

Importance of Anonymity to Encourage Honest Reporting in Mental Health Screening After Combat Deployment

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Context: US soldiers are required to undergo screening for depression, posttraumatic stress disorder (PTSD), and other mental health problems on return from service in Iraq or Afghanistan as part of routine postdeployment health assessments.

Objective: To assess the influence of the anonymity of screening processes on willingness of soldiers to report mental health problems after combat deployment.

Design: Anonymous and nonanonymous surveys.

Setting: US military.

Patients: US infantry soldiers' reporting of mental health problems on the routine Post-Deployment Health Assessment was compared with their reporting on an anonymous survey administered simultaneously.

Main Outcome Measures: The Primary Care PTSD Screen, the Patient Health Questionnaire–2 (modified), the suicidal ideation question from the Patient Health Questionnaire–9, and several other questions related to mental health were used on both surveys. Soldiers were also asked on the anonymous survey about perceptions of stigma and willingness to report honestly.

Results: Of 3502 US Army soldiers from one infantry brigade combat team undergoing the routine Post-Deployment Health Assessment in 2008, a total of 2500 were invited to complete the anonymous survey, and 1712 of these participated (response rate, 68.5%). Reporting of depression, PTSD, suicidal ideation, and interest in receiving care were 2-fold to 4-fold higher on the anonymous survey compared with the routine Post-Deployment Health Assessment. Overall, 20.3% of soldiers who screened positive for depression or PTSD reported that they were uncomfortable reporting their answers honestly on the routine postdeployment screening.

Conclusions: Current postdeployment mental health screening tools are dependent on soldiers honestly reporting their symptoms. This study indicates that the Post-Deployment Health Assessment screening process misses most soldiers with significant mental health problems. Further efforts are required to reduce the stigma of reporting and improve willingness to receive care for mental health problems.

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US SOLDIERS ARE REQUIRED to undergo screening for depression, posttraumatic stress disorder (PTSD), and other mental health problems on return from service in Iraq or Afghanistan as part of routine postdeployment health assessments. Postdeployment screening using standardized instruments was started in the mid-1990s and has been modified considerably since the start of the wars in Iraq and Afghanistan.^{1,2} At present, the screening is conducted at the following 2 time points: the Post-Deployment Health Assessment (PDHA) immediately at the end of deployment (just before leaving the country or after arrival in the United States) and the

Post-Deployment Health Reassessment 90 to 180 days later. These postdeployment health assessments include validated screening questions for depression, PTSD, and other mental health problems combined with a brief evaluation by a primary care provider (physician, physician assistant, or nurse practitioner), who determines the need for referral for further mental health evaluation and treatment and documents this in the soldier's electronic medical record.

Studies³⁻⁶ of soldiers returning from combat tours in Iraq and Afghanistan have shown variability in reporting of depression and PTSD, based largely on differences in population samples and combat frequency and intensity, with rates rang-

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ing between 1% and 8% for depression and between 5% and 19% for PTSD. Some postdeployment assessments have produced lower-than-expected rates of mental health concerns, and investigators have suggested the possibility that nonanonymous unitwide assessments linked to health care might discourage some soldiers from honestly reporting their war-related mental health concerns.⁷⁻¹¹

Despite the uniform nature of having all returning soldiers complete the screening measures, studies^{3,4} have found that the stigma of mental health treatment remains high in the military. Recent initiatives to overcome these barriers, including expansion of screening processes, method of screening, and education to reduce stigma, have been examined,⁸ but studies^{12,13} continue to show that a high percentage of at-risk soldiers do not follow through with needed mental health treatment.

There has been little research on the propensity for soldiers to report honestly during routine health screenings. Recent studies^{14,15} of civilian populations have shown that anonymous surveys resulted in clear increases in reporting eating disorder symptoms, while there were no significant differences between anonymous and nonanonymous surveys in evaluation of postpartum mood symptoms.¹⁶ In the military, studies^{3,7} based on anonymous surveys have consistently reported higher prevalence rates of postdeployment mental health problems than studies^{4,5,11} based on surveys involving identifiers or linkages to health care encounters, but there have been no direct comparisons. One retrospective study,¹⁷ reported as a letter to the editor, compared results of anonymous and nonanonymous postdeployment screenings and found significant differences; however, the screening tools were not administered at the same time point, and the study focused only on medical personnel. Results of a study¹⁸ among Navy recruits suggested that anonymity is important in reporting sensitive questions related to childhood sexual or physical abuse, which is not part of postdeployment mental health screening content. The objective of this study was to determine the potential effects that anonymity has on soldiers' reports of mental health issues during postdeployment screening.

METHODS

After approval was obtained from the unit commanders and the Brooke Army Medical Center Institutional Review Board, one infantry brigade combat team of US soldiers returning from Iraq to Ft Stewart, Georgia, was selected for this study. This brigade was the first brigade in the division returning from deployment after study approval. This brigade was deployed to Iraq as part of the surge of forces in 2007-2008. This was the third deployment of 1 year or more for this brigade in 6 years and involved heavy brigadewide combat operations.

All members of the brigade ($n=3502$) completed their PDHA within 30 days before departure from Iraq, as required by US Army medical policy, coordinated by unit medical personnel. The PDHA was completed electronically using computer interfaces. Immediately on completion of the electronic survey portion of the PDHA and before the face-to-face meeting with a primary care physician, 2500 of these soldiers were also invited to complete an additional voluntary anonymous paper survey. Soldiers were informed that the additional survey was for

research purposes only and was not part of the electronic process they had just completed and that their participation was voluntary (without compensation). In addition, they were notified that the survey would remain completely anonymous and would not be reviewed by any of the on-site personnel and that they should not place any identifying information on the survey. No written consent was required owing to the minimal risk of the study; completion served as implied consent.

The additional survey included the same behavioral health screening items from the PDHA, as well as demographic information, a series of questions about commonly perceived barriers for obtaining mental health care, and a series of questions about whether participants felt comfortable honestly reporting their mental health concerns on the PDHA. It was impossible to invite all 3502 soldiers in the brigade to participate because of logistical and transportation considerations of survey administration, which would have required vehicle transportation and support that was unessential to the mission in this dangerous operational environment. The guaranteed anonymity made it impossible to link answers from the anonymous survey with the specific responses from the same soldiers who completed the PDHA. Comparability between groups was assessed by comparing the demographics (age, sex, rank, and number of deployments) from the anonymous survey group with those of the entire group that completed the PDHA.

MENTAL HEALTH MEASURES ON THE PDHA AND ANONYMOUS SURVEY

Both the PDHA and anonymous survey included screening questions for depression and PTSD from the Patient Health Questionnaire-2 (PHQ-2) and Primary Care PTSD Screen (PC-PTSD).¹⁹⁻²¹ These have been validated against the longer versions of these scales, as well as against structured diagnostic interviews in civilian and military populations.^{22,23} The response pattern for the PHQ-2 was modified slightly by the Department of Defense to make it simpler to use on a population-wide basis. The 2 questions (related to depressed mood and anhedonia) ask soldiers to report the frequency with which they have experienced these symptoms over the past 2 weeks, using the responses "none of the time," "some of the time," or "a lot of the time." At the time of this study, the guidance provided to medical providers administering the PDHA was that referral for a mental health evaluation was recommended for all soldiers who marked "a lot of the time" on both of these questions; consequently, this was selected as the cutoff for both surveys.

Posttraumatic stress disorder was measured on both surveys using the 4-item PC-PTSD Screen. The 4 questions ask about nightmares or intrusive thoughts, avoidance of thoughts or situations, vigilance or startle, and numbness or detachment in the past month, using a yes or no format. Prior studies^{19,22} have shown that cutoffs of 2 or 3 positive responses are indicative of PTSD. A cutoff of 3 or more was selected as positive for this study based on the guidance to medical providers administering the PDHA at that time, which recommended this criterion as the cut point for referral.^{4,12}

Suicidal ideation was measured in both the anonymous survey and routine PDHA using a question modified from the PHQ-9 that asks soldiers if in the last 2 weeks they thought that they "would be better off dead or hurting yourself in some way," using the same response pattern of "none of the time," "some of the time," or "a lot of the time,"^{21,24} with either "some of the time" or "a lot of the time" scored as positive.

In addition, both surveys included 3 questions that are routinely asked on the PDHA pertaining to interpersonal relationships and interest in receiving care. Individuals were asked about

the presence or absence of thoughts that they were (1) “interested in receiving help for a stress, emotional, alcohol, or family problem,” (2) having thoughts or concerns about “having serious conflicts with their spouse, family members, or a close friend,” or (3) having thoughts or concerns that they “might hurt or lose control with someone.”

Other instruments were used in addition to the PC-PTSD and 2-question depression screeners. The anonymous survey also included the full Posttraumatic Stress Disorder Checklist-Military Version and full PHQ-9 depression measure.^{21,22,25-27}

STIGMA AND BARRIERS TO CARE

The findings of prior studies^{3,4,8} have reported several perceived barriers to soldiers seeking mental health care, and consequently the anonymous survey included questions concerning barriers to care (eg, difficulty with transport, lack of available services, and difficulty getting time off from work to attend appointments) and perceptions that care would result in stigma, using the same items described in previous research scored on a 5-point Likert-type scale.³ Examples of the stigma questions included “My unit leadership might have less confidence in me,” “Members of my unit might view me differently,” and “It would harm my career.” Two additional statements were added to assess a soldier’s willingness to report honestly on the routine PDHA process and his or her willingness to receive care. The wording of these (scored on a 5-point Likert-type scale) were “I feel comfortable honestly reporting any behavioral health problems during the post-deployment screening” and “If screening results indicated or I believe I have an ongoing behavioral health issue, I will seek treatment.”

STATISTICAL ANALYSIS

The primary focus was on descriptive statistics comparing the routine PDHA and anonymous survey, including the prevalence of screening positive for PTSD, prevalence of depression, willingness or interest in seeking care, and suicidal ideation. Secondary analysis was conducted using the anonymous survey to assess potential predictors of concerns over confidentiality and barriers to care. All analyses were performed using commercially available software (SPSS, version 12.02; SPSS Inc, Chicago, Illinois).

RESULTS

DEMOGRAPHIC COMPARISON

Of 3502 US Army soldiers from the infantry brigade combat team undergoing the routine PDHA in 2008, a total of 2500 were invited to complete the anonymous survey, and 1712 of these participated (response rate, 68.5%). This response rate is higher than those seen in other voluntary mental health surveys of active-duty soldiers, which have ranged from 36% to 62%.^{7,28} The anonymous population comprised predominantly male (1571 [91.8%]) and enlisted (1570 [91.7%]) soldiers, who had completed 1 or more deployments before this current deployment (908 [53.0%]). No statistically significant differences were noted in demographics between the study group that completed the anonymous survey and the entire brigade that underwent the routine PDHA process (**Table 1**).

Table 1. Demographic Information

Variable	No. (%)		χ^2 Value ^a
	PDHA Group (n = 3502)	Anonymous Survey Group (n = 1712)	
Sex			
Female	308 (8.8)	141 (8.2)	0.39
Male	3194 (91.2)	1571 (91.8)	0.39
Age, y			
17-25	1965 (56.1)	906 (52.9)	4.60
≥26	1537 (43.9)	806 (47.1)	4.60
No. of prior deployments			
0	1603 (45.8)	804 (47.0)	0.61
1	1223 (34.9)	615 (35.9)	0.46
≥2	676 (19.3)	293 (17.1)	3.50
Rank			
E1-E4	1806 (51.6)	854 (49.9)	1.24
E5-E9	1399 (39.9)	716 (41.8)	1.60
O1-O3 or warrant	238 (6.8)	124 (7.2)	0.29
≥O4	59 (1.7)	18 (1.1)	2.75

Abbreviations: E, enlisted; O, officer; PDHA, Post-Deployment Health Assessment.

^a $P > .05$.

COMPARISON BETWEEN SURVEYS

Among 1712 soldiers who completed the anonymous survey, 120 (7.0%) screened positive for depression on the PHQ-2, and 132 (7.7%) screened positive for PTSD on the PC-PTSD. The prevalences based on these brief screening tools were comparable to the prevalences based on the full PHQ-9 and PTSD Checklist.²⁵⁻²⁷ Using moderately specific cutoffs for depression, 89 of 1712 soldiers (5.2%) had a PHQ-9 score of 15 or higher.²¹ Similarly, 143 (8.4%) had a PTSD Checklist score of 40 or higher (moderate-severe symptom cutoff levels), while 76 (4.4%) met the highly specific cutoff of a PTSD Checklist score of 50 or higher.²⁵

Table 2 summarizes the comparisons of the soldiers’ responses on the anonymous survey and nonanonymous PDHA based on the short screening instruments. Soldiers reported significantly higher rates for all mental health concerns on the anonymous survey compared with the routine PDHA. Of soldiers who completed the anonymous survey, 12.1% (n=207) met criteria for either PTSD or depression compared with only 4.2% of all soldiers who completed the routine PDHA. When interest in seeking care was added to depression and PTSD screening, the overall rate of needing services or screening positive was 17.2% for the soldiers completing the anonymous survey compared with 6.3% for those completing the routine health assessment.

HONESTY OF REPORTING, WILLINGNESS TO SEEK CARE, AND BARRIERS TO CARE

Based on the anonymous survey, soldiers who screened positive for depression or PTSD were more likely than soldiers who screened negative to report discomfort answering honestly on routine postdeployment screening

Table 2. Prevalence of Mental Health Problems Reported on the PDHA vs the Anonymous Survey

Positive Screen	No. (%)		χ^2 Value ^a
	PDHA Group (n = 3502)	Anonymous Survey Group (n = 1712)	
PTSD	115 (3.3)	132 (7.7)	48.95
Depression	65 (1.9)	120 (7.0)	87.73
Interest in seeking care	151 (4.3)	152 (8.9)	42.98
PTSD or depression	146 (4.2)	207 (12.1)	113.08
PTSD, depression, or interest in seeking care	219 (6.3)	294 (17.2)	153.32
Thoughts or concern about conflict with spouse, family member, or friend	188 (5.4)	174 (10.2)	40.19
Thoughts or concern about losing control or hurting someone	120 (3.4)	148 (8.6)	63.15
Suicidal ideation	42 (1.2)	80 (4.7)	59.21

Abbreviations: PDHA, Post-Deployment Health Assessment; PTSD, posttraumatic stress disorder.

^a $P < .01$.

(Table 3). Overall, 20.3% of soldiers who screened positive for depression or PTSD reported that they were uncomfortable reporting their answers honestly on the routine postdeployment screening (disagree and strongly disagree responses combined), and another 28.0% gave a neutral response; these values were 8.4% and 18.7%, respectively, for those who screened negative. Those who screened positive for depression or PTSD were also significantly less willing to seek care (disagree or strongly disagree responses) than those who screened negative. Levels of perceived stigma and barriers to care were significantly higher for those who screened positive for mental health problems (**Table 4**).

COMMENT

Congressionally mandated postdeployment screening is a hallmark health policy aimed to improve the care of service members returning from Iraq and Afghanistan. In addition, multiple education efforts have been initiated to decrease stigma.²⁹ However, despite these efforts, stigma seems to remain pervasive in the military.³⁰ The results of this study indicate that soldiers were significantly less willing to report mental health problems on a routine (nonanonymous) postdeployment health screening compared with an anonymous screening tool. Compared with those who screened negative, those who met criteria for PTSD or depression indicated greater discomfort with giving honest answers on routine postdeployment screening and were significantly less willing to seek care.

A recent poll by the American Psychiatric Association³¹ showed that, although 40% of civilian employees identified their employers as supportive of seeking treatment, many employees endorsed concerns about the loss of status at work or confidentiality as reasons for not seeking mental health care. In addition, like law enforce-

ment personnel, who have also reported stigma and barriers to seeking mental health care,³² military personnel have ongoing perceptions of stigma and barriers to mental health care within the occupational military context, including how they are perceived by unit leadership or peers, or the effect that treatment might have on their career.^{3,30,33,34} This is of concern because of the ready access that members of these professions have to lethal means, as well as the potential risk of untreated mental health concerns, including suicide. Compounding this is that both stigma and perceived barriers have been shown to be greater in those with ongoing mental health issues.^{3,30} These findings reinforce the continued need for the military to develop effective strategies for encouraging personnel to seek assistance.

This study is the first to provide a direct measure of the level of discomfort with reporting honestly on the routine PDHA and the willingness to receive a mental health referral, particularly for those who screened positive for a mental health concern. This study indicates that the PDHA screening process misses most soldiers with significant mental health problems and adds to the growing literature suggesting that the initial PDHA is not optimal in identifying those most in need of services. Soldiers sometimes have concerns that identification of a problem during this screening might hinder their permission to take leave immediately on returning home, or they may consider that their symptoms will resolve on their return. Studies^{12,35} have shown that rates of reporting mental health concerns significantly increase at the time of the second postdeployment assessment 3 to 6 months later. Further research is needed to study the effect of anonymity on reporting months or years following deployment.

The lack of willingness to report symptoms may also indicate a lack of confidence in the mental health services that are available. A US Government Accountability Office³⁶ report in 2006 noted that, although soldiers often reported their symptoms, fewer than one-quarter with significant PTSD symptoms went on to receive mental health care. In a study¹² of the PDHA referral process Army-wide, almost half of the soldiers who were referred to mental health care for PTSD did not follow up with their referral. There is some evidence that soldiers with mental health problems lack trust or confidence in the mental health care system. Findings from a recent study³⁰ suggest that negative perceptions about mental health care are more important than stigma perceptions in predicting willingness to seek care.

Strategies most effective in encouraging willingness to seek care will most likely involve coupling postdeployment screening initiatives with primary care-based care coordination programs. One study⁹ involving a returning infantry unit showed that all soldiers who reported mental health problems on their PDHA and were referred for mental health evaluation completed their initial evaluation and that 72% remained engaged in follow-up care. This high rate of continued engagement with mental health care was attributed to mental health professionals being available to immediately complete the initial referral evaluations at the primary care site where screenings were conducted (as distinct from referring sol-

Table 3. Association of Positive Screen for Depression or PTSD With Comfort in Reporting Honestly on Postdeployment Screening and With Willingness to Seek Care Among 1712 Soldiers Completing the Anonymous Survey

Result of Screen	No. (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
"I feel comfortable honestly reporting any behavioral health problems during the postdeployment screening."					
Positive (n = 207)	19 (9.2)	23 (11.1)	58 (28.0)	67 (32.4)	40 (19.3)
Negative (n = 1505)	68 (4.5)	59 (3.9)	281 (18.7)	680 (45.2)	417 (27.7)
χ^2 Value	7.26 ^a	19.09 ^a	10.42 ^a	11.64 ^a	6.12 ^b
"If screening results indicated or I believe I have an ongoing behavioral health issue, I will seek treatment."					
Positive (n = 207)	12 (5.8)	28 (13.5)	41 (19.8)	85 (41.1)	41 (19.8)
Negative (n = 1505)	47 (3.1)	65 (4.3)	318 (21.1)	730 (48.5)	345 (22.9)
χ^2 Value	3.15	28.27 ^a	0.12	3.82	0.84

Abbreviation: PTSD, posttraumatic stress disorder.

^a $P < .01$.

^b $P < .05$.

Table 4. Association of Positive vs Negative Screen for Depression or PTSD With Perceived Stigma and Barriers to Care Among 1712 Soldiers Completing the Anonymous Survey^a

Variable	Participants Who Agreed With Statement, No. (%)			χ^2 Value ^b
	Total (N = 1712)	Positive Screen (n = 207)	Negative Screen (n = 1505)	
My unit leadership would have less confidence in me	314 (18.3)	83 (40.1)	231 (15.3)	72.77
Members of my unit would view me differently	367 (21.4)	88 (42.5)	279 (18.5)	60.69
It would be difficult to get time off from work	238 (13.9)	61 (29.5)	177 (11.8)	46.20
It would harm my career	278 (16.2)	68 (32.9)	210 (14.0)	46.40

Abbreviation: PTSD, posttraumatic stress disorder.

^a Respondents were asked to rate each of the possible concerns that might affect their decision to receive mental health services. The 5 possible responses ranged from "strongly disagree" to "strongly agree," with "agree" and "strongly agree" being combined as positive responses.

^b $P < .01$.

diers for a subsequent appointment in a different location), coupled with aggressive care coordination, including outreach after returning home. This structured reintegration program was associated with decreased negative behaviors during the first 3 months after deployment.⁹ Similar mechanisms of embedded mental health personnel and care coordination in predeployment screening have shown improved mental health outcomes during deployment.³⁷

Additional strategies to encourage soldiers to seek assistance outside of standard screening processes include online self-assessments with information about how to access mental health resources, the Military One Source program (which provides 12 sessions of confidential counseling in civilian settings outside of the military medical system), and the US Department of Defense TRICARE online mental health counseling program. However, these programs are limited in the scope of the services that they provide and lack effectiveness data. Further measures and study are needed to understand the factors that will best create a climate in which soldiers perceive their care as nonstigmatizing and are confident that mental health professionals have the knowledge and experience to address their unique war-related health concerns. This study adds to the growing body of literature that questions the effectiveness of self-report surveys. This study does not invalidate the postdeployment screening pro-

cess but provides caution to policymakers that clinical screening alone cannot be expected to identify most service members in need of treatment. Postdeployment screening provides one of several routes to care. Further research is needed on the range of strategies to enhance clinical engagement.

The most important limitation of this study is that the anonymous group was a nonrandom sample involving approximately half of the entire brigade population. Ideally, data would have been available on the exact same individuals; this was impossible in this operational war environment while maintaining guaranteed anonymity. However, this study design is unlikely to have compromised the validity of the comparisons. This study involved a single infantry brigade combat team, in which all members were deployed to the same region of Iraq during the same period; battalions within this brigade experienced comparable combat experiences and casualty rates. The highly comparable demographics, including sex, age, rank, and number of prior deployments, supported the conclusion that the anonymous survey group was comparable to the larger brigade population. In addition, given the extremely large (2- to 4-fold) differences in survey results between the 2 groups and consistency across all comparisons, it is unlikely that selection bias would have changed the study conclusions. In terms of generalizability, the results of this study pertain to US

infantry soldiers assessed at the end of their deployment and are not representative of all deploying forces from the United States and other countries or assessments conducted months or years after return home. However, the findings are consistent with another study¹⁷ involving military medical personnel.

Other limitations relate to the process of survey administration. The PDHA involved electronic data collection, whereas the additional anonymous survey was done on paper. It is also possible that the order of survey administration, in which the anonymous survey was always given after the electronic survey, may have influenced results. However, it is unlikely that either of these factors would have accounted for such large differences in results. The electronic method of survey administration is consistent with how PDHAs are administered throughout the Army, and other analyses in military populations have shown high comparability between electronic and paper surveys.³⁸ Both surveys were completed before the encounter with the clinician, so the clinician's feedback on the PDHA results would not have biased reporting on the anonymous survey. In addition, even if there was an order effect in reporting that was truly independent of anonymity, it is unlikely to have accounted for such large differences, and this would not affect the overall concerns raised in this study about the lack of willingness to report on the existing PDHA screening process.

In conclusion, postdeployment mental health screening is an important tool in helping to identify returning soldiers with war-related depression or PTSD and link them to treatment resources. Although mental health services are likely to result in restored or improved functioning, soldiers often maintain the perception that this care will have a negative effect on their career. This study is the first direct comparison of soldiers' willingness to report mental health concerns on anonymous and non-anonymous screening measures in the immediate period before returning home. The study indicates that additional strategies are required, apart from the routine postdeployment screening, to encourage soldiers to seek assistance and facilitate access to care.

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