

# Suicidal Behaviors and the Use of Mental Health Services Among Active Duty Army Soldiers

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**Objective:** U.S. Army personnel experience a significant mental health burden, particularly during times of war and multiple deployments. This study identified rates of suicidality (seriously considering or attempting suicide) and types of mental health services used in the past 12 months by active duty Army soldiers. **Methods:** This study used the 2008 Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel, which sampled 10,400 Army soldiers from a total population of 508,088 soldiers. Mental health service utilization included receiving counseling or therapy from a general medical doctor, receiving counseling or therapy from a mental health professional, and being prescribed medications for depression, anxiety, or sleep. Suicidality was assessed via self-report questions. **Results:** Thirteen percent had seriously considered or attempted suicide at some point in their lives, 7% since joining the military. One percent who reported suicidality since joining the Army reported having considered or attempted suicide in the past year. After the analyses adjusted for sociodemographic factors, soldiers who seriously considered or attempted suicide since joining the military versus those who did not were 1.71 times more likely to have used a mental health service, 2.33 times more likely to have used two or more types of services, 1.82 times more likely to have seen a mental health specialist, and 1.67 times more likely to have received medication in the past year. **Conclusions:** Understanding the relationship between suicidal thoughts and behaviors and the specific levels and types of mental health services received in this military population is important for health care provision and planning. (*Psychiatric Services* 65:374–380, 2014; doi: 10.1176/appi.ps.201200460)

Mental disorders constitute the highest burden of disability worldwide (1). Suicide is the tenth leading cause of death in the United States, occurring at an annual rate of 12 per 100,000 people (2), and is the leading cause of injury mortality (3). Epidemiological data suggest that the lifetime prevalence of suicide ideation in the general population is 6% to 14%. A history of developing a suicide plan is reported by 4%, and 2% to 9% report having made one or more suicide attempts (4).

Similarly, U.S. military personnel experience a significant mental health burden. Depression, substance abuse, posttraumatic stress disorder (PTSD), and other anxiety disorders have been identified as common mental health problems among members of the armed forces during the recent wars in Afghanistan (Operation Enduring Freedom) and Iraq (Operation Iraqi Freedom [OIF]) (5). Historically, U.S. service members have experienced a lower suicide rate than civilians of the same age and sex in the general population, perhaps related to military entrance requirements and the healthy worker effect (6,7). Other military-specific factors, including universal access to health care and community support, may also have contributed to the military's historically lower rates. However, after the commencement

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of OIF, the rate of suicide in the U.S. Army began to increase, rising from 9 to 22 suicides per 100,000 from 2001 to 2009 (8,9). In 2008, the suicide rate for the U.S. Army surpassed the matched general population rate for the first time (10).

Access to mental health treatment, particularly certain psychotherapies, has been shown to protect against suicidal behaviors in the general adult population (11–13). In a randomized controlled trial, it was shown that individuals receiving cognitive-behavioral treatment after a suicide attempt were 50% less likely to reattempt suicide than those who did not (14). Further, multilevel interventions that focus on several populations or levels within health care systems, for example, public health or primary care, and include more than one treatment strategy, for example, psychotherapy or pharmacotherapy, appear to be most effective in treating suicidality (seriously considering or attempting suicide), but specific elements and the synergistic effects of multilevel treatment need further exploration (12). However, although a majority of individuals who die by suicide have contact with a primary care provider in the year before death (15), cross-national, population-based data indicate that many with a history of suicide thoughts, plans, or attempts never receive any type of mental health treatment (16).

Relatively less is known about the relationship between mental health treatment, prescription of psychiatric medication, and suicidality in the military. The Department of Defense (DoD) Survey of Health Related Behaviors (HRB) Among Active Duty Military Personnel revealed that 21% (weighted N=97,293) of Army soldiers used at least one mental health service in the preceding 12 months (17). Seven percent (weighted N=31,945) received the highest level of care, which includes using both mental health professional and prescribed medication services (33% of those using services), and 11% (weighted N=48,832) were prescribed medications for depression, anxiety, or sleep problems (50% of those using services) (17). Forty-five percent of service members who died by suicide and 75% of those who injured themselves

had received outpatient health care, most typically a primary care visit, within 30 days of suicidal or self-harm behaviors (18).

Understanding the patterns of mental health service use among Army soldiers who have seriously considered or attempted suicide can facilitate mental health service planning and identify gaps in care. Using a representative sample of the U.S. Army, this study examined the types of mental health services sought by Army soldiers who indicated that they have seriously considered suicide or made a suicide attempt. Specifically, we sought to examine whether history of suicidality (measured at three different time points) is related to the use of different types of mental health services in the 12 months prior to the survey.

## Methods

### *Participants and procedures*

We examined mental health service use in the U.S. Army by using the 2008 DoD HRB ([www.tricare.mil/tma/2008HealthBehaviors.pdf](http://www.tricare.mil/tma/2008HealthBehaviors.pdf)) (19). The DoD HRB study was a cross-service, anonymous, and voluntary self-report survey completed from May through July 2008. It sampled 45,800 active duty service members in the Army, Navy, Air Force, Marines, and Coast Guard and obtained 28,546 responses. Among Army personnel, 10,400 were sampled, with 5,927 responses representing 508,088 soldiers. Selected participants who were deployed, had permanently changed station, were separated, were on leave, were on a temporary assignment, were hospitalized, were AWOL, were incarcerated, were deceased, or were otherwise unavailable (N=4,856, 37%) were replaced with persons of the same gender and pay grade. For analyses that examined rates of suicidality, the available respondents (N=5,476) represented a weighted sample of 470,140 soldiers. For analyses that examined rates of mental health service use and their association with suicidality after adjustment for sociodemographic factors, the available respondents (N=5,100) represented a weighted sample of 437,395 soldiers.

A two-stage sampling design was used. First, a stratified, probability-proportional-to-size methodology by

service and region was applied. Then, active duty personnel were stratified by pay grade and gender and randomly selected at participating installations. Oversampling of officers and women was used to account for low numbers in these groups. The survey data were weighted to represent the active duty population; sampling and nonresponse differences were accounted for in the weighting. The Uniformed Services University of the Health Sciences Institutional Review Board approved this study.

A majority of respondents were male (87%, N=4,320) and currently married (56%, N=3,204). Nearly two-thirds were non-Hispanic white (63%, N=3,270), 20% (N=1,226) were non-Hispanic African American, 11% (N=902) were Hispanic, and 7% (N=529) were classified as other. A majority were in the enlisted ranks (83%, N=4,788) (warrant officers were included in officer ranks) and had been deployed (70%, N=3,367).

### *Measures*

**Suicidality.** Participants responded to the following two items, “If you have ever seriously considered suicide, when did this occur?” and “If you have ever attempted suicide, when did this occur?” Participants were given a choice of responses (before joining the military, since joining the military, and within the past year) and could choose more than one response.

**Mental health service use.** There were three categories of mental health service use. The first two entail receiving counseling or therapy for mental health issues or substance abuse in the past 12 months in both military and nonmilitary settings. The first category is defined as receiving these services from a general medical doctor, and the second category is defined as receiving these services from a mental health professional, such as a psychologist, psychiatrist, clinical social worker, or other mental health counselor. The third category entails having been prescribed medication for depression, anxiety, or sleep problems by a doctor or other health professional in the past 12 months.

Participants indicated which categories of mental health services they

**Table 1**Suicidality among active duty soldiers before and after joining the U.S. Army<sup>a</sup>

Suicidality	Before				Before and after				After				Total			
	Weighted		Observed		Weighted		Observed		Weighted		Observed		Weighted		Observed	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
More than a year ago	20,836	4	257	5	2,465	1	27	.5	25,312	5	282	5	48,612	10	566	10
Past year	1,614	.3	25	.5	3,896	1	43	.8	5,302	1	60	1	10,811	2	128	2
Total	22,449	5	282	5	6,360	1	70	1	30,614	7	342	6	59,423	13	694	13

<sup>a</sup> The observed sample consisted of 5,476 soldiers who responded to the 2008 Department of Defense Survey of Health Related Behaviors. The respondents represented a weighted sample of 470,140 soldiers.

used, alone or in combination with other services, and the number of categories identified by each participant was computed. Participants who used the services of a mental health professional and who were prescribed medication, irrespective of their use of general medical services, were categorized as using the highest level of mental health services. Participants who used services in any of the three categories were classified as using any mental health service.

#### Statistical analysis

We first estimated the prevalence of suicidality across different time points. Next, we estimated the rates of mental health service use in the past year for each of the suicidality groups. Logistic and multinomial regression analyses were used to test whether presence of suicidality predicts the receipt of

different types of mental health services after the analyses controlled for sociodemographic factors.

Estimates of the odds ratios (ORs) and relative risk ratios (RRRs), 95% confidence intervals (CIs), and p values are reported. All reported analyses were conducted while accounting for weighted data and the complex survey design. For the logistic and multinomial regression analyses, participants who reported not using mental health services were the reference group. Statistical analyses were conducted by using Stata, version 11.0.1.

#### Results

##### Suicidality

Approximately 13% of personnel in the U.S. Army seriously considered or attempted suicide at some point in their lives (Table 1). Seven percent

had considered or attempted suicide since joining the military, and 5% had considered or attempted suicide only before joining the military. Further, 10% had considered or attempted suicide more than a year ago, and 2% had considered or attempted suicide within the previous year.

##### Mental health service use and suicidality

The rates of mental health service use by history of suicidality (never, before or since joining the military, and in the past year) are shown in Table 2. Use of any mental health service was reported by 18% of participants who had never considered or attempted suicide and by 55% of those who had considered or attempted suicide in the past year. Further, 49% of participants who considered or attempted suicide since joining the military had

**Table 2**Use of mental health services in the past year among active duty soldiers, by suicidality before and after joining the U.S. Army<sup>a</sup>

Service	Suicidality																			
	Never		Before				After				Not in past year				Past year					
	Weighted	Observed	Weighted	Observed	Weighted	Observed	Weighted	Observed	Weighted	Observed	Weighted	Observed	Weighted	Observed	Weighted	Observed	Weighted	Observed		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Any	67,560	18	820	16	6,913	34	92	2	15,664	49	167	3	84,679	20	1,018	20	5,458	55	61	1
Prescribed medication	33,008	9	406	27	3,909	19	56	1	8,454	26	88	2	42,163	10	513	10	3,208	33	37	1
Highest level <sup>b</sup>	18,317	5	225	4	3,141	16	44	.9	7,517	23	76	2	25,976	6	311	6	2,998	30	34	1
Type																				
1	39,198	10	472	9	3,402	17	41	.8	4,905	15	58	1	46,086	11	555	11	1,419	14	16	.3
≥2	28,362	7	348	7	3,511	18	51	1	10,760	33	109	2	38,593	9	463	9	4,039	41	45	.9

<sup>a</sup> The observed sample consisted of 5,100 soldiers who responded to the 2008 Department of Defense Survey of Health Related Behaviors. The respondents represented a weighted sample of 437,395 soldiers.

<sup>b</sup> Counseling or therapy from a mental health professional and medication prescription for depression, anxiety, or sleep problems

used at least one mental health service. Those who used a mental health service were more likely to be enlisted soldiers than officers; however, use of mental health services did not differ by gender, race, or marital status.

**Lifetime suicidality.** Participants who had ever seriously considered or attempted suicide were significantly more likely to use a mental health service (43%) compared with those who had never considered or attempted suicide (18%) (Table 3). They were also more likely to be prescribed medications (24% versus 9%), to use the highest level of services (20% versus 5%), and to use two or more services (27% versus 7%).

After adjustment for gender, race-ethnicity, marital status, enlisted status, and suicidality since joining the military or in the past year, the analyses showed that participants who had ever considered or attempted suicide were more likely than those who had never considered or attempted suicide to use a mental health service. They were also 2.47 times more likely to be prescribed medications, 3.45 times more likely to use the highest level of services, and 2.53 times more likely to use two or more services.

**Suicidality since joining the military.** Participants who had seriously considered or attempted suicide since joining the military were significantly more likely to report mental health service use (49%) than participants who had not considered or attempted suicide since joining the military (18%) (Table 3). They were also more likely to be prescribed medications (26% versus 9%), to use the highest level of services (23% versus 5%), and to use two or more services (33% versus 8%).

After adjustment for the same demographic variables, lifetime suicidality, and suicidality in the past year, the analyses showed that those who had considered or attempted suicide since joining the military were more likely than those who had not to use mental health services. They were also more likely to be prescribed medications, to use the highest level of services, and to use two or more services.

Military service was further categorized as being deployed or close to

**Table 3**

Likelihood of use of mental health services predicted by suicidality among active duty Army soldiers<sup>a</sup>

Suicidality and service	Prevalence (%)	Unadjusted analysis			Adjusted analysis <sup>b</sup>		
		OR/RRR <sup>c</sup>	95% CI	t	OR/RRR <sup>c</sup>	95% CI	t
<b>Lifetime</b>							
Any service							
Yes	43	3.56***	2.77–4.59	10.12	2.25***	1.61–3.14	4.88
No	18						
Prescribed medication							
Yes	24	3.99***	2.64–6.05	6.72	2.47***	1.55–3.95	3.89
No	9						
Highest level							
Yes	20	6.20***	4.29–8.98	9.95	3.45***	2.40–4.98	6.83
No	5						
≥2 types							
Yes	27	5.37***	3.99–7.21	11.44	2.53***	1.88–3.42	6.24
No	7						
<b>After joining military</b>							
Any service							
Yes	49	4.20***	3.05–5.78	9.03	1.71*	1.10–2.65	2.47
No	18						
Prescribed medication							
Yes	26	4.57***	2.92–7.14	6.85	1.67**	1.18–2.35	2.98
No	9						
Highest level							
Yes	23	6.99***	4.58–10.65	9.29	1.82**	1.23–2.69	3.08
No	5						
≥2 types							
Yes	33	6.73***	4.64–9.78	10.31	2.33***	1.49–3.64	3.80
No	8						
<b>Past year</b>							
Any service							
Yes	55	5.02***	2.99–8.43	6.27	1.61	.98–2.65	1.93
No	20						
Prescribed medication							
Yes	33	5.93***	3.30–10.64	6.13	1.83*	1.02–3.30	2.08
No	10						
Highest level							
Yes	30	8.99***	5.54–14.60	9.14	2.00*	1.14–3.53	2.47
No	6						
≥2 types							
Yes	41	8.16***	5.08–13.09	8.94	1.90*	1.12–3.23	2.44
No	9						

<sup>a</sup> The observed sample consisted of 5,100 soldiers who responded to the 2008 Department of Defense Survey of Health Related Behaviors. The respondents represented a weighted sample of 437,395 soldiers. Reference groups for all analyses were soldiers who did not use the service.

<sup>b</sup> Adjusted for gender, race, marital status, and enlisted status. Analyses of lifetime suicidality were also adjusted for suicidality since joining the military or in the past year. Analyses of suicidality since joining the military were also adjusted for lifetime suicidality and suicidality in the past year. Analyses of suicidality in the past year were also adjusted for lifetime suicidality and suicidality since joining the military. *df*=1

<sup>c</sup> OR/RRR, odds ratio or relative risk ratio

\**p*<.05, \*\**p*<.01, \*\*\**p*<.001

deployment or as not being close to deployment. No discernible differences were found between the categories in mental health service use for

those who had considered or attempted suicide since joining the military.

**Suicidality in the past year.** Participants who had seriously considered

or attempted suicide in the past year were significantly more likely to use a mental health service (55%) than participants who had not considered or attempted suicide in the past year (20%) (Table 3). They were also more likely to use prescribed medications (33% versus 10%), to use the highest level of services (30% versus 6%), and to use two or more services (41% versus 9%).

After adjustment for the same demographic variables, lifetime suicidality, and suicidality since joining the military, participants who had considered or attempted suicide in the past year were not significantly more likely to use any mental health service than those who had not considered or attempted suicide in the past year. However, they were more likely to use certain mental health services, specifically prescribed medications, the highest level of services, and two or more services.

## Discussion

In the active duty U.S. Army, 7% of soldiers seriously considered or attempted suicide since joining the military, and 1% did so in the past 12 months. These rates are comparable to rates for the U.S. age-group population of 18- to 29-year-olds, among whom 6% had suicidal thoughts, 2% made suicide plans, and 1% attempted suicide in the past year (20). However, comparisons of suicidality prevalence rates between general population samples and samples consisting of military personnel must be evaluated with caution, given that there are typically demographic differences between these groups. For example, Army personnel are predominantly male, younger than age 50, and employed. The prevalence of suicidal ideation and attempts has generally been found to be significantly higher among younger adults (aged 18 to 24) than among older age groups (21). In this study, 13% of soldiers reported considering or attempting suicide at some point in their lives, which approximates lifetime rates of suicidal ideation and attempt in the general U.S. population (14% and 5%, respectively) (22).

Although suicidality was often found to be strongly associated with the use of different types of mental

health services in the past 12 months, approximately half of the soldiers who reported suicidality had not received any mental health care, even though such services are readily available at no financial cost. The latter finding is not unique to the military. A recent cross-national survey reported that 65% of individuals who had seriously thought about, made a plan, or attempted suicide in the past year had not received general medical or mental health treatment during that period (16). Low perceived need was the reason indicated most frequently for not obtaining treatment (16). Therefore, understanding the specific barriers to care for soldiers considering or attempting suicide is important to facilitate their mental health care. Notably, after the analyses adjusted for demographic characteristics and a history of suicidality, soldiers with suicidality in the past year were no more likely to report use of any service than those without suicidality, although they continued to be significantly more likely to be prescribed medication and to use the highest level of services. Those who have seriously considered or attempted suicide in the past year potentially use more specific higher-level interventions; however, initially some might seek services from their general practitioner. Therefore, the use of any service by some soldiers with suicidality and by soldiers without suicidality might appear similar because the soldiers with suicidality have yet to progress to more specific, higher levels of service use.

Numerous factors affect a service member's ability or willingness to seek care, including perceived need; structural barriers, such as time constraints and availability (23); and perceptual barriers, such as mental illness stigma and beliefs that treatment will be ineffective (24–26). Notably, being young and male, characteristics that describe a majority of U.S. military members, is associated with decreased help-seeking behavior in the general population (27). Further, stoicism and autonomy—traits that are valued in military culture and encouraged throughout military training—may also diminish the likelihood that a service member will seek help.

These issues are being addressed in the U.S. Army through programs such as the Embedded Behavioral Health program, which provides greater access to mental health treatment and reduces stigma by embedding a team of behavioral health care providers within a battalion (28,29). However, additional evidence is needed to determine if this approach will reduce soldiers' concerns about privacy or potential career effects (30). Further, the U.S. Air Force initiated the Managing Suicidal Behavior (MSB) project as an empirically based guide for outpatient practitioners to assess and manage suicidality among service members and improve and standardize quality of care (31). Although few controlled studies have investigated the effectiveness of training for service providers on patient outcomes, Oordt and colleagues (32) found that participation in MSB training resulted in increased confidence in assessing and managing suicide risk and changes in suicide care procedures and clinic policies at six-month follow-up. The Collaborative Assessment and Management of Suicidality (CAMS) approach, which emphasizes a collaborative therapeutic alliance between clinician and patient, has received empirical support with an active duty Air Force outpatient sample (33). After treatment, CAMS participants resolved their suicidality more quickly and attended fewer medical appointments unrelated to mental health than airmen who did not participate in CAMS. This approach is expected to be effectively implemented by other military branches (33).

The findings of this study must be interpreted in terms of several methodological considerations. Because this is a cross-sectional study, further research using longitudinal designs is needed to better determine the course of mental health service use and its relationship to suicidality. Specifically, the survey did not capture whether mental health services were used before or after considering or attempting suicide. The survey employed self-report techniques, which may raise validity concerns. However, procedures to promote honesty on self-report studies, such as ensuring respondents' anonymity, having command leadership

leave the room during the survey, and explaining the survey purpose, were applied (34). Nonetheless, recall bias could result in overreporting or underreporting of mental health service use and suicidality.

In addition, certain groups that were not available at the time of the survey, including currently deployed soldiers, are underrepresented in the survey, although previously deployed soldiers are well represented (17). Additional information regarding the nature of the suicidal symptoms and the specific details of mental health services used, such as duration of service, resolution of the presenting concern, and type of medication prescribed, is important to better understand the complex relationship of suicidal behaviors and mental health services utilization. Finally, although this study addressed the relationship between suicidality and the use of mental health services, the relationship of those services to mental disorders should be evaluated in future research.

## Conclusions

Soldiers in the U.S. Army who seriously considered or attempted suicide were more likely to use mental health services and to receive the highest level of mental health care. In order to address the issue of suicide in the military, in recent years the U.S. Army has initiated or enhanced a number of programs aimed at preventing suicide. For example, the Ask, Care, Escort program focuses on training soldier peers or "buddies" to identify key risk factors among fellow soldiers and to intervene appropriately. Targeted briefings are now provided to command leaders, chaplains, and soldiers, and mandatory suicide prevention training has recently been implemented. In addition, soldiers who are preparing for or returning from deployment are supplied with resiliency training (30). Further research is needed to better understand the relationship between suicidal ideation and access to care, diagnosis, and receipt of appropriate care.

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## Book Reviews Available Online With the March Issue of *Psychiatric Services*

The March issue of *Psychiatric Services* reviews the following novels online in its Book Reviews section, edited by Jeffrey L. Geller, M.D., M.P.H.:

- ◆ Ulrick Vieux, D.O., M.S., reviews *The Newlyweds*, by Nell Freudenberger
- ◆ Margaret Bennington-Davis, M.D., reviews *The Woman Upstairs*, by Claire Messud
- ◆ Richard Balon, M.D., reviews *Schmidt Steps Back*, by Louis Begley
- ◆ Allan E. Crandell, M.D., reviews *Elders*, by Ryan McIlvain
- ◆ Ann L. Hackman, M.D., reviews *The Trial of Dr. Kate*, by Michael E. Glasscock III
- ◆ Meg Chaplin, M.D., reviews *Defending Jacob*, by William Landay
- ◆ Wesley Sowers, M.D., reviews *Reis's Pieces: Love, Loss and Schizophrenia*, by Karen Winters Schwartz
- ◆ Harriet P. Lefley, Ph.D., reviews *The Silence and the Roar*, by Nihad Sirees
- ◆ Leslie Hartley Gise, M.D., reviews *The Prodigal*, by Michael Hurley
- ◆ Roger Peele, M.D., and Neha Gupta, M.D., review *Being Henry David*, by Cal Armistead
- ◆ Nubia Llubes, M.D., reviews *Reunion*, by James Kennedy George, Jr.
- ◆ Audra M. Yadack, M.D., reviews *The Evolution of Dr. Steven Pratt*, by Heidi A. Wimmer
- ◆ Jeffrey L. Geller, M.D., M.P.H., reviews *The Painted Bridge*, by Wendy Wallace
- ◆ Carolyn Sacco, R.N., reviews *House of Earth*, by Woody Guthrie