2007

Impact of Combat Stress on Mental Health Outcomes: BRFSS Survey Data 2006

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Impact of combat stress on mental health outcomes, BRFSS survey data 2006

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07 December 2007
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Abstract

Objectives: This study sought to determine the relationship between combat experience and mental health outcomes. The study sought to determine whether age was a significant factor in poor mental health outcomes. Methods: Multiple logistic regression (n = 195,048) and multiple linear regression (n = 264,154) were performed on the 2006 Behavioral Risk Factor Surveillance System (BRFSS) survey. Veteran status and a host of demographic and health status questions were analyzed in relation to diagnosis of anxiety or depressive disorder (multiple logistic regression) and to number of days poor mental health (multiple linear regression). Results: Diagnosis of anxiety or depression was not found to be associated with veteran status. Among both veterans and non-veterans, diagnosis was associated with age <35 years, female gender, white race, unemployment, poor general health, poor physical health, and low levels of emotional support and life satisfaction. In veterans, diagnosis of anxiety or depression was associated with use of disability equipment. In non-veterans, diagnosis of anxiety or depression was associated with heavy drinkers. Greater days of poor mental health was found to be associated with non-veteran status (B = 0.323). Among both veterans and non-veterans, greater number of poor mental health days was associated with younger age, female gender, white race, unemployment, poor general health, poor physical health, low levels of emotional support or life satisfaction, and heavy drinkers. In veterans, greater days of poor mental health was associated with use of disability equipment. In non-veterans, greater days of poor mental health days associated with divorced, separated, or widowed marital status. Conclusions: Contrary to expectations, veteran status was found to be a protective factor for poor mental health outcomes in this analysis. Younger age was found to be associated with poor mental health outcomes, but was an equal association in both veterans and non-veterans, suggesting that mental health outcomes have not been worsened by recent changes in combat characteristics. Denial of mental health status, stoicism within the military community, and limitations of the survey are proposed to explain the unexpected outcome of this analysis.
Introduction

The individual and societal human costs associated with poor mental health are profound and well documented. Financially, mental illness is a double burden, not only requiring great resources for successful treatment, but also cutting the productivity of those affected. Mental illness is an independent risk factor for physical illness, and patients with mental disorders have disproportionately high rates of chronic illness compared to the general population. Those in care for mental illness generally die younger than the general population, and mental illnesses such as major depression often lead to suicide, the 11th most common cause of death in 2005. Further, mental illness is often responsible for damaging family networks and relationships, destabilizing the lives of close contacts of the mentally ill. An accurate understanding of a nation’s mental health status is crucial to promoting general well-being, ensuring appropriate research investments, and advocating effectively for the mentally ill.

Risk Factors for Mental Illness

Risk factors for mental illness include genetic predisposition, long-term exposure to stressful environments (e.g., dysfunctional family situations), and stressful personal experiences. The cognitive-relational theory developed by Lazarus and Folkman describes stress as a person’s reaction to a situation in which the demands of the environment exceed the coping resources of the individual. The effects of environmental stressors are additive, and prolonged exposure to high levels of stress can have lasting harmful effects. For example, research has indicated that individuals who have had traumatic experiences suffer worse mental health outcomes than does the general population. However, a supportive social environment has been shown to mediate the degree of coping and may influence mental health outcomes positively. Individual appraisal of the environmental demand as a positive challenge or one that is manageable also predicts successful coping.

Stressors and mental health in the military

The combat experience has long been associated with high levels of stress, and has been shown to result in long-term psychosocial damage in veterans. Mental health problems are consistently found to be among the most significant health issues for veteran populations. Research in this area has
focused on veteran access to mental health care services, concurrent alcohol abuse, and post-traumatic stress disorder (PTSD), among other topics. PTSD as an outcome of outcomes following the combat experience of Vietnam veterans has been studied extensively. Specific combat experiences that have been linked to PTSD include “being shot at, handling dead bodies, knowing someone who was killed, or killing enemy combatants.” At present, 15% of Vietnam veterans experience PTSD, in comparison to 3-4% of the general US population. A study published in November 2007 found that 20.3% of recent active-duty soldiers and 42.4% of recent reserve soldiers required mental health treatment. The authors suggest that the higher rate among reservists reflects a shorter period of care access, and better reflects the true rate of mental health illness among recent veterans. The mental health effects of the combat environment have clear long-term implications. Differences of poor mental health causation between veterans and non-veterans are not well-studied and may provide insight into the different stress pathways leading to mental health outcomes.

Global War on Terror

The present Global War on Terror (GWOT), encompassing wars in Afghanistan (Operation Enduring Freedom) and in Iraq (Operation Iraqi Freedom), has put great demands on the US military. Since the start of the campaign, approximately 1.5 million troops have been deployed, one-third of whom have been deployed at least twice, and 20,000 of whom have been deployed at least five times. As of 18 November 2007, 4,336 troops had been killed and 28,489 had returned with physical wounds and disabilities. Possible damage to mental health is a predictable result of physical trauma, emotional distress and long tours of duty, and some researchers have pointed to similarities of the GWOT to the Vietnam conflict in characterizing the rate of PTSD among recent veterans.

However, the GWOT differs from wars past. Amorphous battle objectives, civilian involvement (including contractors and bystanders), lengthy service tours, and lack of enemy clarity may be encountered more commonly by today’s soldiers. These features of the GWOT combined with advanced technological dependence, the concept of terror, and certain logistical difficulties, call into question the generalizability of Vietnam veteran research to the recent GWOT veteran population. Moreover, the
demographic background of the military has changed rapidly since the last prolonged US war. Now with an all-volunteer army, the rates of minority, female, and head of household military are on the rise, and requirements on education, age, and criminal records are becoming more lax. Research on the present generation of veterans is needed to evaluate the prevalence of mental health disorders and to inform our national response.

Existing research on mental health in today’s military

Recent studies examining the mental health of the current military population have measured raw rates of diagnosed mental illness, but have not considered correlated factors. Kang et. al. reported increasing rates of mental illness among returning veterans throughout the year 2005; they found that for the year as a whole, 26% of recent veterans were at risk of possible mental disorders. Hoge et al. have recently reported that “…in the military, mental disorders are the sixth leading illness category for ambulatory treatment, and frequently occur along with other medical conditions.” The most recent literature has examined specific questions about the accessibility of and barriers to mental health care, the changes in mental health status for veterans during their tour of duty, and the differences between the mental health outcomes of Operation Enduring Freedom (Afghanistan) veterans and those of Operation Iraqi Freedom.

Available evidence warns of an impending need for extensive mental health services for recent veterans, and as such, it is very important to estimate the actual prevalence of the mental health issues they face. It is also necessary to determine whether specific risk and protective factors for mental illness operate similarly among members of this population as they do among older veterans. A February 2007 report on the psychological needs of U.S. military service members and their families written by the American Psychological Association and a Presidential Task Force listed a dearth of literature as the greatest limitation to the study. Understanding the similarities and differences between different veteran populations will allow researchers to determine the applicability of older veteran research to the new population of veterans. Additionally, defining the veteran sub-populations most at risk for poor mental health outcomes will allow better targeting of interventions and educational campaigns.
Objectives

Although some strong research exists on the veteran population as a whole, there has been very little investigation of the predictors of poor mental health outcomes in the present generation of young veterans and military. The present study is an effort to address this information gap. Its specific aims are:

1. To use data from a national household survey to estimate the prevalence of mental health problems and potential demographic and general health risk and protective factors among veterans and non-veterans.
2. To examine associations between potential risk and protective factors and mental health status among veterans, and to compare such associations with those evident in the general population.
3. To determine whether veteran status, veteran age, or their interaction serve as independent risk factors for mental health problems when other factors are controlled.

Methodology

Participants

This study uses data from the Behavioral Risk Factor Surveillance System (BRFSS) survey. The BRFSS survey is conducted by the Centers for Disease Control and Prevention (CDC), and is designed to collect a representative sample of respondents for every US state, the District of Columbia, and the territories of Puerto Rico, Guam, and the Virgin Islands. The survey is intended to represent all non-institutionalized adults aged 18 or greater. The total number of volunteer participants in the 2006 BRFSS survey was 355,710.

For the first portion of the present analysis, the sample was restricted to participants providing a response to a question about the number of days in the last month on which they experienced poor mental health (n= 349,569). For the second portion of this analysis, the sample was restricted to participants from states that administered an optional depression and anxiety module (n= 195,048). Questions regarding diagnosis of an anxiety or depressive disorder garnered 186,852 responses. Thirty-
six locations participated in the anxiety and depression module, including Alabama, Alaska, Arkansas, California, Delaware, the District of Columbia, Florida, Georgia, Hawaii, Indiana, Iowa, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Oregon, Puerto Rico, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, the Virgin Islands, Virginia, West Virginia, Wisconsin, and Wyoming.

For all analyses performed in this study, the data were weighted according to CDC recommendations. The weighting procedures used reduce the effect of statistical assumptions that all records have an equal chance of being selected, and that the non-response rate is equal across all questions.

Instrument

The BRFSS is a telephone survey with closed-ended responses. The BRFSS uses random-digit dialing, and is based on a multistage cluster sampling design. In 2006, fifty-one locations used disproportionate stratified sampling, and thirty-eight locations used disproportionately sampled geographic strata to account for regional differences within the locality. Data collected for individual states was pooled to create a national dataset. In the 2006 survey, the response rates ranged from 35.1-66.0%, with a median response rate of 51.4%. On average, the survey takes volunteer respondents 10 minutes to complete. Questions for the BRFSS often come from other national surveys, including the National Health Interview Survey or the National Health and Nutrition Examination Survey, allowing the BRFSS to use questions that have previously been tested and the results of which may be compared against other surveys. All locations administer core sections of the BRFSS, and states may elect individually to include specific modules focusing on health factors of interest. In 2006, the BRFSS survey included 22 core sections (health status, healthy days and health-related quality of life, health care access, exercise, diabetes, oral health, cardiovascular disease prevalence, asthma, disability, tobacco use, demographics, veteran status, alcohol consumption, immunization and adult influenza, falls, seatbelt use, drinking and driving, women’s health, prostate cancer screening, colorectal cancer screening, HIV/AIDS, and emotional support and life satisfaction) and 17 optional module sections (random child selection,
child influenza vaccination, childhood asthma prevalence, diabetes, visual impairment and eye care access, healthy days symptoms, adult asthma history, family planning, folic acid, secondhand smoke policy, indoor air quality, home environment, reactions to race, anxiety and depression, sexual violence, intimate partner violence, and general preparedness).

Dependent Measures

In this study, there were two measures of the outcome of poor mental health. The first was the BRFSS core question, “How many days during the past 30 days was your mental health not good?” Its response options ranged from zero to thirty days, and it was treated as a continuous variable in the present analysis. The number of complete responses available for use in this analysis was 264,154.

For the second outcome measure, responses to the two following BRFSS modular questions were combined to create a single outcome variable.

1. “Has a doctor or other healthcare provider EVER told you that you had an anxiety disorder (including acute stress disorder, anxiety, general anxiety disorder, obsessive-compulsive disorder, panic disorder, phobia, posttraumatic stress disorder, or social anxiety disorder)?”

2. “Has a doctor or other healthcare provider EVER told you that you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)?”

Respondents answering “yes” to one or both questions were regarded to have a history of mental illness. The number of responses available for use in this analysis was 195,048.

Independent Measures

Both demographic and health and well-being characteristics were included as independent variables in this analysis because they were potential confounders of the relationships among veteran status, age, and mental illness. Demographic variables included age, marital status, presence of children in the home, education level, employment status, income level, sex, race, and veteran status. Health and
well-being variables included general health status, days of poor physical health, the use of disability equipment, emotional support, life satisfaction, and alcohol abuse.

For analyses involving the continuous dependent variable, number of days of poor mental health, the variables of age, education level, income level, general health status, days of poor physical health, emotional support, and life satisfaction were treated as continuous variables. Sex, use of disability equipment, and veteran status, were dichotomous categorical variables in the original data set, and were treated as such in these analyses. The number of children in the home was collapsed into a dichotomous value to reflect the study’s interest in the presence of any children in the home. A dichotomous “heavy drinker” variable was computed for use in these analyses and represents adult men having more than two drinks per day and adult women having more than one drink per day. Employment status and marital status were each collapsed to three-value categorical variables. The collapsing of employment status into currently employed, currently unemployed, and retired responses was based on associations of unemployment with increased stress and retirement with decreased stress. The collapsing of marital status into married, never married, and divorced, separated, or widowed was based on the premise that divorce, separation, or widowing represents a stressful life event, while marriage can increase the level of available social support and social support, in turn, represents a potential mediator of stress. The variable of race was categorized into four values: White Non-Hispanic, Black Non-Hispanic, Hispanic, and Other Race or Multiracial Non-Hispanic.

For the analyses involving the categorical dependent variable, diagnosis of an anxiety or depressive disorder, all independent variables were evaluated in categories. Sex, use of disability equipment, veteran status, employment status, marital status, and race were considered as in the first analysis. Age, general health status, number of poor physical health days, education, income, emotional support, and life satisfaction were collapsed into categories for analysis. Age was dichotomized into those younger and older than 35 years. Thirty-five years was chosen as a breakpoint to best estimate veterans participating in the GWOT (18-35 years old) and those participating in earlier conflicts (older than 35 years old). General health status was analyzed according to original response values: excellent,
very good, good, fair, and poor. The number of poor physical health days was split into four categories: zero days, 1-10 days, 11-20 days, and 21-30 days. Education level was collapsed into four categories: less than a high school education, high school education, some college or technical school, and college graduate. Use of the less than high school education category collapsed several categories with small numbers of responses. Income level was evaluated by collapsing the eight original values into four, less than $15,000, $15,000-$25,000, $25,000-$50,000, and $50,000 or more. Emotional support was considered using its original five values: always, usually, sometimes, rarely, and never. Life satisfaction was likewise considered using its original four values: very satisfied, satisfied, dissatisfied, and very dissatisfied.

Statistical Analyses

Descriptive, bivariate and multivariate statistics were calculated for the continuous outcome variable, number of days of poor mental health. Background demographic and health status information were determined for all participants providing a response to all considered questions. For originally continuous variables (age, days of poor physical health, and days of poor mental health), means and standard errors are provided. For originally categorical variables (all other variables), the frequency and percentage of each response were calculated. The correlation of each variable with days of poor mental health was calculated to determine strength of association and to detect possible multiple multicollinearity. Interactions of both age and veteran status and gender and veteran status were calculated but found to be insignificant. Finally, multiple linear regression was used to determine the relationship between days of poor mental health and independent variables. Variables not demonstrating a significant relationship with the number of days of poor mental health were removed in a stepwise manner to achieve the best predictive model (p-value of the F-value > 0.05). Variable beta weights and p-values, and the overall regression coefficient are reported for the final regression model.

Descriptive, bivariate, and multivariate statistics were likewise calculated for the second outcome variable, diagnosis of anxiety or depressive disorder. Background demographic and health status information were determined for all participants providing a response to the question about having been diagnosed with anxiety or depression. The frequency and percentage of each categorical response value
was calculated. The prevalence of diagnosis of anxiety or depression was calculated for each demographic and health status variable. Unadjusted odds ratios were calculated for each variable, and interactions of both age and veteran status and gender and veteran status were calculated but found to be insignificant. Variables found to be significantly associated with the dependent variable were included in a multiple logistic regression model (p-value of the chi-square < 0.05). The odds ratios and confidence intervals of variables remaining in the final logistic model are reported.

**Results**

I. **Logistic regression analysis of the dichotomous outcome: Diagnosis of anxiety or depression.**

**Participant characteristics**

Table 1 provides background demographic and health status characteristics for the BRFSS module participants. Veteran status was reported by 19.49% of the sample; 79.89% of the sample reported non-veteran status. Background demographic and health characteristics of participating veterans and non-veterans are shown in table 1. Veterans in the sample were older than non-veterans (87.07% vs. 62.80% over 35 years old, respectively), and a higher percentage were male (93.14% vs. 41.89%, respectively). In comparison to non-veterans, higher percentages of veterans reported being married or having been married, having children in the home, and being retired. Veterans reported higher levels of education, and a higher income. A higher percentage of veterans were White Non-Hispanics, and fewer were Hispanic. The reports of veterans and non-veterans were similar regarding general health status, days of poor physical health, use of disability equipment, and level of alcohol use. Similarly, veterans and non-veterans reported similar levels of emotional support and life satisfaction. Non-veterans reported higher rates of diagnosis of a depressive or anxiety disorder (22.21% vs. 16.04%).

**Prevalence of diagnosis**

As seen in Table 2, the prevalence of depressive or anxiety disorder was highest among non-veterans (25.70%, vs. 10.79% in the veteran population). In comparing the veteran and non-veteran populations, similar diagnosis prevalence patterns were found for most variables. For both populations,
the highest rates were seen among those who were unemployed, had the lowest incomes, were female, used disability equipment, and heavy drinkers. Increasing prevalence of anxiety and depressive disorders was associated with decreasing general health status, increasing days of poor physical health, decreasing levels of emotional support, and decreasing levels of life satisfaction. For veterans and non-veterans, being married and being a college graduate were found to be associated with the lowest rates of anxiety or depression diagnosis.

Diagnosis prevalence patterns differed between the veteran and non-veteran populations when compared by the variables of age, children, and race. Among non-veterans, those older than 35 had a higher prevalence of diagnosis (22.66% vs. 20.89%); among veterans, those aged 18-35 had a higher prevalence of diagnosis (18.30% vs. 15.90%). Non-veterans with children had a slightly higher prevalence of diagnosis, while veterans with children had a lower prevalence. Although black veterans and non-veterans reported the lowest prevalence of diagnosis, among non-veterans, whites reported the highest rates of anxiety or depression diagnosis and among veterans, Hispanics and member of other racial groups reported the highest rates.

Logistic regression models

Logistic regression modeling found that veteran status, income, and presence of children in the home were not associated with diagnosis of anxiety or depression, so these variables were not included in the final logistic model (see Table 3). Older age (35 and older) was found to be a protective factor with an odds ratio of 0.88 in comparison with younger age (18-34). Females were more likely to report diagnosis (OR = 2.02), and minority status was found to be associated with reduced likelihood of anxiety or depression diagnosis. Increased education level (some college or college graduate) was found be associated with diagnosis of anxiety or depression (OR = 1.17, 1.14 respectively). Individuals divorced, separated, or widowed had a higher risk of diagnosis in comparison to those currently married or partnered (OR = 1.22). Retired employment status was associated with a lower risk of diagnosis (OR=0.76), while unemployed status was associated with a higher risk (OR = 1.43). Heavy drinkers were associated with a higher rate of diagnosis (OR = 1.28). Declining general health status, increasing days of
poor physical health, and use of disability equipment were associated with greater likelihood of diagnosis, as were decreasing levels of emotional support and decreasing levels of life satisfaction.

Separate logistic regression models for the veteran population and for the non-veteran population are also provided in Table 3. For both models, observed results for all variables were in the same direction, though not all relationships remained significant. For both models, college graduate status lost significance. For the veteran model, marital status, education level, use of disability equipment, and heavy alcohol consumption were removed from the model. Further, retired status, Hispanic or other/multiracial race, and poor health status were not found to be significantly associated with diagnosis of anxiety or depression.

II. Multiple linear regression analysis of continuous outcome: Number of poor mental health days.

Participant characteristics

The average age of survey participants supplying a number of poor mental health days was 44.94 years. Veterans were significantly older than non-veterans (56.42 vs. 43.19 years). The average number of poor physical health days for the total population was 2.81 of the last 30; the average number of poor mental health days was 3.01 days. For veterans, the average number of poor physical health days (3.38 days) was higher than the average number of poor mental health days (2.19 days). For non-veterans, the average number of poor physical health days (2.73 days) was lower than the average number of poor mental health days (3.13 days). Complete descriptions of the continuous variables considered are provided in Table 4. Table 4 also provides the frequencies of categorical data for the population as a whole and by veteran status. In general, the participants analyzed for the number of poor mental health days outcome were similar to the diagnosis of anxiety or depression outcome. Veterans were more likely to be male (93.11% vs. 43.05%, respectively). In comparison to non-veterans, veterans were more likely to be married or have been married, more likely to have children in the home, and more likely to be retired. Veterans tended to have a higher level of education, and a higher income. Veterans were more likely than non-veterans to be White Non-Hispanics, and less likely to be Hispanic. In regard to general health status, reported days of poor physical health, use of disability equipment, and level of alcohol use,
veterans and non-veterans reported similar experiences. Similarly, veterans and non-veterans reported similar levels of emotional support and life satisfaction.

**Correlation with poor mental health days**

The number of poor mental health days was most strongly correlated with level of life satisfaction ($r = 0.273$), level of emotional support ($r = 0.220$) and number of poor physical health days ($r = 0.213$). The correlation of number of poor mental health days and all considered variables is provided in Table 5. Evaluation of number of poor mental health days correlation with variables in the veteran and non-veteran groups specifically showed no significant difference in correlation pattern.

**Linear regression models**

Significant predictors in the final linear regression model for the entire population included veteran status, age, sex, general health status, days of poor physical health, emotional support, life satisfaction, divorced, separated, or widowed marital status, Black race, Hispanic ethnicity, unemployment, and heavy drinker status. Life satisfaction contributed the most to the model, and was positively correlated; the number of poor mental health days increased with worsening life satisfaction level ($\text{Beta} = 2.498$). Unemployed status was likewise positively correlated, and was associated with a greater number of days poor mental health ($\text{Beta} = 1.469$). Male sex was negatively correlated, such that female sex was associated with greater number of poor mental health days ($\text{Beta} = -1.234$). Complete information on the final model is provided in table 6. Non-veteran status, younger age, drinking heavily, worsening general health status, increasing number of days of poor physical health, lower levels of both emotional support and life satisfaction, and being divorced, separated, or widowed were found to be independently associated with number of days of poor mental health. Black non-Hispanic and Hispanic race were found to predict fewer days of poor mental health. The model as a whole had an $r^2$ of 0.1703, accounting for 17.03% of the total variance in number of poor mental health days reported. Similar results were found for the models run for the veterans and the non-veterans separately. For the veteran model, divorced, separated, or widowed marital status and Hispanic ethnicity were found to be not significantly associated with number of days poor mental health, but all other factors retained the same
relationship. The model as a whole had an $r^2$ of 0.1454, accounting for 14.54% of the total variance in number of poor mental health days reported. For the non-veteran model, other race non-Hispanic was found to be significantly associated with number of days poor mental health, in addition to all variables included in the entire population model. The model as a whole had an $r^2$ of 0.1734, accounting for 17.34% of the total variance in number of poor mental health days reported.

**Discussion**

Counter to the expectations of this investigator, neither of the measures of mental illness employed in the present study was positively associated with military experience. In fact, in unadjusted analyses of diagnosis of anxiety or depression and in adjusted and unadjusted analyses of number of days of poor mental health, veteran status was found to be a protective factor.

Not only were these findings consistent across dichotomous and continuous measures of mental health outcomes, the validity of the present results is supported by the fact that the two mental health outcome variables were complementary in several ways. Reports of clinical diagnoses indicate a history of serious mental illness but this measure does not necessarily capture or imply current impairment. Diagnoses may also be subject to more social stigma than number of days of poor mental health, and hence to reporting bias due to social desirability. By contrast, number of days of poor mental health is relatively subject to memory bias.

There are several possible explanations for the deviation of these findings from results expected on the basis of theory and previous research. Individuals are screened for physical and mental health problems before entering the military, and volunteers may self-select military service if they are more capable of handling stress than the general population. Veterans may have been socialized into a stoic culture that makes them feel particularly uncomfortable discussing mental health status, so they may underreport their symptoms. Differences in medical care between veterans and non-veterans may include less likely diagnosis of mental illness in veterans. Possibly, experience with high stress situations may make veterans better adapted to handling stress in daily civilian life, in comparison with non-
veterans. Compared with non-veterans, veterans may have appraised ordinarily stressful events as positive indications of progress towards military objectives, or reframed the events in some other protective way. Finally, higher rates of homelessness and institutionalization among severely mentally ill veterans may have skewed the outcomes of this study, as only households were included.

This study also sought to determine whether participation in the current GWOT resulted in higher rates of poor mental health outcomes in comparison to participation in previous US conflicts and wars. Again, contrary to expectations, these findings suggested that mental health outcomes are not different in veterans of the current GWOT. Rather, younger age was found to be a risk factor for poor mental health for all participants, and was not significantly stronger or weaker as risk factor for the veteran population. This trend may be a result of generational differences in exposure to stress, or may be reflective of recent trends in screening and mental health awareness.

When diagnosis prevalence was broken down by demographic variables, similar patterns were observed among veterans and non-veterans. Where differences occurred, relationships in the veteran population were not significant, and most likely reflect a less sizable sample.

Females were found to be more likely to experience poor mental health outcomes in all samples, indicating that women are at higher risk for mental illness. Contrary to previous research, minority status was found in this study to be protective for mental illness. These findings may represent a bias among minorities in reporting mental health status to be better than it is, or may represent differential diagnosis and awareness of mental health between whites and minorities. Being divorced, separated, or widowed was found to increase the likelihood of poor mental health outcome in both analyses, while having never been married was not. This suggests that the experience of leaving a marriage may contribute significantly to lifetime stress, and thereby increase risk of mental illness. Higher education was found to be associated with a greater likelihood of diagnosis of anxiety or depression, but not with an increased number of poor mental health days. This discrepancy may reflect a greater rate of mental health screening during the college experience, or a higher rate of mental illness during the college years. Without information on when diagnosis of anxiety or depression was made, interpretation of this finding
is limited. Income was not found to be associated with mental health status by either analysis, but employment status was – suggesting that financial stability may be more important to mental health outcome than income level itself. Unemployment was very strongly predictive of poor mental health outcomes by both analyses – perhaps reflecting the effects of both financial stress and feelings of self-worth related to unemployment. Retired status was found to be significantly protective in the logistic analysis, but was found to be insignificant in the linear analysis. This difference may be potentially explained by the long lifetime of retirees, in which a mental health diagnosis may have been made, versus the recent mental health focus of the mental health days outcome. Heavy drinking was associated with a higher number of days of poor mental health, as well as with a diagnosis of anxiety or depression. This relationship supports the hypothesis that alcohol may be used in abuse as a means of coping with poor mental health.

The health variables of general health status and days of poor physical health were in general very predictive of mental health status and were largely consistent between veterans and non-veterans. For general health status, declining health status was directly related to worsening mental health outcomes. Logistic regression found a significant trend in odds ratios of declining status groups, and a significant beta-weight corroborated these findings in the linear regression. Similarly, increasing number of poor physical health days was found to be a risk for increasing number of poor mental health days in both analyses. This finding suggests that physical health status has a direct relationship with mental health outcomes, and that individual mental health is significantly influenced by one’s physical health condition.

Strikingly, the use of disability equipment significantly increased the likelihood of poor mental health outcomes in veterans, but not in non-veterans or the general population. This trend was found in both analyses, and presents important findings. Veterans were more likely than non-veterans to use equipment for a disability, a trend that suggests combat-caused disability accounts for a significant percentage of disability among veterans. Such disabilities likely serve as a constant reminder of combat experiences and may increase the effect of such stressful memories on mental health outcomes.
Emotional support and life satisfaction served to indicate social health status. In both analyses, declining social health (decreasing degrees of emotional support and decreasing levels of life satisfaction) were found to be significantly associated with poorer mental health outcomes. Emotional support trends consistently revealed an interesting trend. As reported support levels declined from “Always” to “Rarely”, the associated mental health outcome declined significantly. However, among those reporting “Never”, the odds of a poor mental health outcome were generally low, and were less than those reporting “Usually”. This trend suggests that participants reporting never having emotional support may be secure in that reality and unaffected mentally. Importantly, this trend dilutes the significance of emotional support in the linear regression model and underestimates the strength of influence emotional support has on mental health outcome.

Life satisfaction was found to be the strongest predictor of mental health outcome. This is not a surprising outcome, as feelings of life satisfaction are closely tied with mental health by definition. However, the correlation between the two variables (r = 0.273 for the total sample) does not suggest that the two variables measure the same event. Rather, level of life satisfaction serves as the strongest predictor of poor mental health outcome in both analyses.

Several limitations of the measures and design employed in this study suggest caution in interpreting its results. Because the study used the BRFSS survey, a secondary data source, questions were not designed specifically to test the question at hand. Most significantly, the survey does not provide any further information on veteran status past defining whether one is a veteran or not. Information on when one saw service, the location and length of military service, and position in the military would all provide valuable information in answering the questions posed by this survey. Detailed information on the experience of combat and the perception of stress would likewise serve to elucidate the question at hand. Similarly, several variables are limited in their capacity to measure stressful impact. Questions on marital status do not account for previous marriages or marital quality. No question asks participants about lifetime income levels, their childhood experience, or the stability of their employment. Further details on these variables would be useful in better defining stressful co-
factors. In consideration of findings on equipment-requiring disability, the question refers to a wide spectrum of disability equipment, and does not distinguish between disabilities present from birth and those caused during the lifespan. The ability to identify disability specifically caused by combat experience would clarify the relationship between veterans, disability, and mental health. Finally, the survey does not provide information on family history of mental illness, an important consideration when examining causes of poor mental health.

The multiple-choice questionnaire format limited the information gathered and reduces the capacity to draw conclusions. For example, participants report their income by selecting a range, rather than by providing an exact number. This reduces the ability to examine income as a truly linear variable, and may limit the conclusions that may be drawn.

General shortcomings of the BRFSS survey have been well-documented. The survey is landline telephone based, and faces an inherent bias because the likelihood of having a landline phone is not equal across socio-economic and age groups. Significantly, the results of the survey are based completely on self-report. Research has found that underreporting of socially taboo characteristics, such as poor mental health, may present a problem in self-reported data.

Finally, as mentioned above, the BRFSS survey is designed to capture information on the general de-institutionalized United States population. Individuals currently in correctional facilities, group homes, or health facilities – including mental health facilities – are not included in the sample. Rather, the survey is designed to be representative of the general population. Individuals with extreme mental health problems are frequently displaced from conventional living environments and live on the streets or in mental health facilities.

**Conclusions**

The current political climate and the significant stress placed on today’s military make the question of veteran mental health important and timely. The mental health outcomes of Vietnam veterans are largely responsible for the policies guiding present mental health care of combat veterans.
Research has found that use of mental health care among veterans is low, and strongly suggests that social stigma surrounding mental health issues is responsible. Despite the clear importance of mental illness among veterans, many studies have focused solely on the physical health conditions of veterans and neglected mental health altogether. Serious consideration of the mental health impacts of combat on today’s military is necessary if the best care is to be given to veterans.

Despite the overall findings of the present study, young veterans of the GWOT may be at greater risk for poor mental health outcomes. The present data did suggest that the impact of disability disproportionately affects the mental health outcomes of veterans in comparison to non-veterans. Further research is necessary to determine the true mental health status of today’s recent veterans. Studies that not only detail the personal combat experience of veterans but also probe their appraisal of the experience and that use mental health measures that are robust in the face of reporting bias would be very useful. The mental health issues faced by veterans can have long-term health impacts. Studies offering insight into the extent and causes of poor mental health outcomes will be invaluable in identifying service needs among returning veterans and crafting appropriate and humane social policies in this area. As the number of veterans grows, the need for such information becomes ever more pressing and timely.
Table 1: Background demographic and health status characteristics of 2006 BRFSS mental health module participants, in total and by veteran status

<table>
<thead>
<tr>
<th></th>
<th>Total Mental Health Module Participants (n = 195,348)</th>
<th>Veterans (n = 27,816)</th>
<th>Non-Veterans (n = 167,532)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
</tr>
<tr>
<td>Diagnosis of anxiety or depression</td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>41,364</td>
<td>19.49</td>
<td>4,462</td>
</tr>
<tr>
<td>No</td>
<td>143,464</td>
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<tr>
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<td>13.04</td>
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<tr>
<td>Non-veteran</td>
<td>167,532</td>
<td>86.96</td>
<td>24,717</td>
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<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>18-34 years</td>
<td>35,137</td>
<td>33.42</td>
<td>1,842</td>
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<tr>
<td>35+ years</td>
<td>158,166</td>
<td>66.58</td>
<td>23,819</td>
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<tr>
<td>Male</td>
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<td>Female</td>
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<td>Divorced, separated, widowed</td>
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<td>18.38</td>
<td>7,529</td>
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<td>22,693</td>
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<tr>
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<td>30.92</td>
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<td>95.30</td>
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Continued on next page
Table 1: Background demographic and health status characteristics of 2006 ERFSS mental health module participants, in total and by veteran status (Continued)

<table>
<thead>
<tr>
<th></th>
<th>Total Mental Health Module Participants (n = 195,045)</th>
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<th>Non-Veterans (n = 165,999)</th>
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<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
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<tr>
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<td>59,200</td>
<td>30.15</td>
<td>6,532</td>
</tr>
<tr>
<td>Fair</td>
<td>26,045</td>
<td>13.49</td>
<td>3,572</td>
</tr>
<tr>
<td>Poor</td>
<td>11,366</td>
<td>5.89</td>
<td>1,448</td>
</tr>
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<td><strong>Days Poor Physical Health</strong></td>
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<td>44,009</td>
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<td>8,621</td>
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<td>9.01</td>
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<tr>
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<td>47.90</td>
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<tr>
<td>Usually</td>
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<td>7,683</td>
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<td>Sometimes</td>
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<td>11.03</td>
<td>3,337</td>
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<td>Rarely</td>
<td>6,812</td>
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<td>915</td>
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<tr>
<td>Never</td>
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<td>2,011</td>
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<tr>
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<td>265</td>
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<td></td>
<td>Total Mental Health</td>
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<td>Module Participants</td>
<td>Veterans</td>
<td>Non-Veterans</td>
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<td>N</td>
<td>N</td>
</tr>
<tr>
<td><strong>Veteran</strong></td>
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<td></td>
</tr>
<tr>
<td>Veteran</td>
<td>44,364</td>
<td>4,462</td>
<td>10.7% (10.05, 11.05)</td>
</tr>
<tr>
<td>Non-veteran</td>
<td>140,406</td>
<td>35,874</td>
<td>25.7% (25.45, 26.92)</td>
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<tr>
<td><strong>Age</strong></td>
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<tr>
<td>15-34Years</td>
<td>35,137</td>
<td>7,256</td>
<td>20.6% (20.02, 21.20)</td>
</tr>
<tr>
<td>35+Years</td>
<td>125,166</td>
<td>33,900</td>
<td>26.8% (26.35, 27.24)</td>
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<tr>
<td><strong>Sex</strong></td>
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</tr>
<tr>
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<td>78,584</td>
<td>10,960</td>
<td>14.0% (13.97, 14.12)</td>
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<tr>
<td>Female</td>
<td>120,404</td>
<td>30,224</td>
<td>25.1% (24.84, 25.45)</td>
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<td><strong>Race</strong></td>
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<td></td>
</tr>
<tr>
<td>White Non-Hispanic</td>
<td>145,082</td>
<td>35,793</td>
<td>24.6% (24.24, 25.07)</td>
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<tr>
<td>Black Non-Hispanic</td>
<td>17,936</td>
<td>2,416</td>
<td>13.6% (13.01, 14.29)</td>
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<tr>
<td>Hispanic</td>
<td>16,509</td>
<td>3,756</td>
<td>22.8% (22.31, 23.39)</td>
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<tr>
<td>Other/Multi-</td>
<td>12,290</td>
<td>2,357</td>
<td>19.1% (18.65, 19.59)</td>
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<td><strong>Marital Status</strong></td>
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<td>20,956</td>
<td>18.5% (18.13, 19.32)</td>
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<tr>
<td>Never married</td>
<td>28,669</td>
<td>3,293</td>
<td>11.5% (11.03, 12.02)</td>
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<tr>
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<td>84,006</td>
<td>14,693</td>
<td>17.7% (17.36, 18.16)</td>
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<tr>
<td><strong>Children</strong></td>
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</tr>
<tr>
<td>Yes</td>
<td>131,052</td>
<td>27,705</td>
<td>21.4% (21.02, 21.87)</td>
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<td>Less than high school</td>
<td>21,907</td>
<td>5,011</td>
<td>22.9% (22.42, 23.39)</td>
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<td>11,945</td>
<td>23.3% (22.87, 23.76)</td>
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<td>College graduate</td>
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<td>11,949</td>
<td>19.2% (18.90, 20.19)</td>
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<td><strong>Employment Status</strong></td>
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<td>19.5% (19.34, 19.78)</td>
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<td>7,537</td>
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<td>Retired</td>
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<td>12.4% (11.90, 13.01)</td>
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<td><strong>Income Level</strong></td>
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<td>7,060</td>
<td>32.5% (31.93, 33.20)</td>
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<td>More than $50,000</td>
<td>66,373</td>
<td>12,100</td>
<td>18.1% (17.83, 18.47)</td>
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Continue on next page
Table 2: History of anxiety or depression diagnosis among veterans and non-veterans, by background demographic and health status, variables, 2006 BRFSS mental health module participants (Continued)

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<tr>
<th></th>
<th>Total Mental Health Module Participants</th>
<th>Veterans</th>
<th>Non-Veterans</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Total</td>
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<td>% (95%CI)</td>
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<td>8,759</td>
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<td>38,628</td>
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<tr>
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<td>Excellent</td>
<td>36,540</td>
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<td>10,907</td>
<td>17.81 (17.61, 18.22)</td>
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<td>59,200</td>
<td>12,720</td>
<td>21.49 (21.16, 21.82)</td>
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<td>Fair</td>
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<td>8,155</td>
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<td>Poor</td>
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<td>4,857</td>
<td>42.75 (41.53, 43.96)</td>
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<tr>
<td>Days Physical Healthnot Good</td>
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</tr>
<tr>
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<td>121,317</td>
<td>18,475</td>
<td>15.23 (15.03, 15.43)</td>
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<td>44,009</td>
<td>11,920</td>
<td>27.09 (26.67, 27.50)</td>
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<td>3,251</td>
<td>38.15 (37.12, 39.20)</td>
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<td>17,249</td>
<td>6,949</td>
<td>39.98 (38.93, 40.42)</td>
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<td>Use of equipment</td>
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<td>Yes</td>
<td>18,164</td>
<td>6,366</td>
<td>35.05 (34.35, 35.75)</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>Always</td>
<td>93,773</td>
<td>14,431</td>
<td>15.39 (15.16, 15.62)</td>
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<tr>
<td>Rarely</td>
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Table 3: Crude and adjusted odds ratios of diagnosis of anxiety or depression among BRFSS participants

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*All variables significant in unadjusted odds ratios included in adjusted logistic model

Continued on next page
Table 3: Crude and adjusted odds ratios of diagnosis of anxiety or depression among BRFSS participants (Continued)

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*All variables significant in unadjusted odds ratios included in adjusted logistic model
Table 4a: Age and health status characteristics of complete 2006 BRFSS participants

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<td>SE</td>
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Table 4b: Veteran status, demographics, and health status characteristics of complete 2006 BRFSS participants

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<th>Non-Veterans (n = 225,463)</th>
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<td>Frequency</td>
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<td><strong>General Health</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Excellent</td>
<td>53,493</td>
<td>22.32</td>
<td>7,038</td>
</tr>
<tr>
<td>Very good</td>
<td>92,606</td>
<td>36.33</td>
<td>12,566</td>
</tr>
<tr>
<td>Good</td>
<td>76,920</td>
<td>32.03</td>
<td>12,471</td>
</tr>
<tr>
<td>Fair</td>
<td>28,116</td>
<td>10.90</td>
<td>4,841</td>
</tr>
<tr>
<td>Poor</td>
<td>8,099</td>
<td>3.22</td>
<td>1,725</td>
</tr>
<tr>
<td><strong>Use of equipment</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>16,358</td>
<td>6.05</td>
<td>3,483</td>
</tr>
<tr>
<td>No</td>
<td>247,796</td>
<td>93.95</td>
<td>35,212</td>
</tr>
</tbody>
</table>

Continued on next page
<table>
<thead>
<tr>
<th>Emotional support</th>
<th>Veterans (n = 30,691)</th>
<th>Non-Veterans (n = 225,463)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Always</td>
<td>132,932</td>
<td>49.95</td>
</tr>
<tr>
<td>Usually</td>
<td>83,500</td>
<td>31.13</td>
</tr>
<tr>
<td>Sometimes</td>
<td>20,203</td>
<td>11.14</td>
</tr>
<tr>
<td>Rarely</td>
<td>7,641</td>
<td>3.18</td>
</tr>
<tr>
<td>Never</td>
<td>11,719</td>
<td>4.30</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very satisfied</td>
<td>126,967</td>
<td>47.29</td>
</tr>
<tr>
<td>Satisfied</td>
<td>126,544</td>
<td>46.73</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>8,832</td>
<td>3.32</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>1,791</td>
<td>0.66</td>
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</table>
Table 5: Correlation of background demographic and health status variables with number of poor mental health days, BRFSS 2006

<table>
<thead>
<tr>
<th></th>
<th>Complete Participants (n = 264,154)</th>
<th>Veterans (n = 36,691)</th>
<th>Non-Veterans (n = 225,463)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r*</td>
<td>P-value</td>
<td>r</td>
</tr>
<tr>
<td>Number of poor mental health days</td>
<td>1.000</td>
<td>&lt;.0001</td>
<td>1.000</td>
</tr>
<tr>
<td>Non-veteran status</td>
<td>0.045</td>
<td>&lt;.0001</td>
<td>-0.082</td>
</tr>
<tr>
<td>Increasing age</td>
<td>-0.091</td>
<td>&lt;.0001</td>
<td>-0.099</td>
</tr>
<tr>
<td>Male gender</td>
<td>0.086</td>
<td>&lt;.0001</td>
<td>0.080</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Non-Hispanic</td>
<td>-0.016</td>
<td>&lt;.0001</td>
<td>-0.007</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-0.017</td>
<td>&lt;.0001</td>
<td>-0.028</td>
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<tr>
<td>Other Race or Multiracial</td>
<td>-0.021</td>
<td>&lt;.0001</td>
<td>-0.038</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>-0.044</td>
<td>&lt;.0001</td>
<td>-0.031</td>
</tr>
<tr>
<td>Divorced, separated, widowed</td>
<td>-0.055</td>
<td>&lt;.0001</td>
<td>-0.074</td>
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<tr>
<td>Children</td>
<td>0.047</td>
<td>&lt;.0001</td>
<td>0.046</td>
</tr>
<tr>
<td>Increasing education level</td>
<td>-0.070</td>
<td>&lt;.0001</td>
<td>-0.050</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>-0.114</td>
<td>&lt;.0001</td>
<td>-0.105</td>
</tr>
<tr>
<td>Retired</td>
<td>0.058</td>
<td>&lt;.0001</td>
<td>0.040</td>
</tr>
<tr>
<td>Increasing income status</td>
<td>-0.128</td>
<td>&lt;.0001</td>
<td>-0.114</td>
</tr>
<tr>
<td>Heavy alcohol consumption</td>
<td>0.035</td>
<td>&lt;.0001</td>
<td>0.045</td>
</tr>
<tr>
<td>Declining general health status</td>
<td>0.205</td>
<td>&lt;.0001</td>
<td>0.199</td>
</tr>
<tr>
<td>Increasing frequency of poor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>physical health days</td>
<td>0.244</td>
<td>&lt;.0001</td>
<td>0.245</td>
</tr>
<tr>
<td>Use of disability equipment</td>
<td>-0.069</td>
<td>&lt;.0001</td>
<td>-0.103</td>
</tr>
<tr>
<td>Declining emotional support</td>
<td>0.201</td>
<td>&lt;.0001</td>
<td>0.157</td>
</tr>
<tr>
<td>Declining life satisfaction</td>
<td>0.318</td>
<td>&lt;.0001</td>
<td>0.303</td>
</tr>
</tbody>
</table>

*Pearson correlation coefficient
Table 6: Adjusted multiple linear regression model of predictor variables on days of poor mental health, BRFSS 2006

<table>
<thead>
<tr>
<th></th>
<th>Total Sample (n = 264,154)</th>
<th>Veterans (n = 38,691)</th>
<th>Non-Veterans (n = 225,463)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjusted Beta Pr &gt;</td>
<td>t</td>
<td>Adjusted Beta Pr &gt;</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.925 &lt;.0001</td>
<td>0.368 0.5083</td>
<td>-1.049 &lt;.0001</td>
</tr>
<tr>
<td>Non-veteran status</td>
<td>0.323 0.0002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.055 &lt;.0001</td>
<td>-0.047 &lt;.0001</td>
<td>-0.057 &lt;.0001</td>
</tr>
<tr>
<td>Male gender</td>
<td>-1.234 &lt;.0001</td>
<td>-1.069 0.003</td>
<td>-1.242 &lt;.0001</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Non-Hispanic</td>
<td>-0.523 &lt;.0001</td>
<td>-0.650 0.0059</td>
<td>-0.532 &lt;.0001</td>
</tr>
<tr>
<td>Hispanic</td>
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<td></td>
<td>-0.815 &lt;.0001</td>
</tr>
<tr>
<td>Other Race or Multiracial</td>
<td></td>
<td>-0.280 0.0381</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>0.388 &lt;.0001</td>
<td></td>
<td>0.427 &lt;.0001</td>
</tr>
<tr>
<td>Divorced, separated, widowed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>1.469 &lt;.0001</td>
<td>1.756 0.0213</td>
<td>1.415 &lt;.0001</td>
</tr>
<tr>
<td>Retired</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy alcohol consumption</td>
<td>-1.104 &lt;.0001</td>
<td>-1.115 &lt;.0001</td>
<td>-1.109 &lt;.0001</td>
</tr>
<tr>
<td>Declining general health status</td>
<td>0.496 &lt;.0001</td>
<td>0.393 &lt;.0001</td>
<td>0.514 &lt;.0001</td>
</tr>
<tr>
<td>Increasing frequency of poor physical health days</td>
<td>0.194 &lt;.0001</td>
<td>0.130 &lt;.0001</td>
<td>0.195 &lt;.0001</td>
</tr>
<tr>
<td>Use of disability equipment</td>
<td>0.896 0.0013</td>
<td>0.515 &lt;.0001</td>
<td>0.666 &lt;.0001</td>
</tr>
<tr>
<td>Declining emotional support</td>
<td>0.655 &lt;.0001</td>
<td>0.513 &lt;.0001</td>
<td>0.686 &lt;.0001</td>
</tr>
<tr>
<td>Declining life satisfaction</td>
<td>2.498 &lt;.0001</td>
<td>2.030 &lt;.0001</td>
<td>2.363 &lt;.0001</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.1703 \quad R^2 = 0.1454 \quad R^2 = 0.1734 \]

*Never married marital status, presence of children in home, income, education level, and retired employment status removed from model when determined to be insignificant in preliminary analysis.
References


2 http://www.cdc.gov/pcd/issues/2006/apr/05_0216.htm

3 http://www.cdc.gov/ncipc/dvp/Suicide/SuicideDataSheet.pdf

4 American Psychological Association: Presidential task force on military deployment services for youth, families and service members, 2007.


23 American Psychological Association: Presidential task force on military deployment services for youth, families and service members, 2007.


American Psychological Association: Presidential task force on military deployment services for youth, families and service members, 2007.


Hoge CW, Auchterlonie JL, Milliken CS: Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. American Medical Association 2006; 295(9): 1023-1032.


Hoge CW, Auchterlonie JL, Milliken CS: Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. American Medical Association 2006; 295(9): 1023-1032.

The report writes, “a major limitation encountered by the Task Force in the preparation of this report was the scarcity of rigorous research conducted explicitly on the mental health and well-being of service members and families during periods of major military operations. Significant gaps exist in our understanding of the complex psychosocial and social effects on military personnel confronting the kinds of war zone exposures characteristic of the Global War on Terror…” American Psychological Association: Presidential task force on military deployment services for youth, families and service members, 2007.


39 Personal interview with David Quimby, CIV USA HRC, Human relations for the US Army

