

Received Date : 29-Apr-2015

Revised Date : 12-Oct-2015

Accepted Date : 29-Oct-2015

Article type : Full Length Research Article

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This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/1475-6773.12446](https://doi.org/10.1111/1475-6773.12446)

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Manuscript HSR-15-0289.R1

Determinants of National Guard Mental Health Service Utilization in VA versus Non-VA
Settings

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This work was supported by the VA HSR&D Service SDP 10-047. LAG is supported by the Office of the Assistant Secretary of Defense for Health Affairs through the Psychological Health/Traumatic Brain Injury Research Program Award W81XWH-12-1-0419. RKS is supported by the VA Advanced Fellowship Program in Mental Illness Research and Treatment, the VA Serious Mental Illness Treatment Resource and Evaluation Center (SMITREC), and the VA Ann Arbor Healthcare System. KMB is supported by VA HSR&D Service Grant CDA 11-245.

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Abstract

Objective: To determine associations between need, enabling, and predisposing factors with mental health service use among National Guard soldiers in the first year following a combat deployment to Iraq or Afghanistan.

Data Sources/Study Setting: Primary data were collected between 2011 and 2013 from 1,426 Guard soldiers representing 36 units.

Study Design: Associations between Guard soldier factors and any mental health service use were assessed using multivariable logistic regression models in a cross-sectional study. Further analysis among service users (N=405) assessed VA treatment versus treatment in other settings.

Principal Findings: 56% of Guard soldiers meeting cutoffs on symptom scales received mental health services with 81% of these reporting care from the VA. Mental health service use was associated with need (mental health screens and physical health) and residing in micropolitan communities. Among service users, predisposing factors (middle age range and female gender) and enabling factors (employment, income above \$50,000, and private insurance) were associated with greater non-VA services use.

Conclusion: Overall service use was strongly associated with need, whereas sector of use (non-VA versus VA) was insignificantly associated with need but strongly associated with enabling factors. These findings have implications for the recent extension of veteran health coverage to non-VA providers.

Key Words: Mental Health, VA Health Care System, Access, Utilization of Services

Background

National Guard soldiers activated for Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) are eligible for five years of free healthcare through the Department of Veterans Affairs (VA) health care system after their deployment. Comprehensive benefits and the unique expertise of VA clinicians in addressing many mental health consequences of deployments make the VA a key health care resource for Guard soldiers when they return. Among OIF and OEF veterans who entered and used the VA health care system between 2002 and 2008, 41% were Guard or Reserve veterans (Seal 2009). This is not surprising given they represent one-third of all soldiers deployed to Iraq and Afghanistan (IOM 2013). Moreover, Guard and Reserve soldiers may be more dependent upon treatment from the VA and community

providers compared to their active-duty counterparts who are able to access services at military treatment facilities.

Mental health has been a focal health concern among returning OEF/OIF Veterans, and may be even more salient for those in the Guard. One fourth of the OEF/OIF veterans receiving medical care in the VA also had a mental health diagnosis (Seal et al. 2007) or PTSD (Sayer et al. 2010). Moreover, studies have suggested that Guard soldiers are at increased risk for PTSD and depression compared with their active-duty counterparts (Thomas et al. 2010; Hyman et al. 2012; Valenstein et al. 2014). Prior research has also found that those with PTSD have high levels of comorbid major depressive disorder and alcohol-use disorder (Erbes et al. 2011; Gorman et al. 2011) and increased risk for suicide (Hyman et al., 2012). Accessing treatment when a need is indicated is a critical health issue. The extent to which Guard soldiers with need access services is an area of active investigation. In two prior samples of Guard soldiers with identified mental health conditions, only 37% (Goodwin 2014) and 50% (Gorman et al. 2011) had sought any type of treatment.

Given the high level of need of returning veterans and possible barriers to care, it is important to understand factors associated with mental health service utilization among the National Guard to ensure that both VA and community systems are equipped to treat those with an identified need. This study examines mental health service use among Guard soldiers who deployed to Iraq or Afghanistan. It also estimates associations between factors of interest and VA versus non-VA service use among those who used services. The Behavioral Model of Healthcare Utilization (Andersen 1995; Andersen and Davidson 2013; see Figure 1) is the theoretical framework underlying the choice of need, predisposing, and enabling factors related to mental health use and VA versus non-VA mental health utilization.

Mental Health Need

Traumatic events and exposure to combat increases risk for psychiatric disorders post-deployment (Hoge et al. 2004; Renshaw, Rodrigues, and Jones 2009). Combat exposure is associated with mental health disorders and service members' perceived need for treatment (Sareen, et al. 2007; Sareen et al. 2010). Need factors, such as symptom severity, are robust predictors of mental health service utilization in many populations (Fasoli 2010) including Iraq and Afghanistan veterans who accessed VA mental health care between 2005 and 2009 (Hoerster 2012). Sayers (2010) found that veterans with probable PTSD were more likely to struggle with

reintegration problems and expressed interest in more kinds of services than veterans without probable PTSD. Further, a comorbid diagnosis versus an isolated PTSD diagnosis was associated with a greater likelihood of at least one follow-up VA mental health visit in the first year following diagnosis (Seal 2010). Elbogen and colleagues (2013) also found that veterans with the greatest mental health need were more likely to access services. We anticipated that need as defined by higher levels of symptoms and greater co-morbidity would drive overall utilization in a sample of Guard soldiers. We also hypothesized that use of the VA system, which is free within one year of return would be more heavily used by Guard soldiers with higher levels of symptoms and greater co-morbidity. We expected Guard soldiers with greater levels of symptoms would preferentially access mental health services within the VA given system expertise in addressing combat-related sequelae.

Predisposing Factors

Demographic factors such as age, race, gender, cultural norms, and previous deployment/reintegration experiences may also predict service use. The literature suggests that OEF/OIF veterans who were older and female were more likely to utilize mental health services (Fasoli 2010; Seal 2010). Women were more likely than men to use non-VA services (Elbogen et al. 2013) even though other studies reported a negligible gender difference in attitudes about VA care and perceived fit in the VA (Fox et al. 2015). When looking at race and ethnicity in a sample of Guard soldiers with mental health need, only black race predicted treatment use (Goodwin et al. 2014).

Enabling Factors

Enabling factors also impact service utilization. Prior to OEF and OIF, factors associated with VA rather than non-VA service utilization for primary care included lower income and education attainment, lack of health insurance, and greater burden of illness (Borowsky 1999). Veterans with insurance and more education were less likely to rely exclusively on the VA for health services (Borowsky 1999; Liu 2008). Hamilton and colleagues (2013) looked at attrition from VA health care use and found that those who left the VA were more likely to have moved farther away from the VA and have alternate health insurance. Seal and colleagues reported that a diagnosis from a non-mental health clinic and living greater than fifty miles from a VA facility were associated with not having at least one follow-up treatment visit in the first year following a PTSD diagnosis (Seal 2010).

In contrast to factors that enable treatment seeking behavior, the literature suggests that factors such as stigma may be a cultural barrier to treatment (Gorman et al. 2011; Elbogen et al. 2013). Gorman and colleagues found that 45% of Guard soldiers with a mental health condition did not want mental health treatment to appear on their military records (Gorman et al 2011). This barrier to service utilization remains among Guard soldiers who are students despite identified need (Bonar et al. 2015). While a recent study of this population indicated a reduction of stigma and beliefs barriers regarding mental health treatment (Valenstein et al. 2014), it still remains uncertain whether distance to treatment, scheduling and other logistical barriers are being addressed or if they contribute to differential use of VA and non-VA care.

Studies have also looked at social support and unit support as enabling factors (Sripada et al 2015). While there is a great deal of evidence suggesting a link between social support and lower likelihood of mental health conditions (Sripada et al 2015), the evidence that social support increases the likelihood that Guard soldiers will access mental health treatment is less robust. However, these enabling factors should be investigated among Guard soldiers as potential contributors to VA and non-VA mental health service use.

Objective

The Behavioral Model of Healthcare Utilization (Andersen 1995) was the theoretical framework guiding the study. Our primary aim is to understand the factors associated with mental health service use and the type of service use (VA and non-VA) among returning National Guard soldiers. Others have examined various components of this model including Elnitsky (2013) who looked at stigma and barriers to exclusive VA use. Meis (2010) also studied PTSD symptom severity and relationship distress as predictors of use. The present study aims to complement the work of others (Elnitsky et al. 2013; Meis et al 2010) and inform further development of the model by exploring in-depth the National Guard community and cultural determinants that influence mental health treatment utilization. To explore cultural factors, we incorporated stigma, distance to treatment and other logistic barriers, military rank and combat exposure into the model. Further, we explored potential enabling factors that might increase the soldier's access or ability to navigate complicated systems of care. Figure 1 illustrates the "adapted" model and the relationship between need, enabling and predisposing factors and the use of mental health services. The variables used in the present study are represented in Figure 1.

Methods

Participants and Procedures

Survey participants were National Guard soldiers representing 36 units that deployed to Iraq or Afghanistan from a Midwestern state. Data were collected between August 2011 and December 2013, approximately 12 months following their return. Surveys were collected in person during monthly drill weekends. Soldiers not at drill weekends were mailed surveys via USPS, with follow-up surveys being sent two additional times to non-respondents. This is a slightly modified version of the Dillman method used to ensure those who had separated from the unit were not excluded from participation (Dillman et al. 2009). Institutional Review Board approval was obtained through the Department of Veterans Affairs Ann Arbor Health System and the protocol was reviewed and endorsed by the Army National Guard Office of the Chief Surgeon. Data were collected under an approved waiver of written informed consent. For further details of the study design, see Valenstein et al. (2014).

Measures

The outcome of interest was mental health service utilization in the past year, which was assessed from 10 items asking participants to indicate if they “had received mental health services for a stress, emotional, alcohol, or family problem” from non-VA and VA settings. Affirmative responses were used to create categorical variables for any mental health treatment in the past year (yes/no) and type of mental health treatment (any VA mental health treatment, non-VA mental health treatment only). Response options for VA mental health services use included a VA hospital, Community Based Outpatient Center (CBOC) and any Vet Center use. Response options for non-VA mental health services use included general medical doctor or mental health professional at a civilian facility. For patients who used services in both VA and non-VA sectors, we constructed a hierarchy of use. If soldiers received mental health care in both specialty and primary care settings, they were assigned to the sector in which they received specialty mental health services. Soldiers who only received primary care mental health services or only received specialty mental health services in both sectors were considered to have received VA treatment.

Needs Factors as Primary Predictors

We assessed soldier need for mental health services using validated measures for PTSD, depression, anxiety and suicide risk. PTSD symptoms were measured using the Posttraumatic Stress Disorder Checklist-Specific Version (PCL-S), a self-report measure of the 17 DSM-IV

PTSD symptoms (Weathers et al. 1993). Soldiers were considered to have significant PTSD symptoms if PCL-S scores were ≥ 50 . The presence or absence of significant depressive symptoms was assessed with the Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, and Williams 2001). The PHQ-9 assesses nine DSM-IV symptoms of depression over a 2-week period and has a sensitivity of 88% and a specificity of 88% for major depression (Lowe et al. 2004). Soldiers were considered to have significant depressive symptoms if their PHQ-9 scores were ≥ 10 . Anxiety was assessed using the GAD-7 (Spitzer 2006), a brief measure for assessing generalized anxiety disorder with a sensitivity of 89% and a specificity of 82% (Spitzer et al. 2007). Scores ≥ 10 were used to indicate presence of anxiety.

To assess number of mental health conditions, an ordinal variable was created for participants who met the cutoff criteria for PTSD, depression, or anxiety as described above. Number of probable mental health conditions could be zero, one, two, or three.

The SF-12 was used to assess mental and physical functioning and overall health-related quality of life. The 12-item measure is an abbreviated version of the SF-36 Health Survey (Ware, Kosinski, and Keller 1996). Physical and mental health composite scores were computed and ranged from 0-100, where a zero score indicates the lowest and 100 indicates the highest level of health measured by the scale.

Combat exposure was considered a need factor. A soldier was considered to have combat exposure if they affirmed any of the following Post-Deployment Health Assessment (PDHA) questions included in the study survey and pertaining to any of their deployments: “Did you encounter dead bodies or see people killed or wounded during deployment?”, “Were you engaged in direct combat where you discharged a weapon?” or “Did you ever feel that you were in great danger of being killed?”

Predisposing Factors

Predisposing factors include individual level items such as demographics as well as contextual factors. Demographic variables include age group, gender, race/ethnicity, education, military rank, and number of deployments self-reported by service members. Response options for race and ethnicity categories included African American, Asian and Native American, White, multi-ethnic, other and Hispanic ethnicity. Ranks were grouped together with item responses for E1-E4 as junior enlisted and Ranks E5-E9 as noncommissioned officers (NCO). Warrant officers

(WO1-5) were included in the officer group for study analyses. Number of deployments was classified as one or more than one.

Enabling Factors

Income, insurance status, location, and work status were considered enabling factors that make it easier to access mental health treatment. Committed relationship status was considered a source of social support (Cutrona, 1996; Kuwert et al. 2014; Laffaye et al. 2008). Insurance was assessed using a “check all that applies” option to the question, “What kind of health insurance or health care coverage do you have?” Nine options were available including options for Medicaid, VA Healthcare System, no coverage of any type, and “I don’t know what type of coverage I have.” Only a positive response to private health insurance, employer-sponsored or military health care such as TRICARE was coded as ‘yes’ for an indicator of private health insurance. Work status responses were grouped into three categories: employed, unemployed and out of the work force. Employed status includes the responses “working part-time” and “working full-time.” Unemployed status is denoted by the responses “unemployed, looking for work” and “unemployed, not looking for work.” Out of the work force includes responses such as “retired,” “student” and “homemaker.”

Distance to the nearest VA facility was calculated using geographic coordinates from the respondent’s zip code and the address of the nearest VA treatment facility. A variable for community type to assess accessibility of non-VA mental health services was calculated with zip codes and categorized into three types based on population: metropolitan (greater than 50,000), micropolitan (10,000-50,000) and small town or rural (less than 10,000)(OMB 2013). These communities of residence may reflect the availability of non-VA mental health services.

Barriers were assessed using an adaptation of the *Perceived Stigma and Barriers to Care for Psychological Problems* (Britt 2000; Gorman 2011; Hoge et al. 2004; Vogt 2011). For this study, barriers were operationalized as follows: a 7-item stigma factor which included concerns that mental health treatment would be too embarrassing, harm one’s career, affect perceptions of one’s unit members, affect perceptions of one’s leaders, cause one to be seen as weak, and appear on military records; a 7-item logistics factor that included not knowing where to get help, inadequate transportation, difficulty scheduling or getting time off work, cost, and long distance to treatment; and a 2-item beliefs factor that included not trusting mental health professionals and not believing that mental health care works (Valenstein et al. 2014). Soldiers were considered to

have endorsed the barrier category if they agreed or strongly agreed with any of the items that comprised the categories as used in prior studies (Kehle et al. 2010; Valenstein et al. 2014; Wright et al. 2009).

Data Analysis

All of the analyses for this study were conducted using SAS version 9.4 (SAS Institute Inc., Cary, NC, USA). Descriptive analyses were completed for the study sample, using means or frequencies as indicated. Bivariate analyses were completed using chi-square tests to compare the utilization and type of mental health services by soldier demographics, need, enabling, and predisposing factors. Beyond basic demographics, factors that were not associated with mental health service use in bivariate analyses were excluded from regression analysis. Logistic regression models were used to calculate adjusted odds ratios (ORs) with 95% confidence intervals (CIs) for the receipt of mental health treatment and receipt of VA vs non-VA treatment among mental health services users. To test study hypotheses, regression analyses were performed with mental health services use as the outcome and predictors entered into models in blocks, separately examining predisposing factors, need factors and enabling factors, and then all factors were combined in a single model.

Results

The characteristics of the 1,426 subjects recruited for the study are shown in Table 1. Fifty-two percent were age 30 or younger. A majority of participants were male, white, and had at least some college education. Thirty-one percent had incomes of \$25,000 or less. Nearly three-fourths had five or more years of service in the National Guard and 69% reported combat exposure. One year following their deployment, participants were experiencing significant symptoms of PTSD (17%), depression (21%), and anxiety (16%) with 10% reporting suicidal risk. Of the 1,426 subjects in the study, 405 (28%) had received mental health services in the prior 12 months from the VA, community provider, or combination of the two. Approximately 56% of those who met the cutoff criteria for PTSD, MDD or GAD at 12 months post-deployment used any mental health services.

Bivariate Descriptive Analysis

Chi-square tests of independence were performed to examine the unadjusted relationship between any mental health treatment and characteristics of the overall sample. As reported in Table 1, the associations between any mental health use and age, race, military rank, and number

of deployments were significant. Any mental health use was associated with need variables including number of mental health conditions, combat exposure, and poorer physical health. Stigma associated with accessing mental health treatment in the military culture, logistics barriers and community of residence were inversely associated with accessing any mental health treatment. Among the 405 survey respondents reporting mental health treatment in the prior 12 months, 327 (81%) received any VA treatment and 78 (19%) received only non-VA treatment. Though not the focus of this study, it should be noted that approximately 30% of those receiving VA treatment had also received treatment from a non-VA source. Of those with any VA mental health treatment, 73% received care from a mental health professional vs. primary care. Of those with non-VA treatment only, 42% received care from a mental health professional. The characteristics of the 405 veterans who reported mental health treatment are given in Table 2 along with the chi-square tests of independence examining the unadjusted relationship between the location of mental health treatment and sample characteristics. The relationships between any VA mental health service use and gender, number of mental health conditions as well as enabling factors like income, work and insurance status were significant.

Multivariable Analysis

Separate logistic regression analyses were performed to assess prediction of any mental health treatment with need, enabling and predisposing factors. Predictors with significant associations in bivariate analyses were included in the models. The first model explored predisposing factors only; the second model explored need factors; the third model explored enabling factors. The final model estimating mental health treatment included all variables in the earlier models. Table 3 shows the results of the logistic regression models predicting any mental health use. In model 1, age, race, and having more than one deployment were associated with any mental health treatment but not after controlling for all the other covariates in the full model. In model 2, the need factors of combat exposure and physical health were associated with any mental health treatment. Soldiers who met the cutoff criteria for a mental health condition were more likely than those who did not to access any treatment. Those who met the criteria for three conditions were more likely than those with one condition to seek any treatment. Soldiers that endorsed stigma and logistical barriers were more likely to receive any mental health treatment in model 3 using the full cohort, but not after controlling for all the other covariates. When all factors were considered in final model, only needs factors and living in a micropolitan area

remained significant predictors of any mental health services use. Seeking any mental health treatment was related to an increase in the number of mental health conditions, worse physical health functioning, and living in a micropolitan community.

Logistic regression analyses were performed to assess association between factors and VA treatment among users of mental health treatment using a similar method as the prior analysis estimating any mental health treatment. Table 4 shows the results of the logistic regression models estimating the odds of any VA mental health use. Males and soldiers ages 31-40 were more likely to use any VA treatment. Guard soldiers with private insurance and income greater than \$50,000 were more likely to utilize non-VA treatment only. Those who were employed were less likely to use VA mental health services compared to those who were not in the work force.

Discussion

Approximately 28% of our overall sample of Guard soldiers and 56% of those screening positive for mental health conditions on symptom scales used mental health services in the prior 12 months from either a VA or community provider. Our findings are similar to the Ohio study where 31% of Guard soldiers per year accessed psychiatric services (Fink et al, 2015). Reassuringly, in this study, the strongest association between soldier factors and any services use were those related to need factors rather than predisposing or enabling factors. Given the positive predictive value (PPV) of 0.5 for having major depression with PHQ-9 scores ≥ 10 , and for having PTSD with PCL screen ≥ 50 , overall use of services would appear to be reasonable and appropriate for the anticipated level of clinical disorders.

We note that the large majority of Guard soldiers in our study who use services are using VA services. This is consistent with the needs assessment conducted by Rand (Schell and Tanielian 2011) that noted the VA system is one of the primary providers of mental health care for veterans. Analyses of VA versus non-VA use among Guard soldiers indicated that enabling and predisposing factors but not need factors were important in the choice of treatment setting among those who reported use.

Although eligibility criteria for VA services have generally broadened and the duration of benefits has increased since 2001, eligibility for particular types of services depends upon such factors as combat exposure, discharge status, income, and disability rating. The cross-section of data analyzed one year post-deployment suggests that VA is reasonably accessible to those with

the greatest need; however, a complicated system and difficulty accessing services may result in some veterans preferring to seek needed treatment from non-VA sources. This is consistent with our study findings that Guard soldiers who were employed with incomes greater than \$50,000 and had insurance were more likely to utilize non-VA mental health treatment than unemployed, lower income and uninsured individuals. The Veterans Choice Program is expected to expand healthcare access to thousands of veterans by allowing them to receive care from non-VA health care providers (Veterans Access, Choice, and Accountability Act of 2014). This new program will cover VA-approved health needs, and further study is needed to determine whether it increases use overall of mental health treatment for National Guard soldiers, or simply shifts mental health service use from VA to non-VA treatment settings.

Ready access to community mental health treatment may be advantageous, but community providers may also be less familiar with the military culture, deployment experiences, or evidence-based treatments for PTSD compared to health care providers in military treatment facilities or the VA. The VA has made enormous efforts to train all of its providers in evidence-based treatments, including Prolonged Exposure and Cognitive Processing Therapy for PTSD. The prevalence and availability of providers experienced in evidence-based treatments in the community is unknown. And for veterans with higher level need, it remains uncertain the impact expanding the ability for the VA to purchase care from non-VA providers will have on outcomes.

In addition to considering access to evidence-based treatment in VA versus non-VA settings, a potential shift in treatment setting may also influence whether individuals receive the recommended number of therapy sessions for their identified condition. Hoge and colleagues (2014) have identified opportunities to improve treatment engagement and retention among active-duty soldiers; however, far less is known about treatment engagement among National Guard and Reserve.

This study expands our understanding of initial treatment engagement with VA and non-VA mental health treatment and may serve as a beginning point for looking at change over time. Prior analysis demonstrated that the prevalence of mental health concerns 12 months post-deployment did not change for serial panel cohorts 45-90 days post-deployment, with 15.8% and 19.0% having PTSD and depression symptoms, respectively (Valenstein et al. 2014). Looking over time at changes in outcomes within individuals who are engaged in VA and non-VA care is an important next step. Continued treatment engagement in both settings may be important. For

example, in one study of 50,000 newly diagnosed VA patients, only 27% were able to receive the recommended 9 or more therapy sessions in the first year and less than 10% received 9 or more sessions in the recommended 15-week time period (Seal 2010). The population may benefit from a quality improvement initiative that monitors not only access but also engagement in evidence-based treatment, number of sessions, reasons for early dropout and change in symptom severity at the end of treatment in both VA and community settings.

Limitations

We studied mental health service utilization of Guard units from a specific state and at a specific time (2011-2013); therefore, our findings may not generalize to other Guard soldiers from other states who deployed at different times during the war. Local health system factors may have a major effect on access to services for these veterans. However, access to VA mental health care services in Veterans Integrated Service Network (VISN) 11 is likely comparable to the national average. For instance, in the final quarter of fiscal year 2013, 7.5% of local Veterans under the age of 45 received VA mental healthcare services, as compared to the national average of 7.4% (VA Office of Mental Health Operations Mental Health Evaluation Center Information System).

The single source of self-report and cross-sectional nature of the data also limit our ability to assess whether either VA or non-VA mental health treatment improved symptoms. There were also a number of participants (N=180) in this study whose symptoms did not reach the criteria for a mental health condition at the time of assessment, yet they had received any VA (n=131) and non-VA only (n=49) mental health treatment during the past 12 months. We do not know if this number represents soldiers who never met clinical cutoffs for a mental health condition at some point during the year or if treatment within the last 12 months had alleviated their symptoms. Future studies should consider predisposing and enabling factors that predict non-use in the presence of need, initiation of treatment with subsequent drop out, completion of evidenced-based treatment, and factors that are associated with improved symptoms over time for Guard soldiers receiving treatment in both VA and community settings as well as those who did not receive treatment.

Conclusions

The results suggest that need is an important factor for Guard soldiers receiving any mental health treatment, as those soldiers screening positive for multiple mental health

conditions were more likely to access services. The observed overall use of services appears to be appropriate for the anticipated level of clinical disorders, given the positive predictive value of our screening measures. However, we do not know how well treatment is targeted to those with full clinical disorders. Additional assessment such as diagnostic interviews are needed to better estimate the numbers of mental health conditions present in Guard soldiers and the rates of service utilization for those who meet full diagnostic criteria for mental health conditions. The VA continues to be the primary source of mental health treatment for Guard soldiers who have been deployed in combat zones. Non-VA treatment access is associated with enabling factors of employment status, higher levels of income and insurance. These findings raise important questions about social determinants and suggest that Guard soldiers with greater resources may have access to more treatment options. Changes in these enabling factors with changes in veteran health coverage (i.e., Veteran Choice Program) may shift the locus of mental health care. Longitudinal research is needed to understand the role of access to treatment (VA and non-VA), engagement in treatment in these settings, provision of evidence-based care, and outcomes of veterans receiving treatment overall and in VA and non-VA treatment sectors. Ensuring Guard soldiers with identified need have access to treatment and improved health outcomes is a priority for service providers.

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Table 1

Characteristics of sample overall and by use of mental health treatment in the last year

| | Overall Sample (N=1426) | | Any MH Treatment (N=405) | | No MH Treatment (N=1021) | | χ^2/Z |
|--|----------------------------|----|--------------------------------|----|--------------------------------|----|------------|
| | n | % | n | % | n | % | |
| Predisposing Factors | | | | | | | |
| Age | | | | | | | 13.5** |
| 18-30 | 738 | 52 | 179 | 44 | 559 | 55 | |
| 31-40 | 342 | 24 | 110 | 27 | 232 | 23 | |
| Over 40 | 340 | 24 | 115 | 28 | 225 | 22 | |
| Gender | | | | | | | .27 |
| Male | 1306 | 92 | 369 | 91 | 937 | 92 | |
| Female | 118 | 8 | 36 | 9 | 82 | 8 | |
| Race/Ethnicity | | | | | | | 9.2** |
| White | 1177 | 83 | 316 | 78 | 861 | 85 | |
| Non-White | 241 | 17 | 88 | 22 | 153 | 15 | |
| Education | | | | | | | .05 |
| High school/GED | 376 | 26 | 106 | 26 | 270 | 27 | |
| Some college/Associates | 804 | 57 | 230 | 57 | 574 | 56 | |
| Bachelor or higher degree | 240 | 17 | 67 | 17 | 173 | 17 | |
| Military rank | | | | | | | 6.0* |
| Junior Enlisted | 641 | 45 | 163 | 40 | 478 | 47 | |
| Noncommissioned (NCO) | 643 | 45 | 203 | 50 | 440 | 43 | |
| Officer | 141 | 10 | 39 | 10 | 102 | 10 | |
| Number of deployments | | | | | | | 15.6*** |
| 1 | 689 | 50 | 164 | 42 | 525 | 53 | |
| More than 1 | 688 | 50 | 230 | 58 | 458 | 47 | |
| Need Factors | | | | | | | |
| Number of Mental Health Conditions (PTSD, depression, anxiety, suicidality) | | | | | | | 228.7*** |
| 0 | 1023 | 72 | 180 | 44 | 843 | 83 | |
| 1 | 177 | 12 | 82 | 20 | 95 | 9 | |
| 2 | 104 | 7 | 57 | 14 | 47 | 5 | |
| 3 | 122 | 9 | 86 | 21 | 36 | 4 | |
| Physical Health SF-12 score (mean \pm SD) | 50.4 \pm 9.0 | | 46.9 \pm 10.4 | | 51.7 \pm 8.0 | | -8.3*** |
| Combat exposure | 949 | 69 | 313 | 80 | 636 | 64 | 32.1*** |

| Enabling Factors | | | | | | | |
|---|-----------------|----|-----------------|----|-----------------|----|---------|
| Income | | | | | | | 1.0 |
| \$25,000 or less | 437 | 31 | 118 | 29 | 319 | 31 | |
| \$25,001-\$50,000 | 491 | 35 | 147 | 36 | 344 | 34 | |
| Greater than \$50,000 | 491 | 35 | 139 | 34 | 352 | 35 | |
| Insurance | | | | | | | |
| Private health insurance | 966 | 68 | 267 | 66 | 699 | 68 | .9 |
| Work status | | | | | | | .68 |
| Unemployed | 215 | 15 | 66 | 16 | 149 | 15 | |
| Employed | 1049 | 74 | 295 | 73 | 754 | 74 | |
| Out of the work force | 157 | 11 | 43 | 11 | 114 | 11 | |
| Marital Status | | | | | | | .83 |
| In Committed Relationship | 880 | 62 | 258 | 64 | 622 | 61 | |
| Barriers | | | | | | | |
| Stigma | 412 | 29 | 167 | 42 | 245 | 24 | 43.9*** |
| Logistics | 437 | 31 | 177 | 44 | 260 | 26 | 46.8*** |
| Beliefs | 191 | 14 | 57 | 14 | 134 | 13 | .27 |
| Distance to VA in miles (mean \pm SD) | 17.8 \pm 13.3 | | 18.8 \pm 14.4 | | 17.4 \pm 12.8 | | .83 |
| RUCA Codes | | | | | | | 8.39* |
| Metropolitan | 991 | 70 | 271 | 68 | 720 | 71 | |
| Micropolitan | 204 | 14 | 75 | 19 | 129 | 13 | |
| Small Town/Rural | 215 | 15 | 55 | 14 | 160 | 16 | |

Note: SD= Standard Deviation; *p<.05, **p<.01, ***p<.001

Table 2

Characteristics of soldiers who used any VA treatment in the last year, among those with any mental health service use (N=405)

| | Any VA MH | | Non-VA MH | | χ^2/Z |
|-----------------------------|----------------------|----|--------------------------|----|------------|
| | Treatment (N=327) | | Treatment only (N=78) | | |
| Predisposing Factors | n | % | n | % | |
| Age | | | | | 5.5 |
| 18-30 | 140 | 43 | 39 | 50 | |
| 31-40 | 97 | 30 | 13 | 17 | |

| | | | | | |
|---|-----------|----|-----------|----|---------|
| Over 40 | 89 | 27 | 26 | 33 | |
| Gender | | | | | 5.0* |
| Male | 303 | 93 | 66 | 93 | |
| Female | 24 | 7 | 12 | 7 | |
| Race/Ethnicity | | | | | .83 |
| White | 252 | 77 | 64 | 82 | |
| Non-White | 74 | 23 | 14 | 18 | |
| Education | | | | | 4.8 |
| High school/GED | 90 | 28 | 16 | 21 | |
| Some college/Associates | 187 | 58 | 43 | 55 | |
| Bachelor or higher degree | 48 | 15 | 19 | 24 | |
| Military rank | | | | | 5.6 |
| Junior Enlisted | 133 | 41 | 30 | 38 | |
| Noncommissioned (NCO) | 168 | 51 | 35 | 45 | |
| Officer | 26 | 8 | 13 | 17 | |
| Number of deployments | | | | | 3.6 |
| 1 | 125 | 39 | 39 | 51 | |
| More than 1 | 193 | 61 | 37 | 49 | |
| Need Factors | | | | | |
| Number of Mental Health Conditions | | | | | 14.7** |
| PTSD, depression, anxiety | | | | | |
| 0 | 131 | 40 | 49 | 63 | |
| 1 | 68 | 21 | 14 | 18 | |
| 2 | 51 | 16 | 6 | 8 | |
| 3 | 77 | 24 | 9 | 12 | |
| Physical Health SF-12 score (mean ± SD) | 46.5±10.3 | | 48.3±10.8 | | 1.8 |
| Combat exposure | 257 | 81 | 56 | 75 | 1.7 |
| Enabling Factors | | | | | |
| Income | | | | | 8.3* |
| \$25,000 or less | 103 | 32 | 15 | 19 | |
| \$25,001-\$50,000 | 121 | 37 | 26 | 33 | |
| Greater than \$50,000 | 102 | 31 | 37 | 47 | |
| Insurance (private health insurance) | 200 | 61 | 67 | 86 | 17.2*** |
| Work status | | | | | 9.3** |
| Unemployed | 61 | 19 | 5 | 6 | |
| Employed | 235 | 72 | 60 | 77 | |

| | | | | | |
|----------------------------|-----------|----|-----------|----|------|
| Out of the work force | 30 | 9 | 13 | 17 | |
| Marital Status | | | | | |
| In Committed Relationship | 203 | 62 | 55 | 71 | 1.9 |
| Barriers | | | | | |
| Any Stigma | 141 | 44 | 26 | 14 | 2.7 |
| Logistics | 147 | 46 | 30 | 39 | 1.1 |
| Beliefs | 48 | 15 | 9 | 12 | .53 |
| Distance to VA (mean ± SD) | 19.1±14.6 | | 17.5±13.5 | | -.68 |
| RUCA Codes | | | | | |
| Metropolitan | 213 | 66 | 58 | 74 | |
| Micropolitan | 65 | 20 | 10 | 13 | |
| Small Town/Rural | 45 | 14 | 10 | 13 | |

Note: SD= Standard Deviation; *p<.05, **p<.01, ***p<.001

Table 3

Multivariable logistic regression models estimating receipt of any mental health treatment in the past year (N= 1,426)

| | Model 1: Predisposing Factors (N=1,365) | Model 2: Need Factors (N=1,298) | Model 3: Enabling Factors (N=1,384) | Model 4: All Factors (N=1,267) |
|----------------------|---|---------------------------------------|---|--------------------------------------|
| | OR (95% CI) | OR (95% CI) | OR (95% CI) | OR (95% CI) |
| Age | | | | |
| 31-40 vs 18-30 | 1.37 (0.98, 1.91) | 1.25 (0.86, 1.82) | 1.36 (0.98, 1.90) | 1.14 (0.78, 1.69) |
| Over 40 vs 18-30 | 1.43 (1.01, 2.04)* | 1.25 (0.84, 1.87) | 1.52 (1.07, 2.17)* | 1.15 (0.76, 1.74) |
| Gender | | | | |
| Male vs Female | 0.75 (0.49, 1.16) | 0.69 (0.42, 1.13) | 0.82 (0.53, 1.27) | 0.69 (0.42, 1.14) |
| Non-white | 1.58 (1.17, 2.15)** | 1.31 (0.93, 1.86) | 1.66 (1.22, 2.27)** | 1.41 (0.99, 2.02) |
| Rank | | | | |
| NCO vs Enlisted | 0.88 (0.63, 1.21) | 1.01 (0.71, 1.43) | 1.08 (0.79, 1.47) | 0.93 (0.63, 1.35) |
| Officers vs Enlisted | 0.75 (0.47, 1.19) | 1.44 (0.87, 2.39) | 0.95 (0.59, 1.51) | 1.35 (0.80, 2.28) |
| Deployments | | | | |

| | | |
|----------------------------------|----------------------|----------------------|
| More than 1 vs 1 | 1.53 (1.15, 2.05)** | 1.28 (0.91, 1.82) |
| Mental Health Condition | | |
| 0 vs 1 | 0.28 (0.19, 0.40)*** | 0.30 (0.21, 0.44)*** |
| 2 vs 1 | 1.53 (0.90, 2.58) | 1.37 (0.80, 2.34) |
| 3 vs 1 | 2.33 (1.37, 3.97)** | 2.19 (1.26, 3.81)** |
| SF-12 | | |
| Physical health scale | 0.97 (0.95, 0.98)*** | 0.96 (0.95, 0.98)*** |
| Combat exposure | | |
| Yes vs No | 1.62 (1.17, 2.24)** | 1.38 (0.98, 1.94) |
| Stigma barriers | 1.68 (1.28, 2.22)*** | 1.33 (0.96, 1.84) |
| Logistical barriers | 1.84 (1.40, 2.42)*** | 1.31 (0.95, 1.81) |
| RUCA Codes | | |
| Micropolitan vs Metropolitan | 1.68 (1.20, 2.34)** | 1.54 (1.05, 2.25)* |
| Small Town/Rural vs Metropolitan | 0.90 (0.63, 1.28) | 0.73 (0.48, 1.12) |

Note: OR= odds ratio; CI= confidence interval; *p<.05, **p<.01, ***p<.001

Table 4

Multivariable logistic regression models estimating receipt of VA mental health treatment in the past year, among those who used services (N=405)

| | Model 1: Predisposing Factors (N=403) | Model 2: Need Factors (N=403) | Model 3: Enabling Factors (N=401) | Model 4: All Factors (N=401) |
|--------------------------|---|-------------------------------------|---|------------------------------------|
| | OR (95% CI) | OR (95% CI) | OR (95% CI) | OR (95% CI) |
| Age | | | | |
| 31-40 vs 18-30 | 2.00 (1.01, 3.98)* | 1.91 (0.95, 3.83) | 3.09 (1.45, 6.55)** | 2.91 (1.35, 6.23)** |
| Over 40 vs 18-30 | 0.83 (0.47, 1.49) | 0.85 (0.47, 1.54) | 1.72 (0.87, 3.42) | 1.78 (0.88, 3.60) |
| Gender | | | | |
| Male vs Female | 2.58 (1.18, 5.61)* | 2.54 (1.15, 5.63)* | 3.53 (1.50, 8.31)** | 3.41 (1.42, 8.20)** |
| Non-white | 1.51 (0.79, 2.88) | 1.47 (0.76, 2.85) | 1.30 (0.66, 2.57) | 1.25 (0.62, 2.51) |
| Mental Health Conditions | | | | |
| 0 vs 1 | | 0.58 (0.30, 1.15) | | 0.59 (0.29, 1.22) |
| 2 vs 1 | | 1.71 (0.61, 4.84) | | 1.99 (0.67, 5.91) |
| 3 vs 1 | | 1.81 (0.73, 4.52) | | 1.63 (0.63, 4.22) |
| Income | | | | |

| | | |
|--------------------------------|---------------------|---------------------|
| \$25,001-\$50K vs \leq \$25K | 0.69 (0.32, 1.52) | 0.67 (0.30, 1.48) |
| >\$50,001 vs \leq \$25K | 0.44 (0.19, 1.02) | 0.42 (0.18, 0.99)* |
| Private Insurance | 0.28 (0.13, 0.60)** | 0.30 (0.14, 0.63)** |
| Work Status | | |
| Employed vs unemployed | 0.50 (0.18, 1.40) | 0.48 (0.17, 1.37) |
| Employed vs out of work force | 0.24 (0.07, 0.79)* | 0.22 (0.07, 0.76)* |

Note: OR= odds ratio; CI= confidence interval; *p<.05, **p<.01, ***p<.001; \$50K=\$50,000 and \$25K=\$25,000

Figure 1. Conceptual framework of factors associated with mental health services utilization

