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Characteristics of suicide attempts associated with lethality and method: A latent class analysis of the Military Suicide Research Consortium

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Abstract

While suicide prevention is a national priority, particularly among service members and veterans (SMVs), understanding of suicide-related outcomes remains poor. Person-centered approaches (e.g., latent class analysis) have promise to identify unique risk profiles and subgroups in the larger population. The current study identified latent subgroups characterized by prior self-directed violence history and proximal risk factors for suicide among suicide attempt survivors, and compared subgroups on demographics and most-lethal attempt characteristics. Participants included civilians and SMVs reporting lifetime suicide attempt(s) ($n=2,643$) from the Military Suicide Research Consortium. Two classes emerged from Common Data Elements: suicide attempt and non-suicidal self-injury frequency, suicide attempt method, perceived likelihood of future suicide, suicide disclosure, suicide intent, and perceived and actual lethality of attempt. A Higher-Risk History class was characterized by greater intent to die, certainty about attempt fatality and method lethality, belief injury would be medically unfixable, and likelihood of prior non-suicidal self-injury. A Lower-Risk History class was characterized by greater ambivalence toward death and methods. Higher-Risk class members were more likely to be male, older, SMVs, have less formal education, use firearms as most-lethal attempt method, and require a higher degree of medical attention. Lower-Risk class members were more likely to be female, civilian, use cutting as most-lethal attempt method, and require less medical attention for attempts. Findings have implications for risk assessments and highlight the importance of subjective perceptions about suicidal behavior. Further investigation of real-time individual-level is necessary, especially for SMVs who may be at greatest risk for potentially lethal suicidal behavior.

Keywords: Veterans, military, suicide attempt, lethality, disclosure, latent class analysis

Introduction

Society devotes great attention to societal and person-level costs of suicide and related behaviors, particularly among military service members and veterans (SMVs; Cai et al., 2020; Schlichthorst et al., 2020). Recent estimates suggest United States military veterans die by suicide at a rate of 27.5 per 100,000 (Affairs, 2020), nearly twice that of civilians (14 per 100,000; Hedegaard et al., 2021). Due to this elevated risk, veterans are a special-interest group for suicide-prevention efforts (Affairs, 2019).

Substantial research has identified person- and situational-level factors associated with veteran suicide, suggesting that despite a military selection bias for physically and healthy recruits (i.e., the “healthy soldier effect;” McLaughlin et al., 2008) veterans experience greater suicide risk factors compared to the general population – including firearm access/familiarity, behavioral health and substance use disorders, trauma exposure, physical health problems, and residence in rural areas (Ilgen et al., 2010; McCarthy et al., 2012; McCarthy et al., 2015; Theis et al., 2020; Wood et al., 2020). Despite an abundance of research, however, predictive modeling is only minimally effective in prospectively predicting veteran suicide-behavior and has limited clinical utility, even when considering hundreds of unique predictors (Kessler et al., 2017; McCarthy et al., 2015).

Person-Centered Approaches to Understanding Veteran Suicide

Given these limitations and the immense complexity and variability of suicide risk and behavior, theory and prevention efforts have begun to shift away from *variable-centered* approaches (i.e., that identify risk by comparing non-suicidal and suicidal individuals) in favor of *person-centered* approaches. Whereas variable-centered approaches typically presume a single, relatively homogenous population, person-centered approaches (e.g., mixture modeling, cluster

analyses, latent classes analysis [LCA]) consider the possibility of unique subgroups within the larger population. As such, person-centered approaches aim to explain heterogeneity in a population by identifying and characterizing sub-populations according to pre-specified indicators. In doing so, person-centered approaches often provide finer-grained detail than typically achieved through variable-centered approaches (Howard & Hoffman, 2018). Additionally, the use of person-centered approaches (including LCA) can statistically simplify risk assessment as this technique integrates information from multiple sources into a single composite score or continuous latent variable. This focus on stereotypical phenotypes within the broader population is more consistent with natural approaches to clinical judgment than variable-centered approaches (Montgomery, 2006), maximizing clinical utility.

Growing popularity of person-centered approaches facilitated unique perspectives into patterns underlying veteran suicide risk-factors (Allan et al., 2020; Skopp et al., 2016), mental health correlates (Edwards et al., 2020), and death correlates (Martin et al., 2019). Generally, this research has relied on retrospective chart review (Allan et al., 2019; Allan et al., 2020; Martin et al., 2019) and/or distal suicide risk-factors, such as number of prior suicide attempts, mental health conditions, and substance use (Edwards et al., 2020). However, some literature suggests proximal risk factors, such as suicidal intent, disclosure, and perceived lethality may be more strongly associated with suicide completion (Kim et al., 2018). For example, suicide attempts of individuals with greater intent tend to involve more lethal methods, require more serious medical attention, and are more likely to result in death than individuals with ambivalent intent (Hasley et al., 2008). Also, frequency of suicide risk disclosure is associated with greater suicidal ideation severity (Calear & Batterham, 2019; Mérelle et al., 2018). Veterans are typically less likely than civilians to disclose suicide intent (Ganzini et al., 2013; Horwitz et al., 2019; Monteith et al.,

2020; Wood et al., 2020), with one study estimating 85% of veterans who died by suicide had denied ideation during the week before death (Smith et al., 2013). Military beliefs and training often inhibit suicide-risk disclosure by increasing fears of stigma and depicting at-risk persons as burdensome, unreliable, shameful, and weak (Ganzini et al., 2013). Moreover, programs promoting peer detection of suicidal intent may provide service members inadvertent training in concealing suicidal thoughts and behaviors (Denneson et al., 2015). Suicide disclosure is therefore of particular relevance to understanding veteran suicide.

Highlighting this importance of proximal risk factors, person-centered research consistently identifies two suicide attempt survivor subgroups across time, cultures, and settings – a higher-risk group characterized by greater planning, attempts to conceal risk, and use of more lethal methods and a lower-risk group characterized by impulsivity, acute distress, and ambivalence toward death (Arensman & Kerkhof, 1996; Bernanke et al., 2017; Chen et al., 2007; Conner, 2004; Kim et al., 2018). Some studies identify a third group, characterized by extensive history of suicidal behavior with early age of onset (Lopez-Castroman et al., 2016), though this group may not generalize to all populations. To date, this research has been completed exclusively in civilian samples and generally sampled individuals requiring hospitalization after suicide attempt. Thus, the degree to which these subgroups apply to SMVs and/or attempts not resulting in hospitalization remains unclear.

The Current Study

This study builds upon person-centered research to inform veteran suicide-risk detection and mitigation efforts. We first aimed to identify and characterize potential latent classes of suicide attempt survivors according to history of self-directed violence and proximal risk-factors (i.e., class indicators): suicide disclosure, suicidal intent, perceived lethality of suicide behavior,

and perceived likelihood of future suicide behavior. Second, we sought to further understand how these latent classes compare on auxiliary variables routinely assessed in clinical practice: SMV status, demographics, and method and lethality of most lethal suicide behavior. Consistent with previous research, we hypothesized at least two latent classes would emerge characterized by differences in history of self-directed violence and proximal risk-factors. However, no hypotheses were made regarding secondary aims.

Method

Data were obtained from the Military Suicide Research Consortium (MSRC), funded by the U.S. Department of Defense. MSRC maintains a centralized database of data collected across 23 suicide-prevention focused studies nationwide. This investigation was completed in accordance with the latest version of the Declaration of Helsinki. Approval for individual studies was provided by respective institutional review boards (IRBs) and U.S. Army Medical Research Materiel Command Human Research Protection Office (where applicable), and by local R&D for current analyses.

Administration of CDE items varied by study site including by phone, in-person, or online. Individual study sample characteristics and inclusion/exclusion criteria also varied to include civilians, military service members, and veterans from inpatient ($n=10$ studies) and outpatient psychiatric settings ($n=13$ studies) as well as community samples ($n=6$ studies). Study foci included suicide risk and exposure, bereavement, behavioral health (e.g., sleep, physical activity), anger, and cognitive processes. Approximately half (12/23) of included studies recruited participants on the basis of suicidal thoughts and behaviors. This affords examination of a broad range of individuals with and without military service history sampled from a variety of settings. Given the shared goal of understanding suicide risk among military personnel,

service members and veterans comprised the largest proportion of participants among the larger MSRC sample. Consequently, the majority of MSRC participants are male; however, the sample demonstrates diversity with regard to race/ethnicity, income, and relationship status (Ringer et al., 2018). Nearly a third (7/23) of study sites recruited civilians in addition to SMVs, which were no less likely to recruit on the basis of suicide risk ($X^2[1, n=23] = 2.25, p=.13$) or from an inpatient ($X^2[1, n=23] = 0.91, p=.34$) or outpatient setting ($X^2[1, n=23] = 3.20, p=.07$). Additional information about data collection methods and individual study characteristics can be found in the supplementary materials of Ringer et al. (2018).

Participants

Participants included in the present analyses ($n=2,643$) were civilians and SMVs endorsing history of one or more suicide attempt (Table 1). The sample was predominantly male (59.8%), non-Hispanic (90%), and Caucasian (68.5%). Most participants were SMVs (68.1%), with half endorsing deployment history (50.2%).

Measures

Latent Class Indicators

All indicators included in latent class analyses were drawn from MSRC Common Data Elements (CDEs), a series of self-report items drawn from several empirically validated measures delivered across individual studies in the MSRC. These items are detailed below.

History of self-directed violence was assessed using two items, “*How many times in your lifetime have you made an attempt to kill yourself during which you had at least some intent to die?*” (suicide attempt frequency) and “*How many times in your lifetime have you purposefully hurt yourself without wanting to die?*” (non-suicidal self-injury [NSSI] frequency).

Suicide disclosure was assessed using one item from the Suicidal Behaviors

Questionnaire-Revised (SBQ-R; Osman et al., 2001), “*Have you ever told someone that you were going to commit suicide, or that you might do it?*”, and rated on a three-point scale (1=“*No*,” 3=“*More than once*”).

Suicide intent and perceived lethality of most recent attempt were assessed using four items from the Suicide Intent Scale (Beck et al., 1974). Respondents rated their certainty at the time of the attempt that suicidal behavior would be fatal, certainty suicide method would be fatal, intent to die from the behavior, and belief medical attention could fix resulting injuries on a three-point scale (0=“*None*,” 2=“*Strong*”).

Lastly, perceived likelihood of future suicide behavior was assessed using one item from the SBQ-R, “*How likely is it that you will attempt suicide someday?*”, scored using a 7-point scale (0=“*Never*,” 6=“*Very Likely*”).

Auxiliary Variables

Demographic information was assessed via respondents’ self-reported sex, age, race, highest education, and history of military service (resulting in characterizations as civilian, active-duty military, or veteran).

Characteristics of most lethal suicide attempt were drawn from the MSRC CDEs. Method was determined by coding respondents’ open-ended descriptions of the plan and method(s) used during the respondent’s most lethal suicide attempt. Method codes included the seven attempt methods of the Beck Lethality Scale (Spokas et al., 2012; shooting, burning, drowning, cutting, jumping, hanging/asphyxiation, overdose) and four additional codes developed to account for other mentioned methods (intentional vehicular accident or collision, deprivation, death by others, and electrocution). When descriptions included multiple attempt methods (e.g., ingesting pills and cutting themselves), the method with greatest lethality (Spicer & Miller, 2000) was

coded. Two independent coders reviewed responses ($\kappa=.81$), and a third coder resolved discrepancies.

Actual lethality of attempt was assessed using a CDE item assessing medical attention required in response to the most lethal suicide attempt. This item was scored using a 5-point Likert scale (0=“*No medical attention*,” 1=“*Primary care doctor/nurse visit*,” 2=“*Emergency room visit*,” 3=“*Hospital admission to general medical floor*,” 4=“*Hospital admission to intensive care unit*”).

Statistical Methods

Analyses were completed in two phases. First, descriptive statistics were calculated for participant demographic categories and suicide-attempt characteristics. Pearson’s chi-square tests for independence were also used to compare sex and military service history with suicide-attempt method. Notably, although frequencies of lifetime suicide attempt and NSSI were measured continuously, these variables were censored and extremely positively skewed, with 44% of participants reporting only one prior suicide attempt and 44% reporting no NSSI. When omitting the base value, remaining responses were approximately uniformly distributed. Therefore, it appears that these variables only conveyed information at the binary level despite being measured on a continuous scale. We used median dichotomization to account for deviation from normality (Muthén & Speckart, 1983).

Next, we used the three-step method described by Asparouhov & Muthén (2014) to (a) identify and characterize latent classes, (b) assign participants to the class most closely aligning with their history of self-directed violence and proximal risk-factors, and (c) compare class membership to auxiliary variables (i.e., SMV status, demographics, and characteristics of most lethal attempt). Latent class analysis (LCA) was conducted using Mplus 8.3; models were

specified and results were reported using tidyLPA (Rosenberg et al., 2019). The LCA indicators were dichotomized frequency of lifetime suicide attempts, dichotomized frequency of lifetime NSSI, disclosure, likelihood of future attempt(s), certainty behavior would be lethal, certainty method would be lethal, intention to die, and belief medical attention could fix resulting injuries. All indicators were considered ordinal for these analyses. One to seven classes were compared to determine and characterize optimum number of latent suicide-attempt classes. After the best-fitting model was selected, participants were assigned to the latent class with the highest probability of fitting their history of self-directed violence and proximal risk factors. Last, we investigated whether class membership differed by SMV status, demographics, and/or most lethal suicide attempt characteristics using Pearson's chi-square tests for independence comparing latent class membership to each auxiliary variable.

Results

Descriptive Statistics

Self-Directed Violence History Characteristics

Descriptive statistics are presented in Tables 1 and 2. Sex ($X^2[5, n=2,392] = 133.74, p<.001$) and SMV status ($X^2[5, n=2,231] = 74.32, p<.001$) were associated with method of most lethal suicide attempt such that females and civilians were more likely to attempt suicide by overdose and men and SMVs by use of firearm.

Latent Class Analysis

Next, latent class analysis compared models with 1-7 classes (see Table 3). According to the BIC, model fit improved dramatically from a one- to two-class solution and continued improving until a five-class solution. The bootstrapped likelihood ratio test suggested model fit improved significantly with an increasing number of classes and a model with more than one

class was required to capture the heterogeneity in the present sample. However, all solutions with more than two classes had low posterior classification probabilities (≤ 0.77 ; see Jung & Wickrama, 2008 for proposed acceptable ranges). Additionally, these solutions resulted in the smallest class containing less than 10% of cases which raises concerns of interpretability and resulted in small reductions in BIC, decreasing entropy, and unacceptable minimum posterior classification probability. We thus selected a two-class solution for our final analysis. Notably, entropy for all models was low, indicating classes were not clearly separable.

The first identified class (Higher-Risk History; HR) was characterized by greater certainty in lethality of behavior and method, intention to die, and belief the attempt could not be fixed by medical attention, whereas the second class (Lower-Risk History; LR) was characterized by greater ambivalence toward suicide behavior and methods. HR class members were also relatively more likely to report history of NSSI. Classes were similar in frequency of lifetime suicide attempts, disclosure, and perceived likelihood of future suicide behavior. See Figure 1.

Relation to Auxiliary Variables

Comparing class membership to auxiliary variables suggested statistically significant differences between classes in characteristics of most lethal suicide attempt, SMV status, and demographics. Individuals in the HR class were more likely to report shooting as the method of their most lethal attempt, whereas those in the LR class were more likely to report cutting. Correspondingly, individuals in the HR class also required greater medical attention following their most lethal suicide attempt relative to those in the LR class.

Demographically, members of the HR class were more likely to be SMVs, male, older, and with less formal education than the LR class. Class membership and race were also

significantly associated, though there was no clear pattern of differences.

Discussion

Results provide further evidence suggesting two distinct subgroups among individuals with suicide attempt history – a higher-risk history class (HR) marked by greater intent and certainty of death during suicide attempt and NSSI history and a lower-risk history class (LR) characterized by ambivalence and uncertainty toward death and attempt methods. HR members were more likely to be male and SMVs and to have most-lethal suicide attempts involving firearms and requiring significant medical attention, whereas LR members were more likely to be female, civilians, and most-lethal attempts involving cutting.

Results suggested a single-class model failed to capture some of the heterogeneity in the sample, highlighting the value of LCA for distinguishing subgroups of suicide attempt survivors over and above more parsimonious approaches to risk stratification. Person-centered approaches are valuable for understanding latent classes present among a diverse population as well as simplifying risk assessment efforts. Additionally – even when including relatively accessible information – such strategies offer additional information over and above variable-centered approaches understanding suicide risk by easily combining data from several sources to create a single composite score or continuous latent variable.

Findings are consistent with common characterizations of suicide attempts as either low- or high-severity (Arensman & Kerkhof, 1996), attesting to probable generalizability of results across settings, populations, and time. For example, results align with a recent analysis in Korea suggesting a higher-risk group characterized by more lethal methods, greater planning surrounding the attempt, and higher proportion of men, and a lower-risk group characterized by less lethal methods, greater ambivalence toward death, and higher proportion of women (Kim et

al., 2018). While classes identified in present analyses were not well distinguished, results are also consistent with recent taxometric analyses completed with an earlier version of the MSRC dataset suggesting a dichotomous high- versus low-risk structure for suicide risk (Witte et al., 2017). Current analyses expand upon literature by replicating patterns in a large, multisite, American sample, exploring association with military service, and offering insight into relations to suicide attempt characteristics. Notably, the present analyses were unable to replicate a third class occasionally observed characterized by high-frequency self-directed violence and earlier age of onset (Lopez-Castroman et al., 2016). This was due to data being unavailable for age of onset of suicidal behavior in the present sample, and frequency of self-directed violence being dichotomized due to limited variability. Absence of a third class could also be due, at least in part, to the overrepresentation of SMVs in the MSRC sample and tendency for those with extensive prior self-directed violence to be screened out from military service (Cardona & Ritchie, 2007). While there was some evidence for potential further partitions of classes among the present data, these solutions resulted in the diminishing classification accuracy, which limits interpretability and practical utility. Thus, continued research using mixed samples is needed to clarify generalizability of this third class.

Results support assessment of perceptions at the time of suicidal behavior (e.g., intent, certainty of death) as a critical component of suicide-risk assessment. This information is valuable when applied to both large, EHR databases as well as to assign weight to measures commonly used in clinical settings. For example, data about many of the indicators identified in present analyses is commonly collected by clinicians completing traditional risk assessments about current suicidal thinking and prior suicidal behavior. If replicated and expanded upon, results could inform scoring algorithms designed to guide clinical decision making, including the

potential for additional monitoring and support. Given associations between class membership and characteristics of most-lethal attempts, these proximal factors may convey significant information about potential for death or serious injury resulting from suicide behavior.

Additional research using alternative methodologies such as ecological momentary assessment may clarify the relevance of these findings to prospective prediction and just-in-time interventions, which hold the potential to modify these proximal risk factors.

Results also support extant literature highlighting NSSI as a robust correlate of suicidal behavior (Franklin et al., 2017). NSSI often serves an affect-regulation function and may temporarily decrease suicide risk by down-regulating distress (Klonsky, 2011). However, long-term risks of NSSI include increased capability for suicide via habituation to physical pain and increased access to and familiarity with potentially lethal methods (Joiner, 2005; Klonsky & May, 2015). Suicide prevention efforts would therefore benefit from prioritizing careful exploration of NSSI.

Notably, subgroups did not differ on likelihood of lifetime disclosure of suicide risk, with approximately two-thirds of each subgroup reporting at least one instance of disclosure. Although promising from a risk-detection perspective, findings suggest disclosure is not necessarily protective against attempt lethality. In fact, frequency of suicide disclosure is often positively associated with severity of psychological symptoms, including suicidal ideation (Calear & Batterham, 2019; Mérelle et al., 2018). Additionally, to whom a person disclosed suicide risk was not measured in the present study (e.g., family member, healthcare providers), raising questions of whether disclosure patterns may differentiate groups even if overall disclosure frequency did not. All disclosure events should be considered seriously, particularly for SMVs, who are less likely to seek mental health treatment and disclose risk about stigmatized

topics like suicidal behavior (Coleman et al., 2017).

Results suggest perception of one's behavior and its potential consequences at the time of suicide attempt appear particularly important for identifying individuals at risk of engaging in potentially high-lethality suicide behavior. Interventions, such as lethal means counseling and just-in-time interventions, may benefit from targeting perceptions of suicide behaviors and differentially focus on restricting access to methods most closely associated with risk class-membership (e.g., firearms for HR individuals; medications and sharp objects for LR individuals).

Limitations and Future Directions

Results should be considered within the context of a few methodological limitations. First, although MSRC is a promising initiative affording large-scale data collection, analyses were limited to CDEs, because other data (e.g., clinical scales, diagnoses) were not consistently collected, preventing more comprehensive investigations into risk profiles. Second, many constructs were measured using single items. Although single items may best reflect assessments in clinical settings (Montgomery, 2006), longer, more comprehensive measures may provide more nuanced insights. Third, data was cross-sectional and relied on retrospective self-report of suicide attempts, occluding exploration of temporal associations (e.g., between disclosure and instances of self-directed violence). Furthermore, class categorizations were created on the basis of past suicide attempts and, consequently, predictive validity of these categorizations cannot be determined by the present study. Fourth, as is common, only suicide attempt survivors were included in the sample, limiting representation of more lethal attempt methods. Additionally, we are unable to control for the length of time between a participant's most recent suicide attempt and data collection, which may impact certain self-assessments (i.e., confidence about likelihood

of future suicidal behavior). Similarly, we could not control for potential differences in sampling strategies across the protocols of individual MSRC studies. Last, because SMVs tend to be at elevated suicide risk overall and SMVs were overrepresented in the HR class, class compositions may have been driven at least in part by factors related to military service rather than suicide-related constructs.

Continued research using longitudinal designs with comprehensive assessments and including both SMVs and civilians may provide additional insights into the relation of class membership to suicide behavior and death over time. Further research is also necessary to understand the role of other potentially relevant proximal risk factors unassessed by MSRC (e.g., prompting events, duration of the suicidal process, planning behavior, context of behavior, co-occurring substance use) within the context of latent class composition (May & Klonsky, 2016). Given relations to lethality of suicide behavior, future studies may also explore whether subjective perceptions of suicidal behavior (e.g., function, perceived consequences, degree of deliberation) serve as prospective risk factors for later suicide behaviors.

Conclusions

Results suggest two latent classes of suicide attempt survivors, identified by self-directed violence history and proximal suicide risk-factors. A higher-risk history class was characterized by greater intent to die, certainty about attempt fatality and method lethality, belief injury would not be medically fixable, and NSSI history. Its members were more likely to be male, older, and SMVs and to have most-lethal attempts characterized by firearm use and necessitating higher degree of medical attention. By contrast, a lower-risk history class was characterized by ambivalence toward death and attempt methods. Its members were generally female with most-lethal attempts characterized by cutting and less medical attention. Perceptions of suicidal

behavior and NSSI history appear valuable in characterizing suicide attempt subtypes, particularly for SMVs.

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Figure 1.

Results of the two-class latent class model. Proportion of responses by response category and latent class.

Disclosure of suicide risk, certainty of death, certainty of method fatality, certainty of death despite medical intervention, and intent to die are rated on a scale of 1-3. Future attempt likelihood is rated on scale of 1-7 (1=Never, 2=No chance at all, 3=Rather unlikely, 4=Unlikely, 5=Likely, 6=Rather likely, 7=Very likely). Suicide attempt and NSSI numbers are dichotomized. As all data comes from participants who endorsed history one or more suicide attempt, suicide attempt number value of “1” represents only one suicide attempt endorsed while “2” represents two or more. NSSI value of “1” represents no history of NSSI while “2” represents one or more lifetime instance of NSSI.

Table 1***Demographic Characteristics of Suicide Survivor Sample***

	Total N	Mean (Range)	SD¹
Age	2,610	33.56 (18-88)	13.72
	Total N	N	%
Sex	2,606		
Female		1,014	38.9
Male		1,556	59.7
Other		36	1.4
Race	2,576		
Caucasian		1,762	68.4
African American		395	15.3
Asian/Pacific Islander		90	3.5
Native American		37	1.4
Multiracial/Other		292	11.4
Hispanic	2,514	251	10.0
Highest Education	2,589		
Did Not Complete High School		123	4.8
High School/GED		764	29.5
Some College		1,232	47.6
College Degree		345	13.3
More than College		125	4.8
Relationship Status	1,868		
Married/Cohabiting		565	30.2
Single		746	39.9
Widowed		34	1.8
Divorced/Separated		523	28.0
Military Service	2,411	1,640	68.0
Active Duty		809	33.6
Veteran		831	34.5
Deployment History	1,313	659	50.2

Note: N=2,643. Some categories do not contain complete information for some participants due to missing data.

¹Standard Deviation

Table 2***Suicide Attempt Characteristics of Sample***

	Total N	Mean (Range)	SD¹
Likelihood of Future Attempt ²	2,579	2.66 (0-6)	1.74
		Median³	Range
Number of Lifetime Attempt	2,643	2.0	42,865
Number of Lifetime NSSI	2,440	2.0	10,000,000
		N	%
Disclosure of Suicide Risk	2,605		
Never		945	36.3
Once		871	33.4
More than Once		789	30.3
Certainty of Death	2,426		
Thought Death Unlikely		313	12.9
Death was Possible		868	35.8
Death was Probable		1,245	51.3
Certainty of Method Lethality	2,431		
Thought Would not be Lethal		257	10.6
Unsure if Would be Lethal		930	38.3
Believed it Would be Lethal		1,244	51.2
Intent to Die	2,456		
Did Not Intend to Die		126	5.1
Partially Intended to Die		1,131	46.1
Intended to Die		1,199	48.8
Certain of Death if Medical Attention	2,411		
Thought Death Unlikely		594	24.6
Uncertain Death Could be Avoided		1,124	46.6
Certain of Death		693	28.7
Method (Most Lethal Attempt) ³	2,463		
Overdose		1,223	49.7
Cutting		408	16.6
Hanging/Asphyxiation		313	12.7
Shooting		218	8.9
Jumping		127	5.2
Other		174	7.1
Actual Lethality of Attempt ⁵	2,209		
No medical attention		790	35.8
Outpatient PCP/Nurse Visit		88	4.0
ED Visit		513	23.2
Hospital Admission (Gen Med)		419	19.0
Hospital Admission (ICU)		399	18.1

Note: $N=2,643$. Some categories do not contain complete information for some participants due to missing data.

¹Standard Deviation

²Likelihood of future suicide attempt was rated using the following scale: 0=Never, 1=No chance at all, 2=Rather unlikely, 3=Unlikely, 4=Likely, 5=Rather likely, 6=Very likely.

³Median and range of number of lifetime suicide attempts and instances of NSSI are reported due to the number of significant outliers which were present. Though these variables were assessed on a continuous scale, they were so heavily censored and right-skewed that any transformation intended to reduce skew resulted in a binary grouping of responses. Thus, we dichotomized these variables' information for subsequent analyses.

⁴“Other” is a collapsed rating encompassing all other suicide methods endorsed by <5% of all respondents: burning, drowning, vehicular collision, deprivation (e.g., starvation), death by other, electrocution, and banging/hitting oneself.

⁵Actual lethality of suicide attempt determined by medical attention required by most lethal suicide attempt.

Table 3***Summary of LCA Models with 2-7 Classes***

Number of Classes¹	AIC	BIC	Entropy	prob_ min	prob_ _max	Smallest Class Proportion	<i>BLRT</i> <i>p</i>²
1	40864.27	40970.10	1	1	1	100%	-
2	38511.65	38729.20	0.76	0.91	0.93	46%	<.001
3	37735.66	38064.92	0.77	0.77	0.94	10%	<.001
4	37301.36	37742.34	0.75	0.76	0.93	10%	<.001
5	37133.22	37685.90	0.69	0.71	0.83	10%	<.001
6	37036.24	37700.64	0.70	0.75	0.83	5%	<.001
7	N/A	N/A	N/A	N/A	N/A	N/A	<.001

¹The 7-class model was too complex and did not converge.

²Bootstrapped likelihood ratio test (BLRT) results provide compelling evidence that a model with more than one class is required to capture heterogeneity in the present sample.

Table 4***Class Differences in Auxiliary Variables***

Auxiliary Variable	HR Class ¹		LR Class		Chi-Square	<i>p</i>
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>		
Age	35.48	0.41	31.31	0.41	43.93	<.001
Education ²	2.78	0.03	2.91	0.03	9.86	.002
Medical Care Sought ³	3.11	0.05	2.46	0.05	72.62	<.001
	HR Probability		LR Probability		Chi-Square	<i>p</i>
Gender					34.79	<.001
Female	.33		.47			
Male	.67		.53			
Race					14.35	.03
Asian	.03		.04			.06
Black/Afr Amer	.14		.17			.17
Multiracial	.03		.01			.02
Native American	.02		.01			.08
Other	.09		.10			.72
Pacific Islander	<.01		<.01			.36
White/Caucasian	.69		.67			.37
Military Service					30.52	<.001
Currently Serving	.36		.31			<.05
No Service	.27		.39			<.001
Veteran	.38		.30			<.001
Attempt Method ⁴					51.57	<.001
Cutting	.14		.20			<.001
Hanging/Asphyx	.13		.12			.51
Jumping	.05		.06			.56
Overdose	.49		.50			.68
Shooting	.13		.04			<.001
Other	.07		.08			.46

Note: *N*=2,643.

¹HR = Higher-Risk History Class. LR = Lower-Risk History Class.

²Education rated on the following scale: 1=Did not complete high school; 2=High School Diploma/GED; 3=Some College; 4=College Degree; 5=More than College Degree.

³Medical care corresponds with rating of medical attention sought in response to most lethal suicide attempt on the following scale: 1=No medical attention; 2=Outpatient Primary Care/Nurse Visit; 3=ED Visit; 4=Hospital Admission (General Medicine); 5=Hospital Admission (ICU).

⁴“Other” attempt method is a collapsed rating encompassing all other suicide methods endorsed

by <5% of all respondents: burning, drowning, vehicular collision, deprivation (e.g., starvation), death by other, electrocution, and banging/hitting oneself.