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Nonfatal suicidal behaviors among former active duty servicemembers—United States, 2013–2019

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Abstract

Introduction: Examine characteristics associated with increased odds of nonfatal suicidal behaviors among former active-duty servicemembers (F-ADSM) using data from the 2013–2019 National Survey on Drug Use and Health (NSDUH).

Methods: F-ADSM were respondents who reported being separated/retired from the military and previously serving on active-duty. For each outcome of interest (suicidal ideation, made a suicide plan, made a suicide attempt), we used multivariable logistic regression with backwards elimination to identify characteristics with statistically significant associations.

Results: In the 12 months preceding the survey, 3.6% of F-ADSM reported suicidal ideation, 1.0% reported making a plan, and 0.3% reported making a suicide attempt. There were increased odds of self-reported suicide attempts among F-ADSM who were female; aged 18–49 years; non-Hispanic black; gay or bisexual; divorced/separated or widowed; not employed; in poverty; binged alcohol in the past month; or ever had a major depressive episode.

Conclusions: Suicide can be prevented through a comprehensive, upstream approach addressing veteran's holistic needs to prevent them from becoming suicidal in the first place, and support veterans at increased risk.

Keywords

Suicide; self-harm; veteran; military

Introduction

Suicide is a public health problem in the United States, including among former military servicemembers. In 2018, 6,435 U.S. veterans died by suicide, corresponding to an age- and sex-adjusted suicide rate among veterans of 27.5 per 100,000. (U.S. Department of Veterans Affairs: Office of Mental Health and Suicide Prevention, 2020) The veteran suicide rate increased 49% from 2005 to 2018; it's currently 1.5 times higher than the age- and sex-adjusted rate among non-veterans. (U.S. Department of Veterans Affairs: Office of Mental Health and Suicide Prevention, 2020) In 2018, veterans made up 13.8% of all deaths

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by suicide among U.S. adults, even though they made up only 8.0% of the U.S. population. (U.S. Department of Veterans Affairs: Office of Mental Health and Suicide Prevention, 2020)

Many studies have examined risk factors for suicide and/or nonfatal suicidal thoughts and behaviors among veterans. These studies identified numerous risk factors, including sex, age, race/ethnicity, sexual identify, marital status, rurality, physical and mental health, substance use, and socioeconomic status.(Ashrafioun et al., 2016; Horwitz et al., 2019; McCarthy et al., 2012; Nichter et al., 2021; Nock et al., 2018; U.S. Department of Veterans Affairs: Office of Mental Health and Suicide Prevention, 2020; Wood et al., 2020) We included these risk factors in this study.

One area that is less studied among military populations— but which has been identified as an important area of epidemiologic and clinical research—is differentiating persons with suicide ideation who do not go on to attempt suicide from persons with suicide ideation who do attempt suicide.(Klonsky & May, 2014) The few studies in this area have tended to focus on a single military branch; for example, one previous study assessed risk factors for attempt among those with suicide ideation among active-duty servicemembers in the U.S. Air Force; (Langhinrichsen-Rohling et al., 2019) another focused on active-duty servicemembers in the U.S. Army.(Nock et al., 2018) One recent study using survey data from 2019–2020 included all veterans.(Nichter et al., 2021) It is important to study all branches in order to be more comprehensive, as risk factors could be different between services. In addition, it is important to study veterans, as they may have risk factors that are different from active-duty servicemembers.

Our objectives were to describe the incidence of suicidal ideation and nonfatal suicidal behaviors (i.e., making a plan and making an attempt) among F-ADSM, and to examine characteristics associated with increased risk of these behaviors. Gaining a better understanding of these risk factors will help public health practitioners to better select and target prevention strategies and activities. In addition, gaining a better understanding of risk factors for making a suicide attempt among those with ideation will be helpful for clinicians working with former military populations.

Methods

Study Design

We used data from the National Survey on Drug Use and Health (NSDUH). NSDUH is an annual, cross-sectional survey of the civilian, noninstitutionalized population in the United States aged 12 years and older. NSDUH samples approximately 70,000 persons per year using an independent, multistage area probability sample within each state and the District of Columbia. (Center for Behavioral Health Statistics and Quality, 2020)

Participants

All NSDUH participants are asked “Have you ever been in the United States Armed Forces?” Participants responding “Yes” are then asked “Are you currently on active-duty in the United States Armed Forces, are you in a Reserves component, or are you now

separated or retired from the military?" Answer options are "Yes" (these participants are subsequently removed from the survey, as NSDUH excludes active-duty military); "In a reserves component"; and "Now separated/retired from reserves/active-duty". Starting in 2013, participants are then asked "Have you ever served on active-duty in the United States Armed Forces or Reserve components?" Answer options are "Yes" and "No".

We defined F-ADSM as survey participants who answered "Yes" to ever being in the Armed Forces, "Now separated/retired from reserves/active-duty" to current status, and "Yes" to ever serving on active-duty. Because the last question was added in 2013, we used data from 2013 to 2019.

Variables

Our three outcome variables of interest were suicidal ideation, making a suicide plan, and making a suicide attempt. NSDUH participants aged 18 years or older were asked the following question: "At any time in the past 12 months, that is from (datefill) up to and including today, did you seriously think about trying to kill yourself?" Respondents who answered "Yes" were subsequently asked if they had made any plans to kill themselves, or if they had tried to kill themselves, using similarly worded questions. Respondents who answered "No" were not asked the subsequent questions (and thus were categorized as "No" for all three outcomes).

We included the following independent variables in our analyses: sex, age, race/ethnicity, sexual identity, marital status, highest education, current employment status, poverty level, overall health status, past year drug dependence, past month binge drinking, past month cigarette use, rurality, religious influence in decisions, history of major depressive episode, service in a combat zone, and military period of service. These variables were selected because they have previously been associated with risk for suicidal behavior in civilian and/or military populations.

Sexual identity was categorized as heterosexual/straight; lesbian or gay; or bisexual. However, this variable was included in an optional NSDUH module and was missing for approximately 30% of participants; therefore, it was not included in multivariable modeling. Current employment status was categorized as employed (full-time or part-time), unemployed (not employed, but looking for work in past 30 days), or other/not in the labor force (e.g., student, keeping house, caring for children, retired, disabled, not looking for work). Poverty level was calculated by dividing a respondent's total family income by the respective U.S. Census Bureau's poverty threshold (which considers family income, size, and composition) and was categorized as less than 100% (i.e., total family income was less than the poverty threshold); 100 to 199%; and 200% or more (i.e., total family income was twice the poverty threshold or greater). Rurality was based on 2000 Census data and June 2003 Core Based Statistical Area classifications provided by the Office of Management and Budget for survey years 2013–2014 and on the 2013 rural/urban continuum codes for survey years 2015–2019.

Past year illicit drug dependence was defined as being dependent on marijuana, hallucinogens, inhalants, tranquilizers, cocaine, heroin, pain relievers, stimulants, or

sedatives and was categorized as yes or no/unknown. Dependence was defined as meeting three or more of six dependence criteria: 1) Spent a great deal of time over a period of a month getting, using, or getting over the effects of the substance; 2) Unable to keep set limits on substance use or used more often than intended; 3) Needed to use substance more than before to get desired effects or noticed that using the same amount had less effect than before; 4) Unable to cut down or stop using the substance every time he or she tried or wanted to; 5) Continued to use substance even though it was causing problems with emotions, nerves, mental health, or physical problems; and 6) Reduced or gave up participation in important activities due to substance use.

Past month binge drinking was defined as five or more drinks on the same occasion on at least 1 day in the past 30 days for survey years 2013–2014; the criteria was similar for survey years 2014–2019, except for females the cut point was reduced to four or more drinks. Lifetime history of major depressive episode was defined as experiencing at least five of the nine Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria used to define an adult as having had MDE in their lifetime, where at least one of the criteria is a depressed mood or loss of interest or pleasure in daily activities. Ever serving in a combat zone was defined as serving on active-duty in the U.S. Armed Forces or Reserve components in a military combat zone or an area where they drew imminent danger pay or hostile fire pay.

Statistical Analysis

We analyzed data descriptively, which included calculating the past year incidence of each of the outcomes by sex and age group. We also performed univariate and multivariable logistic regressions to explore associations between each of the three outcomes of interest with the independent variables using SAS version 9.4. All analyses used 7-year sample weights provided by NSDUH to account for the multistage area probability sample design, as well as the concatenation of 7 years of survey data (2013–2019). Applying these weights allow the sample to represent the civilian, noninstitutionalized population aged 12 years or older living in the United States. Multivariable logistic regression was performed using backwards selection, eliminating the variable with the largest p-value at each step, until a final model remained that contained only variables that were statistically significant ($p<0.05$). At this point, each variable that had dropped out of the model was re-entered if it was statistically significant.

Results

NSDUH interviewed 12,763 F-ADSM between 2013 to 2019 (averaging 2,336 former F-ADSM per year). After applying sample weights, this represents an average 17,322,564 F-ADSM across the United States per year.

Table 1 presents characteristics of F-ADSM during the study period. The majority were male (93%), 65 years of age or older (50%), non-Hispanic white (79%), heterosexual (97%), and married (66%). One third (31%) had graduated from college, 51% had other employment, and 78% had an income at least double the federal poverty level (FPL). Half (50%) reported their health as excellent or very good, 1% reported using illicit drugs in the past year, 23%

reported binge drinking in the past month, and 19% reported smoking cigarettes in the past month. Almost half (47%) lived in a large metro area, 71% reported that religion influences their decision making, 10% had experienced a major depressive episode in their lifetime, and 41% had ever served in a combat zone. The most common era served during was the Vietnam Era (41%).

Table 2 presents the average annual incidence of each of the three outcomes of interest by sex and age in the 12 months preceding the survey. Overall, 3.6% (95% CI = 3.2%–4.0%) of F-ADSM reported suicidal ideation, 1.0% (95% CI = 0.8%–1.2%) reported making a plan, and 0.3% (95% CI = 0.2%–0.4%) reported making a suicide attempt. The incidence of each of these outcomes was highest among F-ADSM aged 18 to 34 years, with 7.8% (95% CI = 6.5%–9.1%) reporting suicidal ideation, 2.8% (95% CI = 2.0%–3.6%) reporting making a plan, and 0.9% (95% CI = 0.5%–1.2%) reporting making a suicide attempt. Incidence of all three outcomes decreased with increasing age ($p<0.01$), and was lowest among F-ADSM aged 65+ years. This trend was also seen when looking within males for all three behaviors, and within females for suicidal ideation and making a plan. Females were more likely than males to report suicidal ideation (7.6% versus 3.3%, $p<0.01$; Table 2, making a suicide plan (2.6% versus 0.9%, $p<0.01$), and attempting suicide (0.9% versus 0.2%, $p<0.01$).

Table 3 presents univariate analyses. F-ADSM had increased odds of suicidal ideation if they were female (OR=2.4, 95% CI=1.8–3.2); aged 18–34 years (OR=4.5, 95% CI=3.3–6.2); lesbian or gay (OR=2.4, 95% CI=1.2–5.0); bisexual (OR=4.8, 95% CI=2.9–8.1); divorced or separated (OR=2.1, 95% CI=1.6–2.7); never married (OR=2.3, 95% CI=1.7–3.1); unemployed (OR=2.4, 95% CI=1.5–3.9); living at <100% (OR=2.5, 95% CI=1.8–3.6) or 100% to 199% of the FPL (OR=2.0, 95% CI=1.5–2.6); in fair/poor health (OR=2.9, 95% CI=2.1–3.8); past year substance users (OR=10.5, 95% CI=6.7–16.5); past month binge drinkers (OR=1.8, 95% CI=1.4–2.3); past month cigarette users (OR=1.7, 95% CI=1.3–2.1); had a lifetime history of a major depressive episode (OR=15.5, 95% CI=12.1–19.8); had ever served in a combat zone (OR=1.4, 95% CI=1.1–1.7); or served from September 2001 onward (OR=2.4, 95% CI=1.9–2.9).

F-ADSM with suicidal ideation had increased odds of making a plan if they were female (OR=3.0, 95% CI=1.9–4.6), aged 18–34 years (OR=9.4, 95% CI=4.8–18.6); lesbian or gay (OR=3.9, 95% CI=1.5–10.2); bisexual (OR=7.4, 95% CI=3.4–16.1); divorced or separated (OR=3.3, 95% CI=2.2–5.1); never married (OR=3.0, 95% CI=1.9–4.9); unemployed (OR=4.0, 95% CI=2.0–8.2); living at <100% (OR=3.3, 95% CI=1.9–5.7) or at 100% to 199% of the FPL (OR=2.5, 95% CI=1.6–3.8); in fair/poor health (OR=3.2, 95% CI=2.0–5.1); past year substance users (OR=11.3, 95% CI=6.4–19.9); past month binge drinkers (OR=2.4, 95% CI=1.7–3.6); past month cigarette users (OR=2.6, 95% CI=1.8–3.8); had a lifetime history of a major depressive episode (OR=24.0, 95% CI=15.8–36.5); had ever served in a combat zone (OR=1.6, 95% CI=1.1–2.3); or served from September 2001 onward (OR=2.6, 95% CI=1.8–3.7).

F-ADSM with suicidal ideation had increased odds of making a suicide attempt if they were female (OR=4.4, 95% CI=2.1–9.1), aged 18–34 years (OR=12.6, 95% CI=3.9–40.6); bisexual (OR=5.4, 95% CI=1.9–15.8); divorced or separated (OR=8.6, 95% CI=3.7–20.0);

never married (OR=4.8, 95% CI=1.9–12.2); living at <100% of the FPL (OR=6.8, 95% CI=2.9–15.5); in fair/poor health (OR=2.7, 95% CI=1.2–6.1); past year substance users (OR=12.8, 95% CI=4.6–35.9); past month binge drinkers (OR=2.8, 95% CI=1.5–5.5); past month cigarette users (OR=3.2, 95% CI=1.7–6.1); had a lifetime history of a major depressive episode (OR=16.8, 95% CI=8.2–34.5); or served from September 2001 onward (OR=2.6, 95% CI=1.4–4.7).

Table 4 presents multivariable analyses. As shown in the table, answer choices were collapsed for age, marital status, and employment status to increase precision. In the final multivariable model, F-ADSM with suicidal ideation had increased odds of making a suicide attempt if they were aged 18–49 years (OR=3.3, 95% CI=1.5–6.8); non-Hispanic black (OR=2.7, 95% CI=1.3–5.7); divorced, separated, or widowed (OR=5.3, 95% CI=2.4–11.9); not employed (OR=2.8, 95% CI=1.5–5.3); living at <100% of the FPL (OR=2.3, 95% CI=1.1–4.6); binged alcohol in the past month (OR=2.3, 95% CI=1.2–4.4); or had ever had a major depressive episode (OR=11.5, 95% CI=5.5–24.0). F-ADSM had increased odds of suicidal ideation if they were aged 18–49 years (OR=1.5, 95% CI=1.2–1.9); in fair/poor health (OR=2.2, 95% CI=1.6–3.1); used substances in the past year (OR=4.4, 95% CI=2.4–8.1), binged alcohol in the past month (OR=1.6, 95% CI=1.3–2.1); or had ever had a major depressive episode (OR=12.2, 95% CI=9.3–15.9).

Discussion

This paper presents incidence and risk factors for suicidal ideation and nonfatal suicidal behaviors among F-ADSM in all Armed Forces using a nationally representative, population-based analysis. The incidence of past 12-month suicidal ideation and suicide attempt reported here (3.6% and 0.3%, respectively) are similar to what was reported from a nationally representative sample of U.S. veterans in 2010 from the Behavioral Risk Factor Surveillance System (BRFSS) (3.8% and 0.4%, respectively),(Bossarte et al., 2012) thus suggesting that the rates have not changed substantially over time and that suicidal behavior among veterans remains an issue of public health concern.

We report a higher incidence of nonfatal suicidal behaviors among young adults, and females. Previous NSDUH reports also found a higher incidence of nonfatal suicidal behaviors among young adults in the general population. (Bornheimer et al., 2020; Ivey-Stephenson et al., 2022; Substance Abuse and Mental Health Services Administration, 2020) However, prior research looking at gender differences in the incidence of nonfatal suicidal behaviors have been mixed. (Bornheimer et al., 2020; Centers for Disease & Prevention, 2002) Prior research among veterans found increased odds of suicide ideation and attempt among females. (Bossarte et al., 2012) In 2018, the age-adjusted suicide rate was higher among male veterans (39.6 per 100,000) compared to female veterans (15.9 per 100,000). (U.S. Department of Veterans Affairs: Office of Mental Health and Suicide Prevention, 2020) However, the age-adjusted suicide rate among women veterans was 2.1 times that of non-veteran women. The population of women veterans increased 6.5% between 2005 and 2018, (U.S. Department of Veterans Affairs: Office of Mental Health and Suicide Prevention, 2020) underscoring the need for additional research and resources addressing mental health among female veterans.

We found that characteristics associated with increased odds for any one of the outcomes were generally also associated with all three outcomes. This implies that public health practitioners and clinicians can target the same subgroups for preventive interventions, regardless of whether the focus is on reducing suicidal ideation or preventing suicide attempts. In particular, F-ADSM who are female; younger; lesbian, gay, or bisexual; divorced, separated, never married, or widowed; not employed; living in poverty; binge drinkers; in fair/poor health; substance users; binge drinkers; or have had a previous major depressive episode appear to be at increased risk of suicidal ideation, making a plan, and attempting suicide and thus might benefit from evidence-based interventions to reduce suicide risk.

The incidences reported here of past 12-month suicidal ideation (3.6%), making a plan (1.0%), and making a suicide attempt (0.3%) are similar to those reported in the general population by NSDUH in 2019 (4.8%, 1.4%, and 0.6%, respectively)(Substance Abuse and Mental Health Services Administration, 2020). However, this is not a direct comparison, as the population of F-ADSM in the United States differs from the general population in ways that affect the incidence of non-fatal suicidal behaviors; for example, F-ADSM are more likely to be males, aged 65+ years, and non-Hispanic white persons compared to the general population. Many of the associations shown here are consistent with the established multiple risk factors associated with suicidal behavior, including being gay, lesbian, or bisexual; divorced, separated, or widowed; not employed; in poverty; in poor health; substance or alcohol use; and having mental health diagnoses. (Naifeh et al., 2019; U.S. Department of Veterans Affairs: Office of Mental Health and Suicide Prevention, 2020; Ursano et al., 2017)

One new finding was an increased odds of suicide attempt among F-ADSM who were non-Hispanic black, compared to non-Hispanic white, a finding which persisted both in univariate and multivariable analyses. This same association was not seen with suicidal ideation, or making a suicide plan. Most previous research has reported higher rates of suicide and suicide attempt among Non-Hispanic white adults compared to Non-Hispanic black adults, both in the general U.S. population and in the military. (Naifeh et al., 2019; U.S. Department of Veterans Affairs: Office of Mental Health and Suicide Prevention, 2020; Ursano et al., 2017) Additional research might uncover whether this is a persisting trend, and provide potential explanations. One possible explanation could be residual confounding, as Non-Hispanic black F-ADSM tend to be younger than Non-Hispanic white F-ADSM, (National Center for Veterans Analysis and Statistics, 2013) and we found younger age associated with increased odds of suicide attempt, and our final multivariable collapsed age into 18–49 years and 50+ years. Among high school students, non-Hispanic black students consistently reported higher rates of suicide attempt compared to non-Hispanic white students over the past 30 years; in 2019, 11.8% (95% CI=8.7–15.9) of non-Hispanic black students reported attempting suicide, versus 7.9% (95% CI=6.9–9.1) of non-Hispanic white students, and rates among both groups increased from 2009 to 2019. (Ivey-Stephenson et al., 2020)

We found a weak association between serving in a combat zone and increased odds of suicidal ideation and making a plan in univariate analyses (no association with suicide attempt). However, this was not statistically significant in multivariable analyses, suggesting

this association may have been confounded by other variables. This is consistent with prior research finding no association between suicide attempt and broadly defined combat exposure.(LeardMann et al., 2021) We also found increased odds during univariate analyses of all three outcomes among F-ADSM who served August 1990 onwards, compared to earlier military eras. However, this was also not statistically significant in multivariable analyses. These associations were likely confounded by age group, as younger F-ADSM were also the study participants more likely to have served during the more recent periods.

Our study has a few limitations. First, NSDUH is a cross-sectional survey and thus we were not able to examine causal relationships. Second, NSDUH data are self-reported and thus subject to social desirability bias. Third, participants who were homeless and not living in a shelter and institution residents were excluded from the sample. Given prior associations between veteran status and homelessness as well as homelessness and suicidal behavior, this might cause our incidence to be underestimated. Fourth, plan and attempt data may be missing as these items were only asked if ideation was reported. Some people attempt suicide impulsively, without experiencing preceding suicidal ideations. Thus, the incidence of making a plan and attempting suicide reported here are likely underestimates. Furthermore, the associations that we found with making a plan and attempting suicide may not be generalizable to F-ADSM who attempt suicide without experiencing ideation. However, this limitation also increases clinical relevance, as oftentimes clinicians must assess patients with ideation to determine their likelihood of making an attempt. Fifth, due to the relatively small number of female veterans as well as veterans with specific risk factors of interest, we were not able to conduct sex-stratified analyses or examine interactions among variables.

This analysis demonstrates that nonfatal suicidal behaviors may be more frequent among F-ADSMs who were female, younger, non-Hispanic black, divorced or widowed. This analysis identified many socio-economic factors associated with higher odds of nonfatal suicidal behaviors. For example, not being in the job market, having a history of major depression, or using substances such as drugs or alcohol. Suicide can be prevented through a comprehensive, upstream approach that addresses veteran’s holistic needs to prevent them from becoming suicidal in the first place; and supports veterans who are at an increased risk for suicide, or who have experienced a suicide among their peers. Such an approach involves multisectoral partnerships to implement evidence-based strategies to address the range of factors influencing suicide attempts. (Stone et al., 2017)

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Table 1.

Characteristics of former active-duty servicemembers reporting suicidal ideation, making a plan, and making a suicide attempt during the previous 12 months—United States, 2013–2019[a]

	Overall	Suicidal Ideation	Made a plan	Suicide attempt
N	17,322,564	621,061	176,190	46,221
Sex				
Male	93%	85%	81%	75%
Female	7%	15%	18%	25%
Age				
18–34 Years	8%	17%	21%	25%
35–49 years	15%	25%	33%	31%
50–64 years	27%	33%	32%	31%
65+ years	50%	26%	15%	13%
Race/ethnicity				
Non-Hispanic white	79%	75%	75%	62%
Non-Hispanic black	11%	11%	14%	27%
Hispanic	7%	9%	7%	4%
Other	4%	5%	4%	7%
Sexual identity				
Heterosexual/straight	97%	92%	87%	91%
Lesbian or gay	1%	2%	4%	1%
Bisexual	1%	6%	9%	8%
Marital status				
Married	66%	51%	41%	21%
Divorced or separated	17%	27%	36%	47%
Never been married	8%	14%	16%	13%
Widowed	8%	7%	7%	19%
Highest education				
High school or less	34%	32%	29%	34%
Some college	35%	41%	44%	47%
College graduate	31%	27%	27%	19%
Currently employed				
Employed (full or part time)	47%	46%	45%	33%
Unemployed	2%	4%	7%	5%
Other[b]	51%	49%	48%	62%
Poverty level				
<100% FPL	5%	11%	13%	25%
100% to 199% FPL	16%	25%	29%	21%
≥200% FPL	78%	64%	58%	54%

	Overall	Suicidal Ideation	Made a plan	Suicide attempt
Overall health status				
Excellent/very good	50%	34%	32%	34%
Good	32%	32%	32%	32%
Fair/poor	18%	34%	36%	34%
Past year illicit drug dependence				
Yes	1%	8%	10%	11%
No	99%	92%	90%	89%
Past month binge drinking				
Yes	23%	34%	42%	46%
No	77%	66%	58%	54%
Past month cigarette use				
Yes	19%	28%	38%	43%
No	81%	72%	62%	57%
Rurality				
Large metro	47%	45%	50%	39%
Small metro	35%	35%	31%	33%
Nonmetro	18%	19%	19%	28%
Religious influence in decisions				
Agree/Strongly agree	71%	66%	58%	64%
Disagree/Strongly disagree	29%	34%	42%	36%
Major depressive episode (lifetime)				
Yes	10%	59%	72%	65%
No	90%	41%	28%	35%
Ever in combat zone				
Yes	41%	48%	51%	42%
No	59%	52%	49%	58%
Military Service Periods[c]				
Prior to March 1961 (Before Vietnam)	19%	6%	2%	6%
March 1961–April 1975 (Vietnam Era)	41%	31%	22%	12%
May 1975–July 1990	25%	28%	32%	31%
Aug 1990–Aug 2001	20%	27%	32%	34%
Sept 2001 or later (OEF/OIF/OND)	16%	30%	33%	33%

FPL = Federal Poverty Level; OEF=Operation Enduring Freedom; OIF=Operation Iraqi Freedom; OND=Operation New Dawn

[a]Due to rounding, not all cells sum to 100%

[b]Other employment includes students, persons keeping house or caring for children full time, retired or disabled persons, or other persons not in the labor force

[c]Military service periods are not mutually exclusive

Table 2.

Incidence of former active-duty servicemembers reporting suicidal ideation, making a plan, and making a suicide attempt during the previous 12 months, by sex and age—United States, 2013–2019

	N	Suicidal Ideation % (95% CI)	Made a plan % (95% CI)	Suicide attempt % (95% CI)
Total	**17,322,564**	**3.6% (3.2%–4.0%)**	**1.0% (0.8%–1.2%)**	**0.3% (0.2%–0.4%)**
18–34 Years	1,326,820	7.8% (6.5%–9.1%)	2.8% (2.0%–3.6%)	0.9% (0.5%–1.2%)
35–49 years	2,638,098	5.8% (4.8%–6.8%)	2.2% (1.6%–2.8%)	0.6% (0.3%–0.8%)
50–64 years	4,616,840	4.5% (3.5%–5.5%)	1.2% (0.7%–1.7%)	0.3% (0.1%–0.5%)
65+ years	8,740,806	1.8% (1.4%–2.3%)	0.3% (0.1%–0.5%)	0.1% (0.0%–0.1%)
Male	**16,082,935**	**3.3% (2.9%–3.7%)**	**0.9% (0.7%–1.1%)**	**0.2% (0.1%–0.3%)**
18–34 Years	1,113,795	6.9% (5.5%–8.2%)	2.3% (1.5%–3.2%)	0.6% (0.3%–0.9%)
35–49 years	2,263,922	5.4% (4.4%–6.4%)	2.0% (1.4%–2.6%)	0.5% (0.2%–0.8)
50–64 years	4,137,891	4.3% (3.2%–5.4%)	1.1% (0.7%–1.6%)	0.3% (0.0%–0.5%)
65+ years	8,567,327	1.8% (1.3%–2.3%)	0.3% (0.1%–0.5%)	0.1% (0.0%–0.1%)
Female	**1,239,628**	**7.6% (5.8%–9.3%)**	**2.6% (1.7%–3.6%)**	**0.9% (0.4%–1.5%)**
18–34 Years	213,025	12.9% (8.9%–16.9%)	5.0% (2.6%–7.3%)	2.2% (0.8%–3.7%)
35–49 years	374,176	8.1% (5.3%–11.0%)	3.5% (1.7%–5.3%)	0.8% (0%–1.8%)
50–64 years	478,949	6.0% (3.0%–8.9%)	1.8% (0.2%–3.5%)	0.8% (0%–1.9%)
65+ years[a]	173,478	4.1% (0%–8.8%)	---	---

[a]No female F-ADSM aged 65+ years reported making a suicide plan or suicide attempt.

Table 3.

Univariable odds ratios for characteristics associated with suicidal ideation, making a plan, and making a suicide attempt among former active-duty servicemembers—United States, 2013–2018

	OR (95% CI)		
	Suicidal Ideation	**Made a Plan**	**Suicide Attempt**
Sex			
Male	Ref	Ref	Ref
Female	2.4 (1.8–3.2)	3.0 (1.9–4.6)	4.4 (2.1–9.1)
Age			
18–34 Years	4.5 (3.3–6.2)	9.4 (4.8–18.6)	12.6 (3.9–40.6)
35–49 years	3.3 (2.4–4.5)	7.5 (3.8–14.5)	8.0 (2.4–26.2)
50–64 years	2.5 (1.8–3.5)	4.0 (2.0–8.3)	4.5 (1.2–16.7)
65+ years	Ref	Ref	Ref
Race/ethnicity			
Non-Hispanic white	Ref	Ref	Ref
Non-Hispanic black	1.1 (0.8–1.5)	1.4 (0.8–2.3)	3.2 (1.4–7.0)
Hispanic	1.4 (0.9–2.3)	1.1 (0.5–2.3)	0.7 (0.2–2.2)
Other	1.5 (0.9–2.5)	1.1 (0.5–2.3)	2.4 (0.8–7.6)
Sexual identity			
Heterosexual/straight	Ref	Ref	Ref
Lesbian or gay	2.4 (1.2–5.0)	3.9 (1.5–10.2)	1.1 (0.2–6.3)
Bisexual	4.8 (2.9–8.1)	7.4 (3.4–16.1)	5.4 (1.9–15.8)
Marital status			
Married	Ref	Ref	Ref
Divorced or separated	2.1 (1.6–2.7)	3.3 (2.2–5.1)	8.6 (3.7–20.0)
Never been married	2.3 (1.7–3.1)	3.0 (1.9–4.9)	4.8 (1.9–12.2)
Widowed	1.0 (0.6–1.7)	1.3 (0.6–3.0)	6.9 (2.2–21.9)
Highest education			
High school or less	1.1 (0.8–1.5)	1.0 (0.6–1.7)	1.7 (0.7–4.2)
Some college	1.4 (1.0–1.8)	1.4 (0.9–2.3)	2.2 (0.9–5.3)
College graduate	Ref	Ref	Ref
Currently employed			
Employed (full or part time)	Ref	Ref	Ref
Unemployed	2.4 (1.5–3.9)	4.0 (2.0–8.2)	4.0 (0.9–19.0)
Other[a]	1.0 (0.8–1.3)	1.0 (0.7–1.5)	1.8 (0.9–3.4)
Poverty level			
<100% FPL	2.5 (1.8–3.6)	3.3 (1.9–5.7)	6.8 (2.9–15.5)
100% to 199% FPL	2.0 (1.5–2.6)	2.5 (1.6–3.8)	1.9 (0.8–4.2)
≥200% FPL	Ref	Ref	Ref

	OR (95% CI)		
	Suicidal Ideation	**Made a Plan**	**Suicide Attempt**
Overall health status			
Excellent/very good	Ref	Ref	Ref
Good	1.4 (1.1–1.9)	1.6 (1.0–2.4)	1.4 (0.7–3.1)
Fair/poor	2.9 (2.1–3.8)	3.2 (2.0–5.1)	2.7 (1.2–6.1)
Past year substance use			
Yes	10.5 (6.7–16.5)	11.3 (6.4–19.9)	12.8 (4.6–35.9)
No	Ref	Ref	Ref
Past month binge alcohol			
Yes	1.8 (1.4–2.3)	2.4 (1.7–3.6)	2.8 (1.5–5.5)
No	Ref	Ref	Ref
Past month cigarette use			
Yes	1.7 (1.3–2.1)	2.6 (1.8–3.8)	3.2 (1.7–6.1)
No	Ref	Ref	Ref
Rurality			
Large metro	Ref	Ref	Ref
Small metro	1.0 (0.8–1.4)	0.8 (0.6–1.3)	1.1 (0.5–2.4)
Nonmetro	1.2 (0.8–1.6)	1.0 (0.6–1.7)	1.9 (0.8–4.4)
Religious influence in decisions			
Agree/Strongly agree	Ref	Ref	Ref
Disagree/Strongly disagree	1.2 (1.0–1.6)	1.7 (1.2–2.5)	1.4 (0.7–2.7)
Major depressive episode (lifetime)			
Yes	15.5 (12.1–19.8)	24.0 (15.8–36.5)	16.8 (8.2–34.5)
No	Ref	Ref	Ref
Ever in combat zone			
Yes	1.4 (1.1–1.7)	1.6 (1.1–2.3)	1.1 (0.6–2.0)
No	Ref	Ref	Ref
Military Service Periods			
Prior to March 1961 (Before Vietnam)	0.3 (0.2–0.5)	0.1 (0.0–0.5)	0.3 (0.0–2.0)
March 1961 to April 1975 (Vietnam Era)	0.6 (0.5–0.8)	0.4 (0.2–0.7)	0.2 (0.1–0.6)
May 1975 to July 1990	1.2 (0.9–1.6)	1.4 (0.9–2.2)	1.3 (0.6–2.8)
Aug 1990 to Aug 2001	1.5 (1.2–2.0)	1.9 (1.3–2.8)	2.1 (1.1–4.1)
Sept 2001 or later (OEF/OIF/OND)	2.4 (1.9–2.9)	2.6 (1.8–3.7)	2.6 (1.4–4.7)

FPL = Federal Poverty Level

[a]Other employment includes students, persons keeping house or caring for children full time, retired or disabled persons, or other persons not in the labor force

Table 4.

Multivariable odds ratios for characteristics[a] associated with suicidal ideation, making a plan, and making a suicide attempt among former active-duty servicemembers—United States, 2013–2018

	OR (95% CI)		
	Suicidal Ideation	**Made a Plan**	**Suicide Attempt**
Age			
18–49 years	1.5 (1.2–1.9)	2.2 (1.4–3.4)	3.3 (1.5–6.8)
50+ years	Ref	Ref	Ref
Race/ethnicity			
Non-Hispanic white			Ref
Non-Hispanic black			2.7 (1.3–5.7)
Hispanic			0.6 (0.2–1.9)
Other			1.7 (0.5–5.8)
Marital status			
Married	Ref	Ref	Ref
Divorced, separated, or widowed	1.3 (1.0–1.8)	2.0 (1.3–3.1)	5.3 (2.4–11.9)
Never been married	1.2 (0.9–1.7)	1.3 (0.8–2.1)	1.7 (0.7–4.3)
Currently employed			
Employed (full or part time)			Ref
Other/unemployed[b]			2.8 (1.5–5.3)
Poverty level			
<100% FPL			2.3 (1.1–4.6)
≥200% FPL			Ref
Overall health status			
Excellent/very good	Ref	Ref	
Good	1.2 (0.9–1.7)	1.3 (0.8–2.0)	
Fair/poor	2.2 (1.6–3.1)	2.4 (1.4–4.0)	
Past year substance use			
Yes	4.4 (2.4–8.1)	2.8 (1.5–5.2)	
No	Ref	Ref	
Past month binge alcohol			
Yes	1.6 (1.3–2.1)	1.9 (1.3–3.0)	2.3 (1.2–4.4)
No	Ref	Ref	Ref
Major depressive episode (lifetime)			
Yes	12.2 (9.3–15.9)	16.4 (10.4–25.7)	11.5 (5.5–24.1)
No	Ref	Ref	Ref

[a] Grayed cells indicate those variables were not statistically significant in the multivariable model for that outcome.

[b] Other employment includes students, persons keeping house or caring for children full time, retired or disabled persons, or other persons not in the labor force