Prevalence and Characteristics of Suicide Ideation and Attempts Among Active Military and Veteran Participants in a National Health Survey

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The relationships between military service and suicide are not clear, and comparatively little is known about the characteristics and correlates of suicide ideation and attempts among those with history of military service. We used data from a national health survey to estimate the prevalence and correlates of suicidal behaviors among veterans and service members in 2 states. The prevalence of suicidal behaviors among Veterans was similar to previous estimates of ideation and attempts among adults in the US general population. (*Am J Public Health.* 2012;102: S38–S40. doi:10.2105/AJPH.2011.300487)

There is evidence of increased suicide risk among some veterans and active military. Previous research reported a 66% increase in suicide risk among veterans receiving services from the Veterans Health Administration (VHA),[1] and rates of suicide in some branches of the military have surpassed those of the general population.[2] Suicide among those with history of military service has been associated with psychiatric diagnoses,[3] active service,[4] and time since separation from military service.[5] However, the relationships between military service and suicide are not clear.[6] A study of suicide among older male veterans in the general population[7] and retrospective studies of veterans from previous conflicts[8] failed to identify general increases in risk. Less is known about the prevalence or characteristics of nonfatal suicidal behavior. One study of recent veterans reported a 12.5% prevalence of suicide ideation in the past 2 weeks; there were positive associations with depression and posttraumatic stress disorder (PTSD) and negative associations with the availability of social support.[9] The main objective of the present study was to identify the prevalence and correlates of nonfatal suicide among veterans and service members in the general population.

METHODS

Analyses were calculated using data from the 2010 Behavioral Risk Factor Surveillance System (BRFSS). BRFSS methodology has been previously described.[10] Briefly, BRFSS is an annual survey that utilizes a representative sample of noninstitutionalized US adults in US states and territories. Measures for this project were obtained from the core questionnaire and optional Veteran's Health Module (VHM) administered in 2 states (Nebraska and Tennessee). Optional modules contain questions asked in addition to the BRFSS core questionnaire and are selected by states on an annual basis. Among participating states, questions from the VHM were asked of participants reporting history of US military service, a measure included in the BRFSS core questionnaire. In 2010, the response rates in states participating in the VHM were 68.8% (Nebraska) and 54.6% (Tennessee).[11] Measures obtained from the core questionnaire included age, gender, race/ethnicity, marital status, self-rated health, history of active military service, and availability of emotional and social support. Measures obtained from the VHM included suicide ideation and suicide attempt during the past 12 months, service in combat or war zone, psychiatric diagnosis ("Has a doctor or other health professional ever told you that you have depression, anxiety, or PTSD?"), traumatic brain injury (TBI; "A TBI may result from a violent blow to the head or when an object pierces the skull and enters the brain tissue. Has a doctor or other health professional ever told you that you have suffered a TBI?"), and psychological or psychiatric counseling in the past 12 months. Outcome measures included suicide ideation ("Has there been a time in the past 12 months when you thought of taking your own life?") and suicide attempt ("During the past 12 months, did you attempt to commit suicide?"). The question about suicide attempts was limited to participants who endorsed thoughts of suicide in the past 12 months. Analyses were conducted in SAS version 9.2 (SAS Institute, Cary, North Carolina) and were weighted to adjust for nonresponse and sample selection.

RESULTS

A total of 2602 participants with history of military service completed the VHM. Among them, 3.8% (n = 66) reported suicide ideation and 0.4% (n = 8) reported a suicide attempt in the past 12 months (Table 1). An estimated 35.2% (95% confidence interval [CI] = 19.3, 51.2) of participants who reported mental health counseling received all or some of their care from the VHA. Veterans reporting suicide ideation were significantly more likely to be between 60 and 79 years of age, non-Hispanic Other, reported a psychiatric diagnosis or counseling, and reported lower levels of social support compared with those reporting no ideation. The prevalence of suicide ideation was highest among those who reported a diagnosis of depression, anxiety, or PTSD (17.4%; 95% CI = 7.9, 26.8). Recent service was also associated with differences in the prevalence of suicide ideation, with the highest proportion reported among those who had separated from active service between 1 and 12 months before survey participation (5.3%; 95% CI = 0.0, 11.4) compared with those actively serving (2.0%; 95% CI = 0.0, 5.4) or with more than 12 months since separation (3.7%; 95% CI = 1.7, 5.7). However, differences in the prevalence of suicide ideation related to recent service were not statistically significant. Results from regression analyses identified 2 measures significantly associated with suicide ideation (Table 2). Report of a psychiatric diagnosis was associated with an increased probability nearly 22 times that of those without similar reports, and social support was associated with an 82% decrease in the probability of suicide ideation in the past 12 months.

DISCUSSION

Results from this study supported previous reports of increased risk associated with

TABLE 1—Demographic and Risk Characteristics of Suicide Ideation and Attempts Among Active Military and Veteran Participants: Behavioral Risk Factor Surveillance System, 2010

	Full Sample (n = 2602), % (95% CI)	Suicide–IDE (n = 66), % (95% CI)	Suicide–NEG (n = 2536), % (95% CI)	Rao-Scott χ^2	*P*
Age 18–39 y	15.9 (10.2–21.5)	24.9 (0.0, 58.8)	15.5 (9.7, 21.3)	0.64	.42
Age 40–59 y	32.7 (27.9, 37.6)	53.4 (27.6, 79.3)	31.9 (27.0, 36.9)	3.09	.08
Age 60–79 y	41.6 (36.9, 46.3)	19.5 (3.3, 35.8)	42.4 (37.6, 47.3)	5.27	.02
Age ≥ 80 y	9.8 (7.6, 12.1)	2.1 (0.0, 6.2)	10.2 (7.8, 12.5)	3.34	.07
Male	91.5 (88.8, 94.2)	73.3 (45.5, 100.0)	92.2 (89.7, 94.7)	5.19	.02
White, non-Hispanic	85.2 (80.4, 90.0)	70.8 (42.8, 98.9)	85.8 (80.9, 90.7)	1.89	.17
Black, non-Hispanic	7.1 (4.7, 9.5)	2.2 (0.0, 5.5)	7.3 (4.8, 9.7)	2.81	.09
Other, non-Hispanic	6.7 (2.2, 4.2)	25.7 (0.0, 54.3)	5.9 (1.4, 10.5)	5.10	.02
Hispanic	1.2 (0.4, 1.7)	1.2 (0.0, 3.2)	1.1 (0.4, 1.7)	0.04	.84
Married/cohabitating	75.1 (71.2, 78.9)	65.3 (42.2, 88.4)	75.5 (71.6, 79.4)	0.93	.33
Poor self-rated health	56.5 (53.3, 59.7)	72.9 (48.2, 97.7)	54.0 (48.8, 59.2)	1.99	.16
Active military	4.7 (1.9, 7.5)	2.4 (0.0, 6.7)	4.8 (1.9, 7.7)	0.61	.44
Veteran (service ≤ 12 mo)	12.5 (7.8, 17.2)	17.4 (0.0, 36.4)	12.3 (7.4, 17.1)	0.33	.56
Veteran (service > 12 mo)	82.8 (77.7, 88.0)	80.2 (60.7, 99.7)	82.9 (77.6, 88.2)	0.08	.78
Service in combat zone	43.5 (30.3, 48.8)	36.7 (11.3, 62.1)	43.8 (38.4, 49.2)	0.31	.58
Report of depression, anxiety, PTSD	16.5 (12.4, 20.5)	75.0 (52.4, 97.6)	14.1 (10.2, 18.1)	40.29	< .001
Traumatic brain injury	3.7 (1.3, 6.2)	8.9 (0.0, 20.1)	3.5 (1.0, 6.0)	1.84	.17
Mental health counseling/treatment	11.0 (7.4, 14.6)	52.1 (25.9, 78.1)	9.3 (5.8, 12.9)	26.42	< .001
Emotional/social support	81.7 (71.0, 86.4)	54.0 (28.1, 79.9)	82.8 (78.0, 87.6)	7.92	.005
Suicide ideation (past 12 mo)	3.8 (2.0, 5.6)	. . .	. . .	. . .	. . .
Suicide attempt (past 12 mo)	0.4 (0.0, 1.1)	. . .	. . .	. . .	. . .

Note. CI = confidence interval; IDE = ideation; NEG = negative; PTSD = posttraumatic stress disorder.

psychiatric diagnoses[3] and the protective nature of social support.[9] There were no significant differences in suicide ideation associated with time since separation. Overall, the prevalence of suicide ideation and attempts identified in this study were similar to estimates of those outcomes in the US general population (3.7% and 0.5%, respectively).[12]

There were several limitations that should be considered when interpreting results of this study. Estimates of suicide ideation or attempts, reports of military service (including combat), psychiatric diagnosis, TBI, and mental health treatment were based on self-reported data and were not validated. Data on dates of psychiatric diagnosis and suicide ideation or attempt were not available. Therefore, the order of these events could not be established. The optional module was limited to veterans in 2 states, and results might not be generalizable to the larger veteran or active service populations. The number of participants reporting suicide ideation was small, and this might have impacted the ability to identify statistically significant relationships with other measures. BRFSS contains self-reported data that were not validated using external sources. The prevalence of psychiatric disorders or TBI estimated using VHM data might not be consistent with estimates derived from clinical records or symptom assessment. Finally, the characteristics of BRFSS participants might not be similar to those who

TABLE 2—Associations Between Risk Factors and Probability of Suicide Ideation and Attempts Among Active Military and Veteran Participants: Behavioral Risk Factor Surveillance System, 2010

Risk Factors	AOR (95% CI)
Age, y	
18–39 y (Ref)	1.0
40–59 y	1.5 (0.3, 7.1)
60–79 y	0.9 (0.2, 4.6)
≥80 y	0.6 (0.1, 5.5)
Gender	
Female (Ref)	1.0
Male	0.3 (0.1, 1.7)

Continued

TABLE 2—*Continued*

Race/ethnicity	
White, Non-Hispanic (Ref)	1.0
Black, Non-Hispanic	0.4 (0.1, 2.6)
Other, Non-Hispanic	4.2 (0.7, 23.9)
Hispanic	3.1 (0.6, 17.7)
Mental health status	
No report of depression, anxiety, or PTSD (Ref)	1.0
Report of depression, anxiety, or PTSD	21.7 (5.6, 84.3)
Support status	
Never, rarely, or sometimes receive social and emotional support (Ref)	1.0
Usually or always receive social and emotional support	0.2 (0.1, 0.6)

Note. AOR = adjusted odds ratio; CI = confidence interval; PTSD = posttraumatic stress disorder.

refused, were not selected, or were not eligible to participate.

Previous analyses of the relationships between military service and risk for suicide were primarily limited to studies of mortality and service-utilizing subpopulations and might not extend to nonfatal behaviors or veterans in the general population. The VHM was selected for use by 9 additional states in 2011. Future analyses should be conducted to confirm the relationships identified in this study. ■

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Contributors

R.M. Bossarte led development of the Veteran's Health Module, designed the analyses, and drafted the article. K.L. Knox contributed to the development of the Veteran's Health Module and the article. R. Piegari conducted the analyses and contributed to the article. J. Altieri contributed to the development of the Veteran's Health Module, reviewed analyses, and contributed to the article. J. Kemp and I. R. Katz reviewed analyses and contributed to the development of the article.

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Human Participant Protection

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Characteristics of Suicides Among US Army Active Duty Personnel in 17 US States From 2005 to 2007

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Suicides are increasing among active duty US Army soldiers. To help focus prevention strategies, we characterized 56 US Army suicides that occurred from 2005 to 2007 in 17 US states using 2 large-scale surveillance systems. We found that intimate partner problems and military-related stress, particularly job stress, were common among decedents. Many decedents were also identified as having suicidal ideation, a sad or depressed mood, or a recent crisis before death. Focusing efforts to prevent these forms of stress might reduce suicides among soldiers. (*Am J Public Health.* 2012;102: S40–S44. doi:10.2105/AJPH.2011.300481)