | 25.0 | 64.7 |
| | | 3 | 24 | 35.3 | 35.3 | 100.0 |
| | | Total | 68 | 100.0 | 100.0 | |
| Selected | Valid | 1 | 31 | 46.3 | 46.3 | 46.3 |
| | | 2 | 16 | 23.9 | 23.9 | 70.1 |
| | | 3 | 20 | 29.9 | 29.9 | 100.0 |
| | | Total | 67 | 100.0 | 100.0 | |

Figure 7. Split-Half Analysis Confirmatory Cluster Membership Frequency

**Agglomeration Schedule**

| Stage | Cluster Combined | | Coefficients | Stage Cluster First Appears | | Next Stage |
|---|---|---|---|---|---|---|
| | Cluster 1 | Cluster 2 | | Cluster 1 | Cluster 2 | |
| 1 | 45 | 66 | .000 | 0 | 0 | 31 |
| 2 | 60 | 63 | .000 | 0 | 0 | 3 |
| 3 | 10 | 60 | .000 | 0 | 2 | 9 |
| 4 | 50 | 59 | .000 | 0 | 0 | 30 |
| 5 | 49 | 58 | .000 | 0 | 0 | 7 |
| 6 | 43 | 57 | .000 | 0 | 0 | 9 |
| 7 | 15 | 49 | .000 | 0 | 5 | 17 |
| 8 | 2 | 47 | .000 | 0 | 0 | 29 |
| 9 | 10 | 43 | .000 | 3 | 6 | 14 |
| 10 | 31 | 39 | .000 | 0 | 0 | 14 |
| 11 | 35 | 38 | .000 | 0 | 0 | 13 |
| 12 | 1 | 36 | .000 | 0 | 0 | 42 |
| 13 | 34 | 35 | .000 | 0 | 11 | 47 |
| 14 | 10 | 31 | .000 | 9 | 10 | 19 |
| 15 | 14 | 30 | .000 | 0 | 0 | 41 |
| 16 | 20 | 27 | .000 | 0 | 0 | 17 |
| 17 | 15 | 20 | .000 | 7 | 16 | 18 |
| 18 | 15 | 18 | .000 | 17 | 0 | 51 |
| 19 | 10 | 17 | .000 | 14 | 0 | 55 |
| 20 | 12 | 67 | .500 | 0 | 0 | 36 |
| 21 | 61 | 65 | 1.000 | 0 | 0 | 32 |
| 22 | 19 | 62 | 1.500 | 0 | 0 | 54 |
| 23 | 52 | 53 | 2.000 | 0 | 0 | 33 |
| 24 | 24 | 40 | 2.500 | 0 | 0 | 35 |
| 25 | 25 | 37 | 3.000 | 0 | 0 | 47 |
| 26 | 3 | 26 | 3.500 | 0 | 0 | 51 |
| 27 | 6 | 21 | 4.000 | 0 | 0 | 37 |
| 28 | 7 | 8 | 4.500 | 0 | 0 | 41 |
| 29 | 2 | 64 | 5.167 | 8 | 0 | 49 |
| 30 | 50 | 54 | 5.833 | 4 | 0 | 49 |
| 31 | 45 | 46 | 6.500 | 1 | 0 | 34 |
| 32 | 5 | 61 | 7.333 | 0 | 21 | 38 |
| 33 | 9 | 52 | 8.167 | 0 | 23 | 54 |
| 34 | 42 | 45 | 9.000 | 0 | 31 | 52 |
| 35 | 16 | 24 | 9.833 | 0 | 24 | 53 |
| 36 | 12 | 22 | 10.667 | 20 | 0 | 56 |
| 37 | 4 | 6 | 11.500 | 0 | 27 | 55 |
| 38 | 5 | 41 | 12.417 | 32 | 0 | 39 |
| 39 | 5 | 29 | 13.367 | 38 | 0 | 59 |
| 40 | 11 | 33 | 14.367 | 0 | 0 | 48 |
| 41 | 7 | 14 | 15.617 | 28 | 15 | 43 |
| 42 | 1 | 51 | 16.950 | 12 | 0 | 58 |
| 43 | 7 | 68 | 18.400 | 41 | 0 | 60 |
| 44 | 28 | 56 | 19.900 | 0 | 0 | 56 |
| 45 | 23 | 55 | 21.400 | 0 | 0 | 50 |
| 46 | 13 | 44 | 22.900 | 0 | 0 | 52 |
| 47 | 25 | 34 | 24.400 | 25 | 13 | 57 |
| 48 | 11 | 32 | 26.067 | 40 | 0 | 62 |
| 49 | 2 | 50 | 27.900 | 29 | 30 | 57 |
| 50 | 23 | 48 | 29.733 | 45 | 0 | 53 |
| 51 | 3 | 15 | 31.608 | 26 | 18 | 59 |
| 52 | 13 | 42 | 33.775 | 46 | 34 | 60 |
| 53 | 16 | 23 | 36.108 | 35 | 50 | 61 |
| 54 | 9 | 19 | 38.675 | 33 | 22 | 58 |
| 55 | 4 | 10 | 41.342 | 37 | 19 | 64 |
| 56 | 12 | 28 | 44.108 | 36 | 44 | 63 |
| 57 | 2 | 25 | 47.123 | 49 | 47 | 61 |
| 58 | 1 | 9 | 50.765 | 42 | 54 | 63 |
| 59 | 3 | 5 | 54.421 | 51 | 39 | 64 |
| 60 | 7 | 13 | 58.236 | 43 | 52 | 62 |
| 61 | 2 | 16 | 62.348 | 57 | 53 | 66 |
| 62 | 7 | 11 | 68.143 | 60 | 48 | 65 |
| 63 | 1 | 12 | 76.091 | 58 | 56 | 65 |
| 64 | 3 | 4 | 85.068 | 59 | 55 | 66 |
| 65 | 1 | 7 | 94.539 | 63 | 62 | 67 |
| 66 | 2 | 3 | 107.281 | 61 | 64 | 67 |
| 67 | 1 | 2 | 124.809 | 65 | 66 | 0 |

Figure 8. Split-Half Analysis Agglomeration Schedule, 1st Confirmatory Analysis

**Agglomeration Schedule**

| Stage | Cluster Combined | | Coefficients | Stage Cluster First Appears | | Next Stage |
|---|---|---|---|---|---|---|
| | Cluster 1 | Cluster 2 | | Cluster 1 | Cluster 2 | |
| 1 | 105 | 135 | .000 | 0 | 0 | 11 |
| 2 | 123 | 126 | .000 | 0 | 0 | 4 |
| 3 | 100 | 125 | .000 | 0 | 0 | 30 |
| 4 | 94 | 123 | .000 | 0 | 2 | 7 |
| 5 | 119 | 122 | .000 | 0 | 0 | 8 |
| 6 | 120 | 121 | .000 | 0 | 0 | 7 |
| 7 | 94 | 120 | .000 | 4 | 6 | 10 |
| 8 | 76 | 119 | .000 | 0 | 5 | 15 |
| 9 | 112 | 115 | .000 | 0 | 0 | 10 |
| 10 | 94 | 112 | .000 | 7 | 9 | 59 |
| 11 | 72 | 105 | .000 | 0 | 1 | 32 |
| 12 | 81 | 103 | .000 | 0 | 0 | 29 |
| 13 | 87 | 97 | .000 | 0 | 0 | 15 |
| 14 | 91 | 93 | .000 | 0 | 0 | 31 |
| 15 | 76 | 87 | .000 | 8 | 13 | 56 |
| 16 | 133 | 134 | .500 | 0 | 0 | 40 |
| 17 | 114 | 131 | 1.000 | 0 | 0 | 43 |
| 18 | 109 | 127 | 1.500 | 0 | 0 | 44 |
| 19 | 73 | 118 | 2.000 | 0 | 0 | 41 |
| 20 | 75 | 113 | 2.500 | 0 | 0 | 43 |
| 21 | 70 | 111 | 3.000 | 0 | 0 | 36 |
| 22 | 80 | 110 | 3.500 | 0 | 0 | 45 |
| 23 | 74 | 107 | 4.000 | 0 | 0 | 34 |
| 24 | 104 | 106 | 4.500 | 0 | 0 | 46 |
| 25 | 88 | 98 | 5.000 | 0 | 0 | 49 |
| 26 | 82 | 96 | 5.500 | 0 | 0 | 35 |
| 27 | 69 | 89 | 6.000 | 0 | 0 | 42 |
| 28 | 78 | 83 | 6.500 | 0 | 0 | 40 |
| 29 | 81 | 129 | 7.167 | 12 | 0 | 33 |
| 30 | 100 | 124 | 7.833 | 3 | 0 | 51 |
| 31 | 79 | 91 | 8.500 | 0 | 14 | 50 |
| 32 | 72 | 117 | 9.250 | 11 | 0 | 51 |
| 33 | 81 | 101 | 10.083 | 29 | 0 | 54 |
| 34 | 74 | 99 | 10.917 | 23 | 0 | 37 |
| 35 | 82 | 85 | 11.750 | 26 | 0 | 53 |
| 36 | 70 | 77 | 12.583 | 21 | 0 | 50 |
| 37 | 74 | 86 | 13.500 | 34 | 0 | 54 |
| 38 | 90 | 130 | 14.500 | 0 | 0 | 53 |
| 39 | 95 | 116 | 15.500 | 0 | 0 | 48 |
| 40 | 78 | 133 | 17.000 | 28 | 16 | 52 |
| 41 | 73 | 132 | 18.500 | 19 | 0 | 44 |
| 42 | 69 | 128 | 20.000 | 27 | 0 | 52 |
| 43 | 75 | 114 | 21.500 | 20 | 17 | 58 |
| 44 | 73 | 109 | 23.000 | 41 | 18 | 58 |
| 45 | 80 | 108 | 24.500 | 22 | 0 | 55 |
| 46 | 84 | 104 | 26.000 | 0 | 24 | 49 |
| 47 | 71 | 102 | 27.500 | 0 | 0 | 57 |
| 48 | 92 | 95 | 29.167 | 0 | 39 | 60 |
| 49 | 84 | 88 | 31.067 | 46 | 25 | 57 |
| 50 | 70 | 79 | 33.067 | 36 | 31 | 60 |
| 51 | 72 | 100 | 35.079 | 32 | 30 | 55 |
| 52 | 69 | 78 | 37.150 | 42 | 40 | 56 |
| 53 | 82 | 90 | 39.617 | 35 | 38 | 61 |
| 54 | 74 | 81 | 42.242 | 37 | 33 | 59 |
| 55 | 72 | 80 | 45.513 | 51 | 45 | 63 |
| 56 | 69 | 76 | 49.025 | 52 | 15 | 64 |
| 57 | 71 | 84 | 52.839 | 47 | 49 | 62 |
| 58 | 73 | 75 | 56.784 | 44 | 43 | 63 |
| 59 | 74 | 94 | 60.809 | 54 | 10 | 61 |
| 60 | 70 | 92 | 65.475 | 50 | 48 | 62 |
| 61 | 74 | 82 | 70.325 | 59 | 53 | 65 |
| 62 | 70 | 71 | 76.153 | 60 | 57 | 66 |
| 63 | 72 | 73 | 82.587 | 55 | 58 | 64 |
| 64 | 69 | 72 | 89.699 | 56 | 63 | 65 |
| 65 | 69 | 74 | 102.091 | 64 | 61 | 66 |
| 66 | 69 | 70 | 120.836 | 65 | 62 | 0 |

Figure 9. Split-Half Analysis Agglomeration Schedule, 2nd Confirmatory Analysis

Count

| Split | | | Clustering based on centroids of other randomly selected half of data: 1.00 | 2.00 | 3.00 | Total |
|---|---|---|---|---|---|---|
| .00 | Confirmatory cluster analysis | 1 | 15 | 6 | 10 | 31 |
| | | 2 | 3 | 13 | 0 | 16 |
| | | 3 | 3 | 4 | 13 | 20 |
| | Total | | 21 | 23 | 23 | 67 |
| 1.00 | Confirmatory cluster analysis | 1 | 13 | 10 | 4 | 27 |
| | | 2 | 1 | 15 | 1 | 17 |
| | | 3 | 0 | 8 | 16 | 24 |
| | Total | | 14 | 33 | 21 | 68 |
| Total | Ward Method | 1 | 28 | 16 | 14 | 58 |
| | | 2 | 4 | 28 | 1 | 33 |
| | | 3 | 3 | 12 | 29 | 44 |
| | Total | | 35 | 56 | 44 | 135 |

**Symmetric Measures**

| Split | | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|---|
| .00 | Measure of Agreement | Kappa | .421 | .088 | 5.022 | .000 |
| | N of Valid Cases | | 67 | | | |
| 1.00 | Measure of Agreement | Kappa | .487 | .079 | 6.195 | .000 |
| | N of Valid Cases | | 68 | | | |
| Total | Measure of Agreement | Kappa | .456 | .059 | 7.914 | .000 |
| | N of Valid Cases | | 135 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure 10. 3-Cluster Solution Split-Half Analysis Crosstabulation and Kappa Calculation

Count

| Split | | | Clustering based on centroids of other randomly selected half of data: 1.00 | 2.00 | 3.00 | 4.00 | Total |
|---|---|---|---|---|---|---|---|
| .00 | Confirmatory cluster analysis | 1 | 1 | 0 | 3 | 8 | 12 |
| | | 2 | 4 | 9 | 3 | 0 | 16 |
| | | 3 | 6 | 1 | 11 | 1 | 19 |
| | | 4 | 0 | 4 | 3 | 13 | 20 |
| | Total | | 11 | 14 | 20 | 22 | 67 |
| 1.00 | Confirmatory cluster analysis | 1 | 8 | 2 | 3 | 0 | 13 |
| | | 2 | 1 | 10 | 1 | 5 | 17 |
| | | 3 | 0 | 0 | 15 | 9 | 24 |
| | | 4 | 4 | 5 | 0 | 5 | 14 |
| | Total | | 13 | 17 | 19 | 19 | 68 |
| Total | Ward Method – 4-cluster split half | 1 | 9 | 2 | 6 | 8 | 25 |
| | | 2 | 5 | 19 | 4 | 5 | 33 |
| | | 3 | 6 | 1 | 26 | 10 | 43 |
| | | 4 | 4 | 9 | 3 | 18 | 34 |
| | Total | | 24 | 31 | 39 | 41 | 135 |

**Symmetric Measures**

| Split | | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|---|
| .00 | Measure of Agreement | Kappa | .333 | .080 | 4.641 | .000 |
| | N of Valid Cases | | 67 | | | |
| 1.00 | Measure of Agreement | Kappa | .408 | .080 | 5.824 | .000 |
| | N of Valid Cases | | 68 | | | |
| Total | Measure of Agreement | Kappa | .371 | .057 | 7.411 | .000 |
| | N of Valid Cases | | 135 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure 11. 4-Cluster Solution Split-Half Analysis Crosstabulation and Kappa Calculation

# REFERENCES


1. Acosta J, Becker A, Cerully JL, Fisher MP, Martin LT, et al. 2014. *Mental health stigma in the military*. Rand Corporation

2. Aday LA, Andersen R. 1974. A framework for the study of access to medical care. *Health services research* 9:208

3. Ahmedani BK, Simon GE, Stewart C, Beck A, Waitzfelder BE, et al. 2014. Health care contacts in the year before suicide death. *Journal of General Internal Medicine* 29:870-7

4. Ajzen I. 1991. The theory of planned behavior. *Organizational behavior and human decision processes* 50:179-211

5. Ajzen I. 2002. Perceived behavioral control, self‐efficacy, locus of control, and the theory of planned behavior. *Journal of applied social psychology* 32:665-83

6. Ajzen I. 2011. The theory of planned behaviour: Reactions and reflections. Taylor & Francis

7. Aldenderfer MS, Blashfield RK. 1984. *Cluster analysis*. Thousand Oaks, CA: Sage Publications

8. Andersen RM. 1995. Revisiting the behavioral model and access to medical care: Does it matter? *Journal of health and social behavior*:1-10

9. Antretter E, Dunkel D, Seibl R, Haring C. 2002. Classification and predictive quality of the" suicide intent" marker in parasuicides. A cluster analytic study. *Der Nervenarzt* 73:219-30

10. Armed Forces Health Surveillance Center. 2014. Surveillance snapshot: Manner and cause of death, active component, u.S. Armed forces, 1998-2013. *MSMR* 21:21

11. Armitage CJ, Conner M. 2001. Efficacy of the theory of planned behaviour: A meta‐analytic review. *British journal of social psychology* 40:471-99

12. Arroll B, Elley CR, Fishman T, Goodyear-Smith FA, Kenealy T, et al. 2009. Antidepressants versus placebo for depression in primary care. *Cochrane Database Syst Rev* 3

13. Ashrafioun L, Pigeon WR, Conner KR, Leong SH, Oslin DW. 2016. Prevalence and correlates of suicidal ideation and suicide attempts among veterans in primary care referred for a mental health evaluation. *Journal of affective disorders* 189:344-50

14. Bagley SC, Munjas B, Shekeile P. 2010. A systematic review of suicide prevention programs for military or veterans. *Suicide and life-threatening behavior* 40:257-65

15. Bandura A. 1982. Self-efficacy mechanism in human agency. *American psychologist* 37:122

16. Bardon C, Coté L-P, Mishara BL. 2016. Cluster analysis of characteristics of persons who died by suicide in the montreal metro transit: Analysis of variations over time. *Crisis: The Journal of Crisis Intervention and Suicide Prevention* 37:377

17. Barlas FM, Higgins WB, Pflieger JC, Diecker K. 2013. 2011 health related behaviors survey of active duty military personnel, ICF INTERNATIONAL INC FAIRFAX VA

18. Barnes LS, Ikeda RM, Kresnow M-j. 2001. Help-seeking behavior prior to nearly lethal suicide attempts. *Suicide and Life-Threatening Behavior* 32:68-75

19. Barrera M. 1986. Distinctions between social support concepts, measures, and models. *American journal of community psychology* 14:413-45

20. Baxter A, Salmon C, Dufresne K, Carasco-Lee A, Matheson FI. 2016. Gender differences in felt stigma and barriers to help-seeking for problem gambling. *Addictive Behaviors Reports* 3:1-8

21. Beck AT. 1963. Thinking and depression: I. Idiosyncratic content and cognitive distortions. *Archives of general psychiatry* 9:324-33

22. Beck AT, Kovacs M, Weissman A. 1979. Assessment of suicidal intention: The scale for suicide ideation. *Journal of consulting and clinical psychology* 47:343

23. Bell CM, Ridley JA, Overholser JC, Young K, Athey A, et al. 2017. The role of perceived burden and social support in suicide and depression. *Suicide and Life-Threatening Behavior*

24. Biddle L, Gunnell D, Sharp D, Donovan JL. 2004. Factors influencing help seeking in mentally distressed young adults: A cross-sectional survey. *Br J Gen Pract* 54:248-53

25. Binelli C, Muñiz A, Sanches S, Ortiz A, Navines R, et al. 2015. New evidence of heterogeneity in social anxiety disorder: Defining two qualitatively different personality profiles taking into account clinical, environmental and genetic factors. *European Psychiatry* 30:160-5

26. Blais RK, Renshaw KD. 2014. Self-stigma fully mediates the association of anticipated enacted stigma and help-seeking intentions in national guard service members. *Military Psychology* 26:114

27. Bossarte RM, Knox KL, Piegari R, Altieri J, Kemp J, Katz IR. 2012. Prevalence and characteristics of suicide ideation and attempts among active military and veteran participants in a national health survey. *American journal of public health* 102:S38-S40

28. Bray RM, Pemberton MR, Hourani LL, Witt M, Olmsted KL, et al. 2009. Department of defense survey of health related behaviors among active duty military personnel, RESEARCH TRIANGLE INST (RTI) RESEARCH TRIANGLE PARK NC

29. Britt TW. 2000. The stigma of psychological problems in a work environment: Evidence from the screening of service members returning from bosnia. *Journal of Applied Social Psychology* 30:1599-618

30. Britt TW, Greene–Shortridge TM, Brink S, Nguyen QB, Rath J, et al. 2008. Perceived stigma and barriers to care for psychological treatment: Implications for reactions to stressors in different contexts. *Journal of Social and Clinical Psychology* 27:317-35

31. Britt TW, Jennings KS, Cheung JH, Pury CL, Zinzow HM. 2015. The role of different stigma perceptions in treatment seeking and dropout among active duty military personnel. *Psychiatric rehabilitation journal* 38:142

32. Brown GK, Ten Have T, Henriques GR, Xie SX, Hollander JE, Beck AT. 2005. Cognitive therapy for the prevention of suicide attempts: A randomized controlled trial. *Jama* 294:563-70

33. Brown MC, Creel AH, Engel CC, Herrell RK, Hoge CW. 2011. Factors associated with interest in receiving help for mental health problems in combat veterans returning from deployment to iraq. *The Journal of nervous and mental disease* 199:797-801

34. Bruce ML, Ten Have TR, Reynolds III CF, Katz II, Schulberg HC, et al. 2004. Reducing suicidal ideation and depressive symptoms in depressed older primary care patients: A randomized controlled trial. *Jama* 291:1081-91

35. Bryan AO, Bryan CJ, Morrow CE, Etienne N, Ray-Sannerud B. 2014. Moral injury, suicidal ideation, and suicide attempts in a military sample. *Traumatology* 20:154

36. Bryan C, Corso KA, Rudd MD, Cordero L. 2008. Improving identification of suicidal patients in primary care through routine screening. *Primary Care and Community Psychiatry* 13:143-7

37. Bryan C, Kanzler K, Durham T, West C, Greene E. 2010. Challenges and considerations for managing suicide risk in combat zones. *Military medicine* 175:713-8

38. Bryan CJ, Bryan AO, May AM, Klonsky ED. 2015. Trajectories of suicide ideation, nonsuicidal self‐injury, and suicide attempts in a nonclinical sample of military personnel and veterans. *Suicide and life-threatening behavior* 45:315-25

39. Bryan CJ, Bryan AO, Ray-Sannerud BN, Etienne N, Morrow CE. 2014. Suicide attempts before joining the military increase risk for suicide attempts and severity of suicidal ideation among military personnel and veterans. *Comprehensive psychiatry* 55:534-41

40. Bryan CJ, Griffith JE, Pace BT, Hinkson K, Bryan AO, et al. 2015. Combat exposure and risk for suicidal thoughts and behaviors among military personnel and veterans: A systematic review and meta‐analysis. *Suicide and Life-Threatening Behavior* 45:633-49

41. Bulling D, DeKraai M, Abdel-Monem T, Nieuwsma JA, Cantrell WC, et al. 2013. Confidentiality and mental health/chaplaincy collaboration. *Military Psychology* 25:557-67

42. Calati R, Courtet P. 2016. Is psychotherapy effective for reducing suicide attempt and non-suicidal self-injury rates? Meta-analysis and meta-regression of literature data. *Journal of psychiatric research* 79:8-20

43. CDC, National Center for Health Statistics. 2015. Deaths: Final data for 2013.

44. CDC, National Center for Injury Prevention and Control. 2018. *Web-based injury statistics query and reporting system (wisqars)*. www.cdc.gov/injury/wisqars

45. Challet-Bouju G, Hardouin J-B, Renard N, Legauffre C, Valleur M, et al. 2015. A gamblers clustering based on their favorite gambling activity. *Journal of gambling studies* 31:1767-88

46. Chartrand H, Robinson J, Bolton JM. 2012. A longitudinal population-based study exploring treatment utilization and suicidal ideation and behavior in major depressive disorder. *Journal of affective disorders* 141:237-45

47. Chen EY, Chan WS, Chan SS, Liu KY, Chan CL, et al. 2007. A cluster analysis of the circumstances of death in suicides in hong kong. *Suicide and Life-Threatening Behavior* 37:576-84

48. Choo C, Diederich J, Song I, Ho R. 2014. Cluster analysis reveals risk factors for repeated suicide attempts in a multi-ethnic asian population. *Asian Journal of Psychiatry* 8:38-42

49. Clatworthy J, Buick D, Hankins M, Weinman J, Horne R. 2005. The use and reporting of cluster analysis in health psychology: A review. *British journal of health psychology* 10:329-58

50. Clement S, Schauman O, Graham T, Maggioni F, Evans-Lacko S, et al. 2015. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological medicine* 45:11-27

51. Cohen J. 1960. A coefficient of agreement for nominal scales. *Educational and psychological measurement* 20:37-46

52. Cohen J. 1988. Statistical power analysis for the behavioral sciences 2nd edn. Erlbaum Associates, Hillsdale

53. Coleman S, Stevelink S, Hatch S, Denny J, Greenberg N. 2017. Stigma-related barriers and facilitators to help seeking for mental health issues in the armed forces: A systematic review and thematic synthesis of qualitative literature. *Psychological medicine*:1-13

54. Compton MT, Thompson NJ, Kaslow NJ. 2005. Social environment factors associated with suicide attempt among low-income african americans: The protective role of family relationships and social support. *Social psychiatry and psychiatric epidemiology* 40:175-85

55. Cooper WO, Callahan ST, Shintani A, Fuchs DC, Shelton RC, et al. 2014. Antidepressants and suicide attempts in children. *Pediatrics* 133:204-10

56. Crosby A, Gfroerer J, Han B, Ortega L, Parks SE. 2011. *Suicidal thoughts and behaviors among adults aged> _18 years--united states, 2008-2009*. US Department of Health and Human Services, Centers for Disease Control and Prevention

57. Crosby Budinger M, Cwik MF, Riddle MA. 2015. Awareness, attitudes, and use of crisis hotlines among youth at ‐ risk for suicide. *Suicide and Life ‐ Threatening Behavior* 45:192-8

58. Currier GW, Brown GK, Brenner LA, Chesin M, Knox KL, et al. 2015. Rationale and study protocol for a two-part intervention: Safety planning and structured follow-up among veterans at risk for suicide and discharged from the emergency department. *Contemporary clinical trials* 43:179-84

59. Currier JM, Deiss J, McDermott RC. 2017. From whom do student veterans seek help?: Understanding the roles of professional, informal, and religious sources. *The Journal of nervous and mental disease* 205:491-4

60. De Leo D, Cerin E, Spathonis K, Burgis S. 2005. Lifetime risk of suicide ideation and attempts in an australian community: Prevalence, suicidal process, and help-seeking behaviour. *Journal of affective disorders* 86:215-24

61. de los Cobos JP, Trujols J, Ribalta E, Pinet C. 2009. A typology of heroin-dependent patients based on their history of self-injurious behaviours. *Psychiatry research* 167:169-77

62. Deane FP, Wilson CJ, Ciarrochi J. 2001. Suicidal ideation and help ‐ negation: Not just hopelessness or prior help. *Journal of clinical psychology* 57:901-14

63. DeBeer BB, Kimbrel NA, Meyer EC, Gulliver SB, Morissette SB. 2014. Combined ptsd and depressive symptoms interact with post-deployment social support to predict suicidal ideation in operation enduring freedom and operation iraqi freedom veterans. *Psychiatry research* 216:357-62

64. Department of Defense. 2015. Department of defense strategy for suicide prevention. Washington, D.C.: Department of Defense

65. Department of Defense Office of the Deputy Assistant Secretary of Defense. 2017. 2016 demographics report: Profile of the military community. Washington, D.C.

66. Department of Veterans Affairs Office of Suicide Prevention. 2016. Suicide among veterans and other americans 2001–2014. Washington, D.C.

67. DeViva JC, Sheerin CM, Southwick SM, Roy AM, Pietrzak RH, Harpaz-Rotem I. 2016. Correlates of va mental health treatment utilization among oef/oif/ond veterans: Resilience, stigma, social support, personality, and beliefs about treatment. *Psychological trauma: theory, research, practice, and policy* 8:310

68. Dewey L, Allwood M, Fava J, Arias E, Pinizzotto A, Schlesinger L. 2013. Suicide by cop: Clinical risks and subtypes. *Archives of Suicide Research* 17:448-61

69. Drury CAA, Louis M. 2002. Exploring the association between body weight, stigma of obesity, and health care avoidance. *Journal of the American Academy of Nurse Practitioners* 14:554-61

70. Du Roscoät E, Beck F. 2013. Efficient interventions on suicide prevention: A literature review. *Revue d'epidemiologie et de sante publique* 61:363-74

71. Dumesnil H, Verger P. 2009. Public awareness campaigns about depression and suicide: A review. *Psychiatric Services* 60:1203-13

72. Earnshaw VA, Chaudoir SR. 2009. From conceptualizing to measuring hiv stigma: A review of hiv stigma mechanism measures. *AIDS and Behavior* 13:1160

73. Engel CC. 2005. Improving primary care for military personnel and veterans with posttraumatic stress disorder—the road ahead. *General Hospital Psychiatry* 27:158-60

74. Eurelings-Bontekoe EH, Verschuur M, Diekstra RW. 1996. Symptomatology, social support and social support seeking: Long-term results of a prospective study among primary mental health care patients. *Patient education and counseling* 28:277-85

75. Fann JR, Bombardier CH, Vannoy S, Dyer J, Ludman E, et al. 2015. Telephone and in-person cognitive behavioral therapy for major depression after traumatic brain injury: A randomized controlled trial. *Journal of neurotrauma* 32:45-57

76. Faul F, Erdfelder E, Buchner A, Lang A-G. 2009. Statistical power analyses using g* power 3.1: Tests for correlation and regression analyses. *Behavior research methods* 41:1149-60

77. Fikretoglu D, Elhai JD, Liu A, Richardson JD, Pedlar DJ. 2009. Predictors of likelihood and intensity of past-year mental health service use in an active canadian military sample. *Psychiatric Services* 60:358-66

78. Flannery WP, Sneed CD, Marsh P. 2003. Toward an empirical taxonomy of suicide ideation: A cluster analysis of the youth risk behavior survey. *Suicide and life-threatening behavior* 33:365-72

79. Fraley C, Raftery AE. 1998. How many clusters? Which clustering method? Answers via model-based cluster analysis. *The Computer Journal* 41:578-88

80. Franklin JC, Ribeiro JD, Fox KR, Bentley KH, Kleiman EM, et al. 2016. Risk factors for suicidal thoughts and behaviors: A meta-analysis of 50 years of research. *Psychological Bulletin* 143:187-233

81. Fujita A, Takahashi DY, Patriota AG. 2014. A non-parametric method to estimate the number of clusters. *Computational Statistics & Data Analysis* 73:27-39

82. Fulginiti A, Pahwa R, Frey LM, Rice E, Brekke JS. 2016. What factors influence the decision to share suicidal thoughts? A multilevel social network analysis of disclosure among individuals with serious mental illness. *Suicide and Life‐Threatening Behavior* 46:398-412

83. Funderburk JS, Dobmeyer AC, Hunter CL, Walsh CO, Maisto SA. 2013. Provider practices in the primary care behavioral health (pcbh) model: An initial examination in the veterans health administration and united states air force. *Families, Systems, & Health* 31:341

84. Gaynes BN, West SL, Ford CA, Frame P, Klein J, Lohr KN. 2004. Screening for suicide risk in adults: A summary of the evidence for the us preventive services task force. *Annals of internal medicine* 140:822-35

85. Ghahramanlou-Holloway M, Brown GK, Currier GW, Brenner L, Knox KL, et al. 2014. Safety planning for military (safe mil): Rationale, design, and safety considerations of a randomized controlled trial to reduce suicide risk among psychiatric inpatients. *Contemporary clinical trials* 39:113-23

86. Ghahramanlou-Holloway M, Koss K, Rowan A, LaCroix J, Perera K, et al. in press. Retrospective and prospective examination of outpatient mental health utilization and military career impacts.

87. Ghahramanlou-Holloway M, Koss K, Rowan A, LaCroix JM, Perera K, et al. 2018. Retrospective and prospective examination of outpatient mental health utilization and military career impacts. *Stigma and Health*

88. Ghahramanlou-Holloway M, LaCroix JM, Koss K, Perera KU, Rowan A, et al. 2018. Outpatient mental health treatment utilization and military career impact in the united states marine corps. *International journal of environmental research and public health* 15

89. Gibbons RD, Brown CH, Hur K, Davis JM, Mann JJ. 2012. Suicidal thoughts and behavior with antidepressant treatment: Reanalysis of the randomized placebo-controlled studies of fluoxetine and venlafaxine. *Archives of general psychiatry* 69:580-7

90. Gilman S, Bromet E, Cox K, Colpe L, Fullerton C, et al. 2014. Sociodemographic and career history predictors of suicide mortality in the united states army 2004–2009. *Psychological medicine* 44:2579-92

91. González HM, Vega WA, Williams DR, Tarraf W, West BT, Neighbors HW. 2010. Depression care in the united states: Too little for too few. *Archives of general psychiatry* 67:37-46

92. Gould M, Adler A, Zamorski M, Castro C, Hanily N, et al. 2010. Do stigma and other perceived barriers to mental health care differ across armed forces? *Journal of the Royal Society of Medicine* 103:148-56

93. Gower JC. 1967. A comparison of some methods of cluster analysis. *Biometrics*:623-37

94. Greden JF, Valenstein M, Spinner J, Blow A, Gorman LA, et al. 2010. Buddy‐to‐buddy, a citizen soldier peer support program to counteract stigma, ptsd, depression, and suicide. *Annals of the New York Academy of Sciences* 1208:90-7

95. Griffith J. 2012. Suicide and war: The mediating effects of negative mood, posttraumatic stress disorder symptoms, and social support among army national guard soldiers. *Suicide and life-threatening behavior* 42:453-69

96. Griffith J. 2015. Cross (unit)-level effects of cohesion on relationships of suicide thoughts to combat exposure, postdeployment stressors, and postdeployment social support. *Behavioral medicine* 41:98-106

97. Griffiths KM, Crisp DA, Barney L, Reid R. 2011. Seeking help for depression from family and friends: A qualitative analysis of perceived advantages and disadvantages. *BMC psychiatry* 11:196

98. Gvion Y. 2018. Aggression, impulsivity, and their predictive value on medical lethality of suicide attempts: A follow-up study on hospitalized patients. *Journal of Affective Disorders* 227:840-6

99. Hagel C. 2014. Message to the force on suicide prevention month. ed. Do Defense. Washington, D.C.

100. Halekoh U, Schweizer K. 1999. Analysis of the stability of clusters of variables via bootstrap. In *Classification in the information age*:171-8: Springer. Number of 171-8 pp.

101. Hammer JH, Spiker DA. 2018. Dimensionality, reliability, and predictive evidence of validity for three help-seeking intention instruments: Isci, ghsq, and mhsis. *Journal of counseling psychology* 65:394

102. Hardeman W, Johnston M, Johnston D, Bonetti D, Wareham N, Kinmonth AL. 2002. Application of the theory of planned behaviour in behaviour change interventions: A systematic review. *Psychology and health* 17:123-58

103. Harris EC, Barraclough B. 1997. Suicide as an outcome for mental disorders. A meta-analysis. *The British Journal of Psychiatry* 170:205-28

104. Heath PJ, Seidman AJ, Vogel DL, Cornish MA, Wade NG. 2017. Help-seeking stigma among men in the military: The interaction of restrictive emotionality and distress. *Psychology of Men & Masculinity*

105. Hedman-Robertson AS. 2017. Undergraduate students' exposure, knowledge, utilization, and intended use of the national suicide prevention lifeline.

106. Hergueta T, Baker R, Dunbar GC. 1998. The mini-international neuropsychiatric interview (mini): The development and validation of a structured diagnostic psychiatric interview for dsm-iv and icd-10. *The Journal of clinical psychiatry* 59:2233

107. Hines LA, Goodwin L, Jones M, Hull L, Wessely S, et al. 2014. Factors affecting help seeking for mental health problems after deployment to iraq and afghanistan. *Psychiatric services* 65:98-105

108. Hoge C, Auchterlonie JL, Milliken CS. 2006. Mental health problems, use of mental health services, and attrition from military service after returning from deployment to iraq or afghanistan. *Jama* 295:1023-32

109. Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, Koffman RL. 2004. Combat duty in iraq and afghanistan, mental health problems, and barriers to care. *The New England journal of medicine* 351:13-22

110. Hom MA, Stanley IH, Joiner Jr TE. 2015. Evaluating factors and interventions that influence help-seeking and mental health service utilization among suicidal individuals: A review of the literature. *Clinical psychology review* 40:28-39

111. Hom MA, Stanley IH, Schneider ME, Joiner TE. 2017. A systematic review of help-seeking and mental health service utilization among military service members. *Clinical psychology review*

112. Houle J, Mishara BL, Chagnon F. 2008. An empirical test of a mediation model of the impact of the traditional male gender role on suicidal behavior in men. *Journal of affective disorders* 107:37-43

113. Iversen AC, van Staden L, Hughes JH, Greenberg N, Hotopf M, et al. 2011. The stigma of mental health problems and other barriers to care in the uk armed forces. *BMC health services research* 11:31

114. Jansz J. 2000. Masculine identity and restrictive emotionality. *Gender and emotion: Social psychological perspectives*:166-86

115. Janz NK, Becker MH. 1984. The health belief model: A decade later. *Health education quarterly* 11:1-47

116. Johnson SC. 1967. Hierarchical clustering schemes. *Psychometrika* 32:241-54

117. Jones N, Keeling M, Thandi G, Greenberg N. 2015. Stigmatisation, perceived barriers to care, help seeking and the mental health of british military personnel. *Social psychiatry and psychiatric epidemiology* 50:1873-83

118. Kang HK, Bullman TA, Smolenski DJ, Skopp NA, Gahm GA, Reger MA. 2015. Suicide risk among 1.3 million veterans who were on active duty during the iraq and afghanistan wars. *Annals of Epidemiology* 25:96-100

119. Karras E, Stephens B, Kemp JE, Bossarte RM. 2014. Using media to promote suicide prevention hotlines to veteran households. *Injury prevention* 20:62-5

120. Kennedy CH. 2017. How often do people lose security clearances over mental health? : Deployment Health Clinical Center

121. Kessler RC, Warner CH, Ivany C, Petukhova MV, Rose S, et al. 2014. Predicting suicides after psychiatric hospitalization in us army soldiers: The army study to assess risk and resilience in servicemembers (army starrs). *JAMA psychiatry*

122. Kiev A. 1976. Cluster analysis profiles of suicide attempters. *American Journal of Psychiatry* 133:150-3

123. Kim PY, Britt TW, Klocko RP, Riviere LA, Adler AB. 2011. Stigma, negative attitudes about treatment, and utilization of mental health care among soldiers. *Military psychology* 23:65

124. Kinsler JJ, Wong MD, Sayles JN, Davis C, Cunningham WE. 2007. The effect of perceived stigma from a health care provider on access to care among a low-income hiv-positive population. *AIDS patient care and STDs* 21:584-92

125. Kleiman EM, Riskind JH. 2013. Utilized social support and self-esteem mediate the relationship between perceived social support and suicide ideation. *Crisis*

126. Knox KL, Kemp J, McKeon R, Katz IR. 2012. Implementation and early utilization of a suicide hotline for veterans. *American journal of public health* 102:S29-S32

127. Kohn R, Saxena S, Levav I, Saraceno B. 2004. The treatment gap in mental health care. *Bulletin of the World health Organization* 82:858-66

128. Kuhn CM, Flanagan EM. 2017. Self-care as a professional imperative: Physician burnout, depression, and suicide. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie* 64:158-68

129. Kulesza M, Pedersen ER, Corrigan PW, Marshall GN. 2015. Help-seeking stigma and mental health treatment seeking among young adult veterans. *Military Behavioral Health*:1-10

130. Lance GN, Williams WT. 1967. A general theory of classificatory sorting strategies: 1. Hierarchical systems. *The computer journal* 9:373-80

131. Landis JR, Koch GG. 1977. The measurement of observer agreement for categorical data. *biometrics*:159-74

132. Le QA, Doctor JN, Zoellner LA, Feeny NC. 2014. Cost-effectiveness of prolonged exposure therapy versus pharmacotherapy and treatment choice in posttraumatic stress disorder (the optimizing ptsd treatment trial): A doubly randomized preference trial. *The Journal of clinical psychiatry*

133. LeardMann CA, Powell TM, Smith TC, Bell MR, Smith B, et al. 2013. Risk factors associated with suicide in current and former us military personnel. *Jama* 310:496

134. Lecrubier Y, Sheehan DV, Weiller E, Amorim P, Bonora I, et al. 1997. The mini international neuropsychiatric interview (mini). A short diagnostic structured interview: Reliability and validity according to the cidi. *European psychiatry* 12:224-31

135. Lemaire CM, Graham DP. 2011. Factors associated with suicidal ideation in oef/oif veterans. *Journal of affective disorders* 130:231-8

136. Lindfors O, Ojanen S, Jääskeläinen T, Knekt P. 2014. Social support as a predictor of the outcome of depressive and anxiety disorder in short-term and long-term psychotherapy. *Psychiatry research* 216:44-51

137. Linehan MM, Comtois KA, Murray AM, Brown MZ, Gallop RJ, et al. 2006. Two-year randomized controlled trial and follow-up of dialectical behavior therapy vs therapy by experts for suicidal behaviors and borderline personality disorder. *Archives of general psychiatry* 63:757-66

138. Lipari R, Piscopo K, Kroutil L, Kilmer Miller G. 2015. Suicidal thoughts and behavior among adults: Results from the 2014 national survey on drug use and health. *NSDUH Data Review*

139. Lopez-Castroman J, Nogue E, Guillaume S, Picot MC, Courtet P. 2016. Clustering suicide attempters: Impulsive-ambivalent, well-planned, or frequent. *The Journal of clinical psychiatry* 77:e711-8

140. Luxton DD, June JD, Kinn JT. 2011. Technology-based suicide prevention: Current applications and future directions. *Telemedicine and e-Health* 17:50-4

141. Mackenzie C, Gekoski W, Knox V. 2006. Age, gender, and the underutilization of mental health services: The influence of help-seeking attitudes. *Aging and Mental Health* 10:574-82

142. Magaard JL, Seeralan T, Schulz H, Brütt AL. 2017. Factors associated with help-seeking behaviour among individuals with major depression: A systematic review. *PloS one* 12:e0176730

143. Mann JJ, Apter A, Bertolote J, Beautrais A, Currier D, et al. 2005. Suicide prevention strategies: A systematic review. *Jama* 294:2064-74

144. Martin JS, Ghahramanlou-Holloway M, Englert DR, Bakalar JL, Olsen C, et al. 2013. Marital status, life stressor precipitants, and communications of distress and suicide intent in a sample of united states air force suicide decedents. *Archives of Suicide Research* 17:148-60

145. McKibben JB, Fullerton CS, Herberman Mash HB, Nock MK, Naifeh JA, et al. 2014. Suicidal behaviors and the use of mental health services among active duty army soldiers. *Psychiatric services* 65:374-80

146. McLean CP, Zang Y, Zandberg L, Bryan CJ, Gay N, et al. 2017. Predictors of suicidal ideation among active duty military personnel with posttraumatic stress disorder. *Journal of affective disorders* 208:392-8

147. Meadows SO, Engel CC, Collins RL, Beckman RL, Cefalu M, et al. 2018. 2015 department of defense health related behaviors survey (hrbs), RAND Corporation, Sana Monica, CA

148. Mechanic D. 1982. The epidemiology of illness behavior and its relationship to physical and psychological distress. In *Symptoms, illness behavior, and help-seeking*, ed. D Mechanic:1-24. New Brunswick, NJ: Rutgers University Press. Number of 1-24 pp.

149. Mojtabai R, Olfson M. 2006. Treatment seeking for depression in canada and the united states. *Psychiatric Services* 57:631-9

150. Mojtabai R, Olfson M, Mechanic D. 2002. Perceived need and help-seeking in adults with mood, anxiety, or substance use disorders. *Archives of general psychiatry* 59:77-84

151. Morgan JK, Hourani L, Lane ME, Tueller S. 2016. Help-seeking behaviors among active-duty military personnel: Utilization of chaplains and other mental health service providers. *Journal of Health Care Chaplaincy* 22:102-17

152. Mulligan K, Jones N, Woodhead C, Davies M, Wessely S, Greenberg N. 2010. Mental health of uk military personnel while on deployment in iraq. *The British Journal of Psychiatry* 197:405-10

153. Neuhauser JA. 2010. Lives of quiet desperation: The conflict between military necessity and confidentiality. *Creighton L. Rev.* 44:1003

154. Niederkrotenthaler T, Reidenberg DJ, Till B, Gould MS. 2014. Increasing help-seeking and referrals for individuals at risk for suicide by decreasing stigma: The role of mass media. *American journal of preventive medicine* 47:S235-S43

155. Nieuwsma JA, Fortune-Greeley AK, Jackson GL, Meador KG, Beckham JC, Elbogen EB. 2014. Pastoral care use among post-9/11 veterans who screen positive for mental health problems. *Psychological services* 11:300

156. Nieuwsma JA, Jackson GL, DeKraai MB, Bulling DJ, Cantrell WC, et al. 2014. Collaborating across the departments of veterans affairs and defense to integrate mental health and chaplaincy services. *Journal of general internal medicine* 29:885-94

157. Nieuwsma JA, King HA, Jackson GL, Bidassie B, Wright LW, et al. 2017. Implementing integrated mental health and chaplain care in a national quality improvement initiative. *Psychiatric Services* 68:1213-5

158. Nock MK, Deming CA, Fullerton CS, Gilman SE, Goldenberg M, et al. 2013. Suicide among soldiers: A review of psychosocial risk and protective factors. *Psychiatry* 76:97-125

159. Nock MK, Stein MB, Heeringa SG, et al. 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

160. Noguchi M, Kobayashi T, Iwase T, Suzuki E, Kawachi I, Takao S. 2017. Social capital and suicidal ideation in community-dwelling older residents: A multilevel analysis of 10,094 subjects in japan. *The American Journal of Geriatric Psychiatry* 25:37-47

161. Norbeck JS, Anderson NJ. 1989. Life stress, social support, and anxiety in mid‐ and late‐pregnancy among low income women. *Research in nursing & health* 12:281-7

162. Norberg AL, Lindblad F, Boman KK. 2006. Support‐seeking, perceived support, and anxiety in mothers and fathers after children's cancer treatment. *Psycho‐Oncology* 15:335-43

163. Ouimette P, Vogt D, Wade M, Tirone V, Greenbaum MA, et al. 2011. Perceived barriers to care among veterans health administration patients with posttraumatic stress disorder. *Psychological services* 8:212

164. Overstreet NM, Earnshaw VA, Kalichman SC, Quinn DM. 2013. Internalized stigma and hiv status disclosure among hiv-positive black men who have sex with men. *AIDS care* 25:466-71

165. Owen G, Belam J, Lambert H, Donovan J, Rapport F, Owens C. 2012. Suicide communication events: Lay interpretation of the communication of suicidal ideation and intent. *Social science & medicine* 75:419-28

166. Owens D, Horrocks J, House A. 2002. Fatal and non-fatal repetition of self-harm. *The British Journal of Psychiatry* 181:193-9

167. Parkerson Jr G, Broadhead W, Tse C. 1991. Validation of the duke social support and stress scale. *Family Medicine* 23:357-60

168. Peñas-Lledó E, Jiménez-Murcia S, Granero R, Penelo E, Agüera Z, et al. 2010. Specific eating disorder clusters based on social anxiety and novelty seeking. *Journal of anxiety disorders* 24:767-73

169. Pescosolido BA. 1992. Beyond rational choice: The social dynamics of how people seek help. *American journal of sociology* 97:1096-138

170. Pfaff JJ, Almeida OP. 2005. Detecting suicidal ideation in older patients: Identifying risk factors within the general practice setting. *Br J Gen Pract* 55:269-73

171. Phelan SM, Griffin JM, Hellerstedt WL, Sayer NA, Jensen AC, et al. 2011. Perceived stigma, strain, and mental health among caregivers of veterans with traumatic brain injury. *Disability and Health Journal* 4:177-84

172. Picco L, Abdin E, Chong SA, Pang S, Shafie S, et al. 2016. Attitudes toward seeking professional psychological help: Factor structure and socio-demographic predictors. *Frontiers in psychology* 7:547

173. Pietrzak RH, Goldstein MB, Malley JC, Rivers AJ, Johnson DC, Southwick SM. 2010. Risk and protective factors associated with suicidal ideation in veterans of operations enduring freedom and iraqi freedom. *Journal of Affective Disorders* 123:102-7

174. Pietrzak RH, Johnson DC, Goldstein MB, Malley JC, Southwick SM. 2009. Perceived stigma and barriers to mental health care utilization among oef-oif veterans. *Psychiatric Services* 60:1118-22

175. Porcari C, Koch EI, Rauch SA, Hoodin F, Ellison G, McSweeney L. 2017. Predictors of help-seeking intentions in operation enduring freedom and operation iraqi freedom veterans and service members. *Military medicine* 182

176. Posner K, Brent D, Lucas C, Gould M, Stanley B, et al. 2008. Columbia-suicide severity rating scale (c-ssrs). *New York, NY: Columbia University Medical Center*

177. Prochaska JO, DiClemente CC. 1986. Toward a comprehensive model of change. In *Treating addictive behaviors*:3-27: Springer. Number of 3-27 pp.

178. Pruitt LD, Smolenski DJ, Bush NE, Skopp NA, Edwards-Stewart A, Hoyt TV. 2018. Department of defense suicide event report (dodser) calendar year 2016 annual report, Psychological Health Center for Excellence (PHCoE)

179. Pruitt LD, Smolenski DJ, Bush NE, Skopp NA, Hoyt TV, Grady BJ. 2017. Department of defense suicide event report (dodser) calendar year 2015 annual report, National Center for Telehealth and Technology (T2) Joint Base Lewis-McChord United States

180. Puhl RM, Brownell KD. 2006. Confronting and coping with weight stigma: An investigation of overweight and obese adults. *Obesity* 14:1802-15

181. Punj G, Stewart DW. 1983. Cluster analysis in marketing research: Review and suggestions for application. *Journal of marketing research*:134-48

182. Ramchand R, Acosta J, Burns RM. 2011. *The war within: Preventing suicide in the us military*. Rand Corporation

183. Rapeli CB, Botega NJ. 2005. Clinical profiles of serious suicide attempters consecutively admitted to a university-based hospital: A cluster analysis study. *Revista Brasileira de Psiquiatria* 27:285-9

184. Reger MA, Smolenski DJ, Skopp NA, Metzger-Abamukang MJ, Kang HK, et al. 2015. Risk of suicide among us military service members following operation enduring freedom or operation iraqi freedom deployment and separation from the us military. *JAMA psychiatry* 72:561-9

185. Ribeiro JD, Gutierrez PM, Joiner TE, Kessler RC, Petukhova MV, et al. 2017. Health care contact and suicide risk documentation prior to suicide death: Results from the army study to assess risk and resilience in servicemembers (army starrs). *Journal of consulting and clinical psychology* 85:403

186. Ribeiro JD, Huang X, Fox KR, Franklin JC. 2018. Depression and hopelessness as risk factors for suicide ideation, attempts and death: Meta-analysis of longitudinal studies. *The British Journal of Psychiatry* 212:279-86

187. Richardson JS, Fann JR, Bell KR, Temkin N. 2018. Impact of telephone-based problem-solving treatment on the use of medical and psychological services in the military. *The Journal of head trauma rehabilitation* 33:E1-E6

188. Rickwood D, Deane FP, Wilson CJ, Ciarrochi J. 2005. Young people's help-seeking for mental health problems. *Australian e-Journal for the Advancement of Mental Health* 4:218-51

189. Rickwood D, Thomas K. 2012. Conceptual measurement framework for help-seeking for mental health problems. *Psychology Research and Behavior Management* 5:173

190. Rickwood DJ, Braithwaite VA. 1994. Social-psychological factors affecting help-seeking for emotional problems. *Social Science & Medicine* 39:563-72

191. Riihimäki K, Vuorilehto M, Melartin T, Haukka J, Isometsä E. 2014. Incidence and predictors of suicide attempts among primary-care patients with depressive disorders: A 5-year prospective study. *Psychological medicine* 44:291-302

192. River J. 2016. Diverse and dynamic interactions: A model of suicidal men's help seeking as it relates to health services. *American journal of men's health*:1557988316661486

193. Rosen CS, Greenbaum MA, Fitt JE, Laffaye C, Norris VA, Kimerling R. 2011. Stigma, help-seeking attitudes, and use of psychotherapy in veterans with diagnoses of posttraumatic stress disorder. *The Journal of nervous and mental disease* 199:879-85

194. Rowan AB, Campise RL. 2006. A multisite study of air force outpatient behavioral health treatment-seeking patterns and career impact. *Military medicine* 171:1123

195. Rowan AB, Varga CM, Clayton SP, Martin Zona DM. 2014. Career impacts and referral patterns: Army mental health treatment in the combat theater. *Military medicine* 179:973-8

196. Rudd MD. 2006. *The assessment and management of suicidality*. Professional Resource Press/Professional Resource Exchange

197. Sadow D, Ryder M. 2008. Reducing stigmatizing attitudes held by future health professionals: The person is the message. *Psychological services* 5:362

198. Sarstedt M, Mooi E. 2014. Cluster analysis. In *A concise guide to market research*:273-324: Springer. Number of 273-324 pp.

199. Schaffer A, Sinyor M, Reis C, Goldstein BI, Levitt AJ. 2014. Suicide in bipolar disorder: Characteristics and subgroups. *Bipolar disorders* 16:732-40

200. Schoenbaum M, Kessler RC, Gilman SE, Colpe LJ, Heeringa SG, et al. 2014. Predictors of suicide and accident death in the army study to assess risk and resilience in servicemembers (army starrs): Results from the army study to assess risk and resilience in servicemembers (army starrs). *JAMA psychiatry* 71:493-503

201. Schomerus G, Matschinger H, Angermeyer MC. 2009. The stigma of psychiatric treatment and help-seeking intentions for depression. *European archives of psychiatry and clinical neuroscience* 259:298-306

202. Schulz KF, Altman DG, Moher D. 2010. Consort 2010 statement: Updated guidelines for reporting parallel group randomised trials. *BMC medicine* 8:18

203. Schvey NA, Barmine M, Bates D, Oldham K, Bakalar JL, et al. 2017. Weight stigma among active duty us military personnel with overweight and obesity. *Stigma and Health* 2:281

204. Schwartz MB, Chambliss HON, Brownell KD, Blair SN, Billington C. 2003. Weight bias among health professionals specializing in obesity. *Obesity research* 11:1033-9

205. Segal AG, Diaz CE, Nezu CM, Nezu AM. 2014. Social problem solving as a predictor of attitudes toward seeking mental health care and medical care among veterans. *Military Behavioral Health* 2:304-15

206. Sharp M-L, Fear NT, Rona RJ, Wessely S, Greenberg N, et al. 2015. Stigma as a barrier to seeking health care among military personnel with mental health problems. *Epidemiologic reviews* 37:144-62

207. Sheehan D, Lecrubier Y, Sheehan KH, Janavs J, Weiller E, et al. 1997. The validity of the mini international neuropsychiatric interview (mini) according to the scid-p and its reliability. *European Psychiatry* 12:232-41

208. Shen Y-C, Cunha JM, Williams TV. 2016. Time-varying associations of suicide with deployments, mental health conditions, and stressful life events among current and former us military personnel: A retrospective multivariate analysis. *The Lancet Psychiatry*

209. Shepard DS, Gurewich D, Lwin AK, Reed GA, Silverman MM. 2015. Suicide and suicidal attempts in the united states: Costs and policy implications. *Suicide and life-threatening behavior*

210. Sinyor M, Schaffer A, Streiner DL. 2014. Characterizing suicide in toronto: An observational study and cluster analysis. *The Canadian Journal of Psychiatry* 59:26-33

211. Sinyor M, Tan LPL, Schaffer A, Gallagher D, Shulman K. 2016. Suicide in the oldest old: An observational study and cluster analysis. *International journal of geriatric psychiatry* 31:33-40

212. Sirey JA, Meyers BS, Teresi JA, Bruce ML, Ramirez M, et al. 2005. The cornell service index as a measure of health service use. *Psychiatric Services* 56:1564-9

213. Skopp NA, Bush NE, Vogel DL, Wade NG, Sirotin AP, et al. 2012. Development and initial testing of a measure of public and self‐stigma in the military. *Journal of clinical psychology* 68:1036-47

214. Sneath PH, Sokal RR. 1973. *Numerical taxonomy. The principles and practice of numerical classification*.

215. Stanley B, Brown GK. 2012. Safety planning intervention: A brief intervention to mitigate suicide risk. *Cognitive and Behavioral Practice* 19:256-64

216. Steward WT, Herek GM, Ramakrishna J, Bharat S, Chandy S, et al. 2008. Hiv-related stigma: Adapting a theoretical framework for use in india. *Social science & medicine* 67:1225-35

217. Subbalakshmi C, Krishna GR, Rao SKM, Rao PV. 2015. A method to find optimum number of clusters based on fuzzy silhouette on dynamic data set. *Procedia Computer Science* 46:346-53

218. Substance Abuse and Mental Health Services Administration (SAMHSA). 2014. *Half of adults with serious thoughts of suicide did not receive mental health services*. http://www.samhsa.gov/data/sites/default/files/spot136-suicideservices-2014.pdf

219. Tang TC, Jou SH, Ko CH, Huang SY, Yen CF. 2009. Randomized study of school‐based intensive interpersonal psychotherapy for depressed adolescents with suicidal risk and parasuicide behaviors. *Psychiatry and Clinical Neurosciences* 63:463-70

220. Tondo L, Hennen J, Baldessarini RJ. 2001. Lower suicide risk with long‐term lithium treatment in major affective illness: A meta‐analysis. *Acta Psychiatrica Scandinavica* 104:163-72

221. Tucker RP, Crowley KJ, Davidson CL, Gutierrez PM. 2015. Risk factors, warning signs, and drivers of suicide: What are they, how do they differ, and why does it matter? *Suicide and life-threatening behavior*

222. U.S. Department of Veterans Affairs, U.S. Department of Defense. 2013. Va/dod clinical practice guideline for assessment and management of patients at risk for suicide. Washington, DC

223. Upmanyu V, Narula V, Moein L. 1995. A study of suicide ideation: The intervening role of cognitive rigidity. *PSYCHOLOGICAL STUDIES-UNIVERSITY OF CALICUT* 40:126-31

224. Ursano RJ, Kessler RC, Heeringa SG, Cox KL, Naifeh JA, et al. 2015. Nonfatal suicidal behaviors in us army administrative records, 2004–2009: Results from the army study to assess risk and resilience in servicemembers (army starrs). *Psychiatry* 78:1-21

225. Ursano RJ, Kessler RC, Stein MB, Naifeh JA, Aliaga PA, et al. 2015. Suicide attempts in the us army during the wars in afghanistan and iraq, 2004 to 2009. *JAMA psychiatry* 72:917-26

226. Ursano RJ, Kessler RC, Stein MB, Naifeh JA, Aliaga PA, et al. 2016. Risk factors, methods, and timing of suicide attempts among us army soldiers. *JAMA psychiatry*

227. Vanable PA, Carey MP, Blair DC, Littlewood RA. 2006. Impact of hiv-related stigma on health behaviors and psychological adjustment among hiv-positive men and women. *AIDS and Behavior* 10:473-82

228. VanSickle M, Werbel A, Perera K, Pak K, DeYoung K, Ghahramanlou-Holloway M. 2016. Perceived barriers to seeking mental health care among united states marine corps noncommissioned officers serving as gatekeepers for suicide prevention. *Psychological assessment* 28:1020

229. VanSickle M, Werbel A, Perera K, Pak K, DeYoung K, Ghahramanlou-Holloway M. 2016. Principal component analysis of the suicide opinion questionnaire in a us military sample of marine corps non-commissioned officers. *Military medicine* 181:672-9

230. Von Luxburg U. 2010. Clustering stability: An overview. *Foundations and Trends® in Machine Learning* 2:235-74

231. Wade NG, Vogel DL, Armistead-Jehle P, Meit SS, Heath PJ, Strass HA. 2015. Modeling stigma, help-seeking attitudes, and intentions to seek behavioral healthcare in a clinical military sample. *Psychiatric rehabilitation journal* 38:135

232. Walker ER, Cummings JR, Hockenberry JM, Druss BG. 2015. Insurance status, use of mental health services, and unmet need for mental health care in the united states. *Psychiatric Services* 66:578-84

233. Ward Jr JH. 1963. Hierarchical grouping to optimize an objective function. *Journal of the American statistical association* 58:236-44

234. Wilson CJ, Deane FP. 2010. Help-negation and suicidal ideation: The role of depression, anxiety and hopelessness. *Journal of youth and adolescence* 39:291-305

235. Wilson CJ, Deane FP, Ciarrochi J, Rickwood D. 2005. Measuring help-seeking intentions: Properties of the general help-seeking questionnaire. *Canadian Journal of Counselling* 39:15

236. Wołodźko T, Kokoszka A. 2014. Characteristics of groups after the suicide attempt. Cluster analysis of national comorbidity survey (ncs) 1990-1992. *Psychiatria Polska* 48:1253-67

237. World Health Organization. 2014. Preventing suicide: A global imperative.

238. World Health Organization. 2018. *Suicide rates (per 100,000 population)*. http://www.who.int/gho/mental_health/suicide_rates/en/

239. Wright KM, Cabrera OA, Bliese PD, Adler AB, Hoge CW, Castro CA. 2009. Stigma and barriers to care in soldiers postcombat. *Psychological services* 6:108

240. Yakunina ES, Rogers JR, Waehler CA, Werth JL. 2010. College students' intentions to seek help for suicidal ideation: Accounting for the help‐negation effect. *Suicide and Life-Threatening Behavior* 40:438-50

241. Zinzow HM, Britt TW, Pury CL, Raymond MA, McFadden AC, Burnette CM. 2013. Barriers and facilitators of mental health treatment seeking among active-duty army personnel. *Military Psychology* 25:514-35