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Veteran Status Affecting Health

Brittney Landry
Johnson & Wales University - Providence, j02272491@jwu.edu

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By Brittney Landry

Advisor: Jonathan Noel
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Introduction

Epidemiology

In 2018, there were about 18 million Americans who were veterans of the United States (U.S.) armed forces.[1] These veterans served in the Vietnam Era (1955-1975) , Gulf War (1990-2001), and 9/11 (2001 to present). Between 2000 and 2019 there was a decline in the number of veterans from 26.4 million to 18.0 million. This is expected to continue to decline by 2.5 million per decade and by 2040, it is estimated that only 12.9 million veterans will be living in the US. The median age of veterans today is about 65 years old.[1] These veterans have more or less likely experienced a health problem either during their time in the service or after. Mental health includes someone's emotional, psychological and social well-being. It can change over time and also be affected by traumatic experiences. Categories that fall under mental health include depression, suicide and Post Traumatic Stress Disoder.[2] Physical health helps your body internally and externally to function properly. A health issue for this is an issue or dysfunction to the human body.[3] A disability is a condition to the body or mind, an impairment, that makes it harder to do certain activities and can cause limitations. These can include vision, movement, thinking, remembering, learning and communication.[4] Cognitive health is when ones healthy brain has a harder time processing information and functioning.[5]

Demographic Disparities in Service

The demographics of veterans varied from different ethnicities and between the Vietnam War Era, Gulf War Era and 9/11 Era. Post 9/11 Era there were 65.1% white non-Hispanics, 14.6% black non-Hispanics, 7.3% other non-Hispanics, and 13% Hispanics. The Gulf War Era consisted of 69% white Non -Hispanics, 16% black non-Hispanics, 5.7% other non-Hispanics, and 9.3% Hispanics. Post-Vietnam War Era there were 71.9% white non-Hispanics, 17.1% black non-Hispanics, 4.3% other non-Hispanics, and 6.7% Hispanics. Today's veterans are less likely to be non-Hispanic white and have more of a chance to attend college compared to those of other generations.[1] Women represented only 2% of enlisted forces and 8% of the officer corps after the draft had ended in 1973. In 2018, women are now at 16% and 19% of the enlisted forces and officer corps.

Other demographic characteristics of the veteran population are that most members of the military come from middle-class neighborhoods. The U.S military consists of members from all 50 states and the District of Columbia. The top five places for recruitment in 2018 were from California, Texas, Florida, Georgia, North Carolina and New York. Based on income, about 17% of those who enlist are coming from the top 20% of neighborhoods.[6] During the Vietnam War Era there were 2.5 million who served and about 80% came from poor or working-class families and most only had a high school education.[7]

Vietnam Era

The Vietnam War Era was reported to be the nation's longest with over 8.7 million Americans serving in the armed forces between 1964 to 1973. There were 3.4 million who were deployed to Southeast Asia and about 2.7 million who served in the Republic of Vietnam. Over 47,000 lost their lives in combat and about 11,000 lost their lives from other causes during the Vietnam Era. The Department of Veteran Affairs (VA) estimates that there are 6.1 million veterans still living.[8] During the Vietnam era there were 2.2 million American men out of a pool of 27 million that were drafted.[3] Draft lotteries were conducted again in the years of 1970, 1971 and 1972 soon after this. The Paris Peace Accords signed on January 27 1993 ended the need for the draft and the last person who was drafted was on December 7, 1972.[9]

Last 30 Years

During the Gulf War Era there were over 695,000 service members who were deployed, and 2.2 million who were in service during the war.[8] After the Gulf War there were 3,804 veterans still living.[1] 9/11 veterans were the most diverse group compared to the other war eras.[1] After 9/11 had happened there were 181,510 Americans enlisted in the ranks of active duty and 72,908 joined the reserves the year after 9/11. This attack inspired many to join the military and enlist as a way to make more impact on other people's lives and their own.[10] Since 2001 there have been about 3 million people who have served in the military post 9/11 in Afghanistan and Iraq. The large amount of these people result in more frequent deployments and more rates of suicide, mental illness, alcohol and drug dependence, car crashes and homelessness. This also takes a toll on

families where reports of shown higher rates of divorce, homicide, child abuse and neglect.[11]

Mental health

Depression

Depression remains one of the leading mental health conditions in the military. Separation from friends and family while being in combat increased the risk for depression in the veteran population. Symptoms include loss of interest, insomnia, weight gain or loss, fatigue, depressed mood and thoughts of suicide. There had been an increase from 11.4% to 15% in depression after the deployments in Iraq and Afghanistan. One out of every two depressed patients are not appropriately diagnosed by their physician.[12] In a study from the Gulf War where 14,252 veterans responded to the survey of the study “Follow-up Study of a National Cohort of Gulf War and Gulf Era Veterans, ” mental health disorders among females were very high during the Gulf War with 35% having a major depressive disorder, 25% having other depressive disorders and 24.1% having high symptom severity.[13]

Suicide

Suicides among veterans are their highest at about 6,000 veterans per year. Between 1999 and 2016 suicide rates have increased by 30%. This makes veterans 1.5 times more likely than non-veterans to attempt suicide.[12] In a cross-sectional survey, that 14,057 veterans took examined their experiences of potentially morally injurious events (PMIEs), and suicidal ideation. This resulted in showing that men who

experienced PMIE were 50% more likely to attempt suicide during service and twice as likely after their time in the military. Men who experience betrayal from the military were twice as likely to attempt suicide during their service. In the same situation women were also 50% more likely to attempt suicide during and after their service time.[14] Veterans in combat during Vietnam had a higher risk of suicide after they served, especially if they had previously been wounded. [15]

Post Traumatic Stress Disorder

Post Traumatic Stress Disorder (PTSD) is slightly more common with veterans compared to civilians. The National Institute of Mental Health (NIMH) shows those with PTSD experience flashbacks of the traumatic event, bad dreams, and other frightening thoughts. Others will tend to stay away from places that might remind them of their experience. Veterans with PTSD may have cognitive and mood changes. They might not fully remember the traumatic event and will have negative feelings doing daily activities.[16] About 7 out of every 100 veterans will develop PTSD. Whereas 6 out of every 100 civilians experience PTSD. PTSD is more common among female veterans (13 out of 100) compared to males (6 out of 100).[17] Veterans who served in Iraq have between 11% and 20% chance of developing PTSD and 30% of Vietnam veterans have developed or will develop this mental health condition. Studies have shown that veterans that return home and have more service member families and friends for support have a less likely chance of developing PTSD. Members who come back and are unemployed are more at risk to developing PTSD due to concerns of not being able to provide for their families.[16]

Physical health

Many veterans experience physical health issues later in life, but it isn't clear if the problems relate to their military service time or not. In a study of 35 veterans older than 65 and 25 non-veterans older than 65, were recruited to report on their differences in their physical health. Most of the veterans reported good physical health later in life based on their fitness in the military, but ongoing physical health issues such as deafness due to hazards and environmental factors were more common in veterans. Veterans also showed more reluctance to seek medical treatment for their physical health issues.[18]

In a study from the Gulf War, female veterans reported a higher prevalence than male veterans in physical health aspects. Females had a higher rate of functional dyspepsia (22.3%) compared to males (14.9%). Males had a higher rate of hypertension (40.8%) compared to females (34.4%). Females had a higher percentage of arthritis (33.8%) compared to males (31.5%). Deployed females compared to males were 6.21x more likely to have a repeated bladder infection, 3.27x more likely to have fibromyalgia and 1.82x more likely to have asthma. Females who were non-deployed compared to males were 4.74x more likely to have a repeated bladder infection, 4.15x more likely to have fibromyalgia and 2.09x more likely to have asthma.[13] In the 2013 National Health and Resilience in Veterans Study (NHRVS), 38% of US veterans reported being exposed to combat. 85% and 38% in this group had greater odds of being diagnosed with a stroke and chronic pain than compared to younger combat veterans. Younger combat veterans were more likely to be diagnosed with migraine headaches with a 12.8% to 2.1% comparison. Older combat veterans were more likely

than younger combat veterans to be diagnosed with heart disease, 19.2% compared to 2.6% and a heart attack 13.9% to 2.5%.[19]

Agent Orange is a herbicide that contains dioxin and was also used during the Vietnam War. Exposure to this substance is associated with many different conditions and neurologic disorders such as Parkinson's disease and metabolic disorders such as type 2 diabetes. Veterans who were exposed to Agent Orange were twice as likely to be diagnosed with dementia.[20] Agent Orange is also related to bladder cancer, Hodgkin's disease, hypothyroidism, heart diseases, multiple myeloma, prostate cancer and respiratory cancers.[21]

Disability

About one-quarter of veterans had a service-related disability in 2018. Veterans who had a service-related disability before 1975 are the lowest percentage of veterans at this moment in time.[10] The highest percentage of veterans with service-related injuries were post 9/11 Era and The Gulf War Era veterans, who had about one-third of that population. 9/11 had about 70% of a disability rating, meaning that is how many people had been declared injured during 9/11. Post the Vietnam Era there were about 35% of veterans who had an American Community Survey (ACS) defined disability and 15% of post 9/11 veterans. In 2018 those who served in the Vietnam Era comprised 34.5% of veterans who have an ACS-defined disability and 26.3% service-connected disability. In 2018 there were 17.6% of Gulf War veterans who had a service-connected disability. Post 9/11, in 2018, 15.1% of veterans have an ACS defined disability and 24.2% who have a service-connected disability. Post 9/11 veterans were more likely to

have a disability from the time they were serving.[1] Post 9/11 veterans had about a 43% chance of having a service-related disability. This was after accounting for the different demographics and characteristics. From 9/11 alone, veterans had a 39% chance of having a disability rating of 70% or more, higher than veterans from any other period.[10]

In more recent years, those who have served in Iraq or Afghanistan are at more of a risk for hearing loss and are receiving many benefits because of it. An example of this is those who have returned from Iraq or Afghanistan show an increase of hearing loss up to 71% and about 15% of those who came back with ringing in their ears. Those who are exposed to hazardous noise are more likely to suffer from hearing loss. Hearing loss has been shown in 68.6% of post-deployment veterans and only 4.0% were non-deployment related.[22]

Cognitive Disorders

Cognitive disorders for veterans consist of any disorder that impairs memory, learning, thinking or problem-solving according to the VA.[23] These disorders can affect a veteran's day to day activities and how they are able to function. In 2019-2020 one in nine veterans aged 45 years and older experienced subjective cognitive decline. Most of this cognitive decline is self-reported memory problems that continue to get worse every year. There are 32% of veterans with cognitive decline who have to give up day-to-day activities. Eighty-six percent of veterans who have cognitive decline also have at least one chronic condition. About 1 in 3 veterans said that cognitive decline interfered with social activities working and volunteering. Less than half of veterans with

cognitive decline have been able to openly discuss their symptoms with a healthcare provider.[24]

Study Aims

The purpose of this research is to further the knowledge about how veteran status is related to developing health problems. The research questions for the study are; How does being in the military compared to not being in the military affect one's mental and physical health? Does being a veteran put you more at risk for developing mental health issues? Does being a veteran put you more at risk for having certain disabilities over time? Does being a veteran put you more at risk of developing certain types of cancer? Does the age of a veteran influence types of health problems? Is one's sex as a veteran a factor in the different types of physical or mental health? The hypotheses were: veterans will be more likely to suffer from physical and mental health conditions than non-veterans. The relationship between being a veteran and health issues will be stronger among older veterans. The relationship between being a veteran and health issues will be stronger among men.

Methods

Study Design

The study is secondary analysis of cross sectional surveillance data. The data being used is from the Behavioral Risk Factor Surveillance System (BRFSS).[25]

Sample

The purpose of the BRFSS was to collect data about U.S residents regarding their health-related risk behaviors, chronic health conditions and use of preventative services.[25] The data was collected throughout 2021.The target population was adults 18 years and older who lived in a private residence or college housing who had a working phone. The sample size of this survey was 438,693 adults. There were 331,782 (76%) participants who provided complete data in the current analysis. The BRFSS has been conducting landline telephone and cellular telephone based surveys. This is done through Random Digit Dialing (RDD) on landlines and cell phones. During the interview, every state in the U.S is given a list of questions, some different from others. They ask questions from the core component first, then they ask questions from any optional modules and the state added questions.[25]

Measures

The independent variable in this research is veteran status. The independent variable question is, Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit? Yes or No. This is coded 1 and 2.[26]

Dependent variables for this research fall under the categories of mental health, physical health, disabilities and cognitive decline.[26] The first question for mental health variables is," Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good? Number of days or None." This is coded 1-30, and 88, which

represents 0 days of bad mental health. The second question for mental health variables is “(Ever told) (you had) a depressive disorder (including depression, major depression, dysthymia, or minor depression)? Yes or No.” This is coded 1 and 2. The first question for physical health variables is, “Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good? Number of days or None.” This is coded 1-30 and 88, which represents 0 days of physical health. The number 88 was changed to 0 for a continuum between 0-30. The second question for physical health variables is, “(Ever told) you had a heart attack, also called a myocardial infarction? Yes or No.” This is coded 1 and 2. The third question for physical health variables is, “(Ever told) (you had) a stroke. Yes or No.” This is coded 1 and 2. The fourth question for physical health variables is, “(Ever told) (you had) asthma? Yes or No.” This is coded 1 and 2. The fifth question for physical health variables is, “(Ever told) (you had) skin cancer? Yes or No.” This is coded 1 and 2. The sixth question for physical health variables is, “(Ever told) (you had) COPD (chronic obstructive pulmonary disease), emphysema or chronic bronchitis? Yes or No.” This is coded 1 and 2. The seventh question for physical health variables is, “Has a doctor, nurse or other health professional ever told you that you had some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia? Yes or No.” This is coded 1 and 2. The first question for the disability variable is, “Have you ever been told by a doctor or other health professional that you have pre-diabetes or borderline diabetes? Yes or No.” This is coded 1 and 2. The second question for the disability variable is, “Have you ever been told by a doctor or other health professional that you had Hepatitis C? 1. Yes or No.” This is coded 1 and 2. The third question for

the disability variable is, “Has a doctor, nurse, or other health professional ever told you that you had hepatitis B? Yes or No.” This is coded 1 and 2. The fourth question for the disability variable is, “How many different types of cancer have you had? Only one, Two, Three or more.” This is coded 1, 2, and 3. The first question for the cognitive variable is,” Are you deaf or do you have serious difficulty hearing? Yes or No.” This is coded 1 and 2. The second question for the cognitive variable is, “Are you blind or do you have serious difficulty seeing, even when wearing glasses? Yes or No.” This is coded 1 and 2. The third question for the cognitive variable is, “Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions? Yes or No.” This is coded 1 and 2. The fourth question for the cognitive variable is, “During the past 12 months, have you experienced confusion or memory loss that is happening more often or is getting worse? Yes or No.” This is coded 1 and 2.[26]

The moderators for this research are sex and age. The first moderator's question is, “Are you male or female? Male or Female.” This is coded 1 and 2.[26] The second moderator's question is, “Are you 18 years of age or older? Yes or No.” This is coded 1 and 2.[26]

The covariates for this research are race, ethnicity, income, housing status, substance use and physical activity.[26] The first covariate question is “Race/ethnicity including, White;Non-Hispanic, Black;Non-Hispanic, Asian;Non-Hispanic American Indian/Alaskan Native;Non-Hispanic, Hispanic, Other races, Non-Hispanic.” This is coded 1, 2, 3, 4, 5 and 6. The second covariate question is, “Is your annual household income from all sources: (If respondent refuses at any income level, code ´Refused.´).

Less than $10,000 to $200,000 or more." This is coded 1 through 11. The third covariate question is, "Have you smoked at least 100 cigarettes in your entire life? [Note: 5 packs = 100 cigarettes], Yes and No." This is coded 1 and 2. The fourth covariate question is, "Considering all types of alcoholic beverages, how many times during the past 30 days did you have 5 or more drinks for men or 4 or more drinks for women on an occasion? Number of Times or None." This is coded 0-76. The fifth covariate question is, "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise? Yes or No." This is coded 1 and 2.[26] All study questions are included in Appendix 1.

Statistical Analysis

This statistical analysis uses individuals ages 18 years and older. The software used to conduct the analysis is the SPSS. Statistical significance was determined using 95% confidence intervals and p-values. The tests that were used for this analysis were unadjusted and adjusted regression analysis, logistic regression that was used for dichotomous dependent variables, multinomial regression for categorical dependent variables, and linear regression for continuous variables. The adjusted analysis controlled for the covariates described above. The level of statistical significance for an effect if the p-value is less than 0.05.

Results

In the sample, 12.6% of participants were veterans and 47.6% were males (Table 1). 76.2% were white non-Hispanics. The sample consisted of 29.4% having an income level less than $35,000. Smokers made up 41.3% of the sample. Mean age of the sample was 47.8 years old (SD = 17.6) (Table 2). The mean for physical health problems out of 30 days is 3.5 days (SD = 7.9). The mean for mental health problems out of 30 days was 4.7 days (SD = 8.6). The mean for day drinking was 0.7 days (SD = 3.1). From the study those who exercised made up 76.4% of the sample (Table 3). Among veterans and non-veterans those who had depressive disorders made up 20.4% of the sample. Participants who had a heart attack made up 5.2% of the sample. People who were diagnosed with a stroke were 3.8% of the sample. Participants who had asthma made up 14.3% of the sample. People who had been diagnosed with skin cancer were 9.3% of the sample. In the sample, there were 78% of people who have at least one type of cancer. Those who had COPD made up 7.9% of the sample. Participants with arthritis made up 32.9% of the sample. 13.3% of participants who had diabetes. There was 1.6% of participants who had Hepatitis C and 1.0% who had Hepatitis B. Participants who had difficulty hearing made up 8.6% of the sample and those who had difficulty seeing made up 5.0%. There were 10.8% of participants who had difficulty concentrating. Participants with confusion and memory loss made up 12.6% of the sample.

Veterans report experiencing about half a day more of poor physical health ($p < .001$) (Table 4). Veteran status was associated with increased odds of being diagnosed with a heart attack (OR[95%CI] = 1.18 [1.18, 1.18]). Veterans had a 17% increased

odds of being diagnosed with stroke (CI = 1.16, 1.17). Veterans were 22% more likely to be diagnosed with skin cancer than non veterans (OR[95%CI] = 1.22 [1.22, 1.22]). Among individuals diagnosed with cancer, veterans were more likely to be diagnosed with 2 cancers (OR[95%CI] = 1.46 [1.45, 1.47]) and 3 or more types of cancer (OR[95%CI] = 2.03 [1.99, 2.06]) (Table 6). Veteran status was associated with increased odds of being diagnosed with COPD compared to non-veterans (OR[95%CI] = 01.31 [1.30, 1.31]). Veterans were more likely than non veterans to be diagnosed with arthritis (OR[95%CI] = 1.19 [1.19, 1.19]). The odds of being diagnosed with asthma as a veteran were 25% lower compared to non-veterans (OR[95%CI] = 0.75 [0.75, 0.75]). Odds of a veteran being diagnosed with diabetes were 5% lower compared to a non veteran (OR[95%CI] = 0.95 [0.95, 0.95]). The veterans had greater odds of being diagnosed with Hep C than non veterans (OR[95%CI] = 1.03 [1.02, 1.05]). Veterans status was associated with increased odds of being diagnosed with Hep B (OR[95%CI] = 1.28 [1.25, 1.32]). Veterans report experiencing about half a day more of poor mental health ($p < .001$) (Table 4). Odds of being diagnosed with a depressive disorder was 35% higher in veterans when compared to non-veterans in the adjusted analysis (OR[95%CI] = 1.35 [1.35, 1.35]) (Table 5). The odds of being diagnosed with difficulty hearing were 93% greater in veterans than non veterans (OR[95%CI] = 1.93 [1.93, 1.93]). Veterans had greater odds of difficulty seeing compared to non veterans (OR[95%CI] = 1.08 [1.08, 1.08]) Veterans were more likely to be diagnosed with difficulty concentrating than non veterans (OR[95%CI] = 1.42 [1.42, 1.42]). Veteran status was associated with increased odds of having confusion and memory loss compared to non veterans (OR[95%CI] = 1.33 [1.32, 1.33]).

Sex moderated the effect of veteran status on stroke; males who were veterans were more affected than female veterans (Table 7; Figure 1). The prevalence of asthma was greater in female veterans compared to male veterans (Table 7; Figure 2). More male veterans had reported being diagnosed with Hep C compared to female veterans and those who were non veterans (Table 7; Figure 3). Female veterans reported having difficulty concentrating compared to male veterans and non veterans (Table 7; Figure 4). More male non veterans reported being diagnosed with Hep B compared to veterans overall and female non veterans (Table 7; Figure 5). Female veterans reported having more than 10 and 20 days of mental health problems compared to male veterans (Table 9; Figure 6). Age did not show a practically significant effect on the relationship between veteran status and the dependent variables.

Table 1. Summary independent variables, covariates and moderators.

Variable		**N (%)**	**Weighted percent**
Veteran Status	No	290032 (87.4)	89.6
	Yes	41750 (12.6)	10.4
Sex	Male	158013 (47.6)	49.6
	Female	173769 (52.4)	50.4
Race	White, non-Hispanic	252851 (76.2)	62.4
	Black, non-Hispanic	24396 (7.4)	11.4
	Asian, non-Hispanic	8451 (2.5)	5.8
	AIAN, non-Hispanic	5682 (1.7)	1.0
	Hispanic	28704 (8.7)	17.2
	Other, non-Hispanic	11698 (3.5)	2.2
Income Level	Less than $10,000	10400 (3.1)	4.1

	Less than $15,000	11061 (3.3)	3.6
	Less than $20,000	14275 (4.3)	4.5
	Less than $25,000	20105 (6.1)	6.1
	Less than $35,000	41937 (12.6)	12.4
	Less than $50,000	46475 (14.0)	12.9
	Less than $75,000	57488 (17.3)	16.0
	Less than $100,000	46272 (13.9)	13.2
	Less than $150,000	46214 (13.9)	14.0
	Less than $200,000	19163 (5.8)	6.3
	$200,000 or more	18392 (5.5)	6.8
Smoker	No	194684 (58.7)	61.8
	Yes	137098 (41.3)	38.2
Exercise	No	78315 (23.6)	23.0
	Yes	253467 (76.4)	77.0

Table 2. Descriptive Statistics of Continuous Data

Variable	Mean	Standard Deviation
Age	47.8 years	17.6
Physical Health	3.5 days	7.9
Mental Health	4.7 days	8.6
Binge Drinking	.7 days	3.1

Table 3. Summary of Dependent Variables

Variable		N (%)	Weighted Percent
Depressive disorder	No	262457 (79.4)	79.6

	Yes	68055 (20.6)	20.4
Heart Attack	No	313023 (94.8)	96.0
	Yes	17278 (5.2)	4.0
Stroke	No	318272 (96.2)	96.8
	Yes	12737 (3.8)	3.2
Asthma	No	283574 (85.7)	85.3
	Yes	47267 (14.3)	14.7
Skin Cancer	No	300313 (90.7)	93.9
	Yes	30692 (9.3)	6.1
How many types of cancer	1	6126 (78.0)	79.9
	2	1449 (18.5)	17.0
	3 or more	277 (3.5)	3.1
C.O.P.D	No	304582 (92.1)	93.4
	Yes	26103 (7.9)	6.6
Arthritis	No	221702 (67.1)	74.6
	Yes	108569 (32.9)	25.4
Diabetes	No	287383 (86.7)	88.5
	Yes	44009 (13.3)	11.5
Hep C	No	8324 (98.4)	98.4
	Yes	135 (1.6)	1.6
Hep B	No	8344 (99.0)	99.3
	Yes	82 (1.0)	.7
Difficulty Hearing	No	302496 (91.4)	93.3
	Yes	28517 (8.6)	6.7
Difficulty Seeing	No	314698 (95.0)	95.1

	Yes	16409 (5.0)	4.9
Difficulty Concentrating	No	294515 (89.2)	87.9
	Yes	35807 (10.8)	12.1
Confusion/Memory Loss	No	22754 (87.4)	87.0
	Yes	3295 (12.6)	13.0

Table 4. Analysis of Variance

	Unadjusted			Adjusted		
Variables	**B**	**95% CI**	**Sig**	**B**	**95% CI**	**Sig**
Physical Health	.80	.80 , .81	.00	.54	.54 , .55	.00
Mental Health	.74	.74 , .73	.00	.55	.54 , .55	.00

Table 5. Logistic Regression of Dependent Variables

	Unadjusted		Adjusted	
Variables	**OR**	**95% CI**	**OR**	**95% CI**
Diagnosed with Depression	0.91	0.91 , 0.91	1.35	1.35 , 1.35
Diagnosed with a Heart Attack	2.64	2.64 , 2.65	1.18	1.18 , 1.18
Diagnosed with a Stroke	1.79	1.79 , 1.80	1.17	1.16 , 1.17
Diagnosed with Asthma	0.63	0.63 , 0.63	0.75	0.75 , 0.75
Diagnosed with Skin Cancer	2.36	2.36 , 2.37	1.22	1.22 , 1.22
Diagnosed with COPD	1.72	1.71 , 1.72	1.31	1.30 , 1.31
Diagnosed with Arthritis	1.63	1.63 , 1.63	1.19	1.19 , 1.19

Diagnosed with Diabetes	1.52	1.52 , 1.53	0.95	0.95 , 0.95
Diagnosed with Hep C	1.96	1.94 , 1.99	1.03	1.02 , 1.05
Diagnosed with Hep B	1.49	1.45 , 1.52	1.28	1.25 , 1.32
Difficulty Hearing	3.28	3.23 , 3.30	1.93	1.93 , 1.93
Difficulty Seeing	1.07	1.07 , 1.08	1.08	1.08 , 1.08
Difficulty Concentrating	1.07	1.07 , 1.07	1.42	1.42 , 1.42
Confusion and Memory Loss	1.27	1.26 , 1.27	1.33	1.32 , 1.33

Table 6. Nominal Regression of Continuous Data

	Unadjusted		**Adjusted**	
Variables	**OR**	**95% CI**	**OR**	**95% CI**
2 Types of Cancer	1.28	1.27 , 1.30	1.46	1.45 , 1.47
3 or More Types of Cancer	1.46	1.44 , 1.49	2.03	1.99 , 2.06

Table 7. Sex Moderating The Relationship Between Veterans and Chronic and Infectious Diseases

	Adjusted	
Variables	**OR**	**95% CI**
Diagnosed with Depression	1.03	1.02 , 1.03
Diagnosed with Heart Attack	0.39	0.39 , 0.39
Diagnosed with a Stroke	0.52	0.51 , 0.52
Diagnosed with Asthma	1.58	1.27 , 1.28
Diagnosed with Skin Cancer	0.319	0.32 , 0.32
Diagnosed with COPD	0.49	0.49 , 0.5

Diagnosed with Arthritis	0.47	0.47 , 0.48
Diagnosed with Diabetes	0.54	0.54 , 0.55
Diagnosed with Hep C	0.99	0.94 , 1.04
Diagnosed with Hep B	0.24	0.21 , 0.26
Difficulty Hearing	0.37	0.37 , 0.37
Difficulty Seeing	0.59	0.59 , 0.59
Difficulty Concentrating	0.79	0.79 , 0.8
Confusion and Memory Loss	0.74	0.73 , 0.75

Table 8. Sex Moderating the Relationship Between Veterans and Cancer

	Adjusted	
Variables	**OR**	**95% CI**
2 Types of Cancer	1.82	1.76 , 1.87
3 or More Types of Cancer	2.16	2.04 , 2.29

Table 9. Sex Moderating the Relationship Between Veterans and Physical and Mental Health

	Adjusted		
Variables	**B**	**95% CI**	**Sig**
Physical Health	-0.82	-.83 , -.81	0.000
Mental Health	0.17	0.16 , 0.19	<0.001

Table 10. Age Moderating The Relationship Between Veterans and Chronic and Infectious Diseases

	Adjusted	
Variables	**OR**	**95% CI**
Diagnosed with Depression	0.99	0.99 , 0.99

Diagnosed with Heart Attack	1.00	1.00 , 1.00
Diagnosed with a Stroke	0.99	0.99 , 0.99
Diagnosed with Asthma	1.01	1.01 , 1.01
Diagnosed with Skin Cancer	1.01	1.01 , 1.01
Diagnosed with COPD	1.00	1.00 , 1.00
Diagnosed with Arthritis	0.98	0.98 , 0.98
Diagnosed with Diabetes	1.00	1.00 , 1.00
Diagnosed with Hep C	0.99	0.99 , 0.99
Diagnosed with Hep B	1.01	1.01 , 1.01
Difficulty Hearing	0.98	0.99 , 0.99
Difficulty Seeing	1.01	1.01 , 1.01
Difficulty Concentrating	1.01	1.01 , 1.01
Confusion and Memory Loss	1.00	1.00 , 1.01

Table 11. Sex Moderating the Relationship Between Veterans and Cancer

	Adjusted	
Variables	**OR**	**95% CI**
2 Types of Cancer	0.99	0.99 , 0.99
3 or More Types of Cancer	1.01	1.01 , 1.01

Table 12. Sex Moderating the Relationship Between Veterans and Physical and Mental Health

	Adjusted		
Variables	**B**	**95% CI**	**Sig**
Physical Health	0.00	0.00 , 0.00	<0.001
Mental Health	0.13	0.01 , 0.01	<0.001

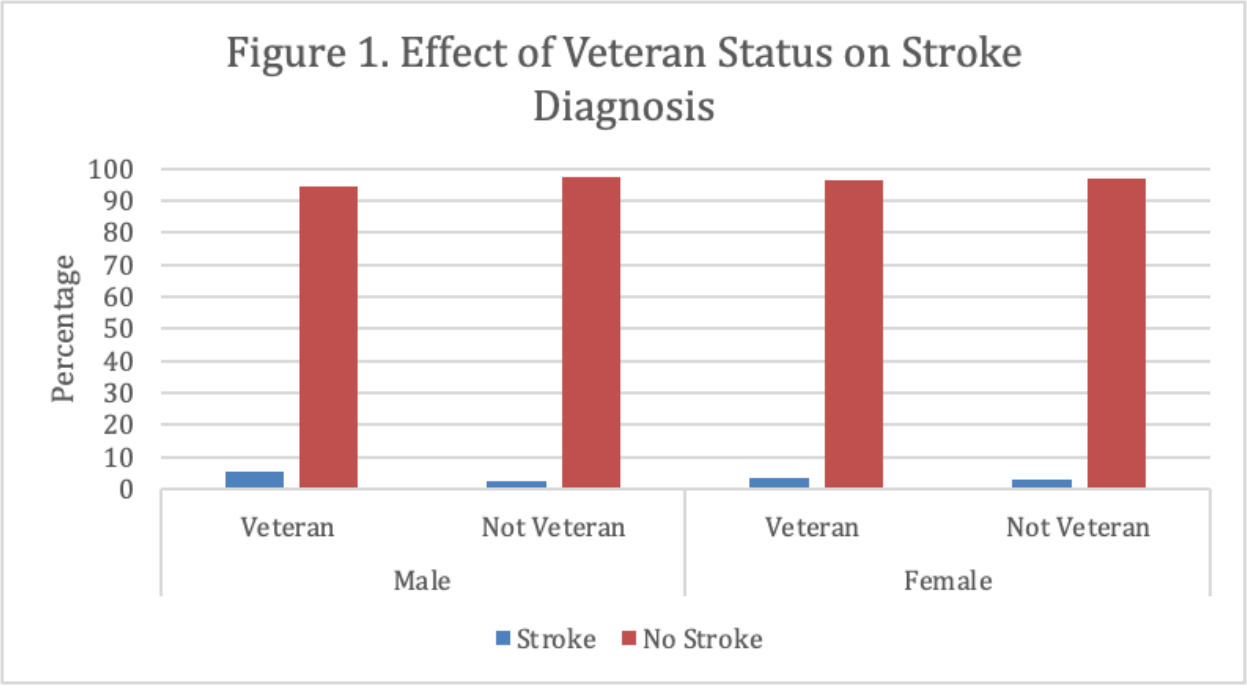
Figure 1. Effect of Veteran Status on Stroke Diagnosis
Percentage
100
90
80
70
60
50
40
30
20
10
0
Veteran
Not Veteran
Veteran
Not Veteran
Male
Female
Stroke
No Stroke

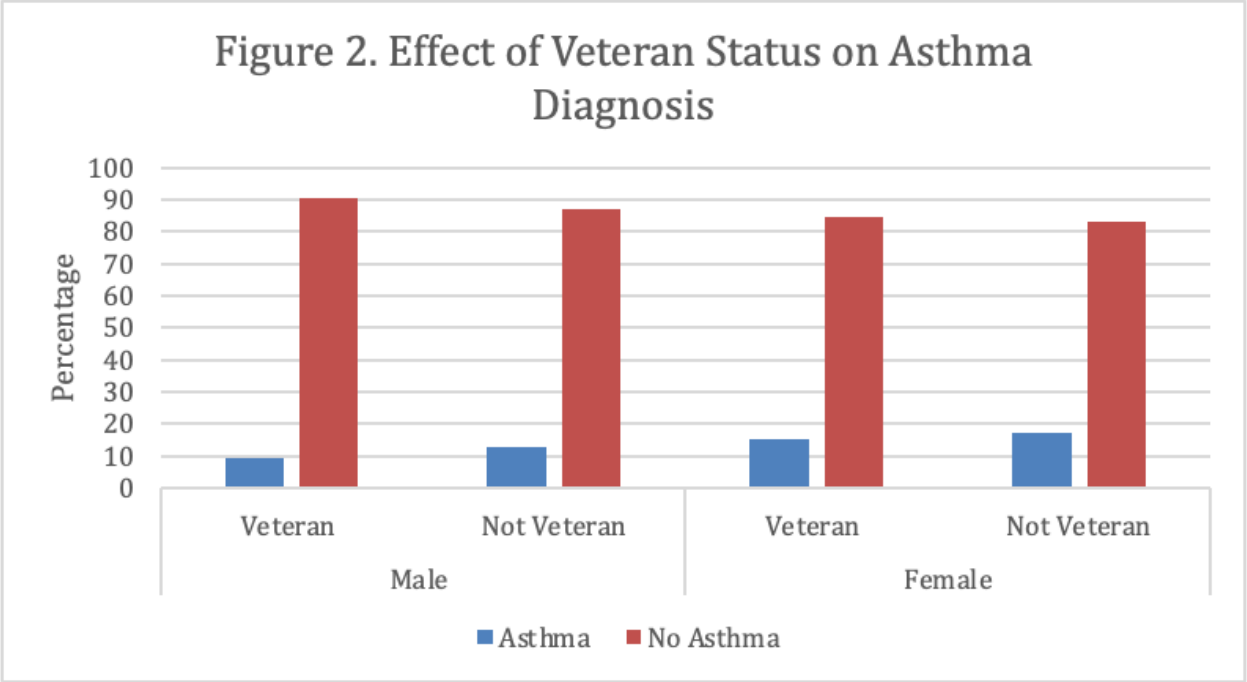
Figure 2. Effect of Veteran Status on Asthma Diagnosis
Percentage
100
90
80
70
60
50
40
30
20
10
0
Veteran
Not Veteran
Veteran
Not Veteran
Male
Female
Asthma
No Asthma

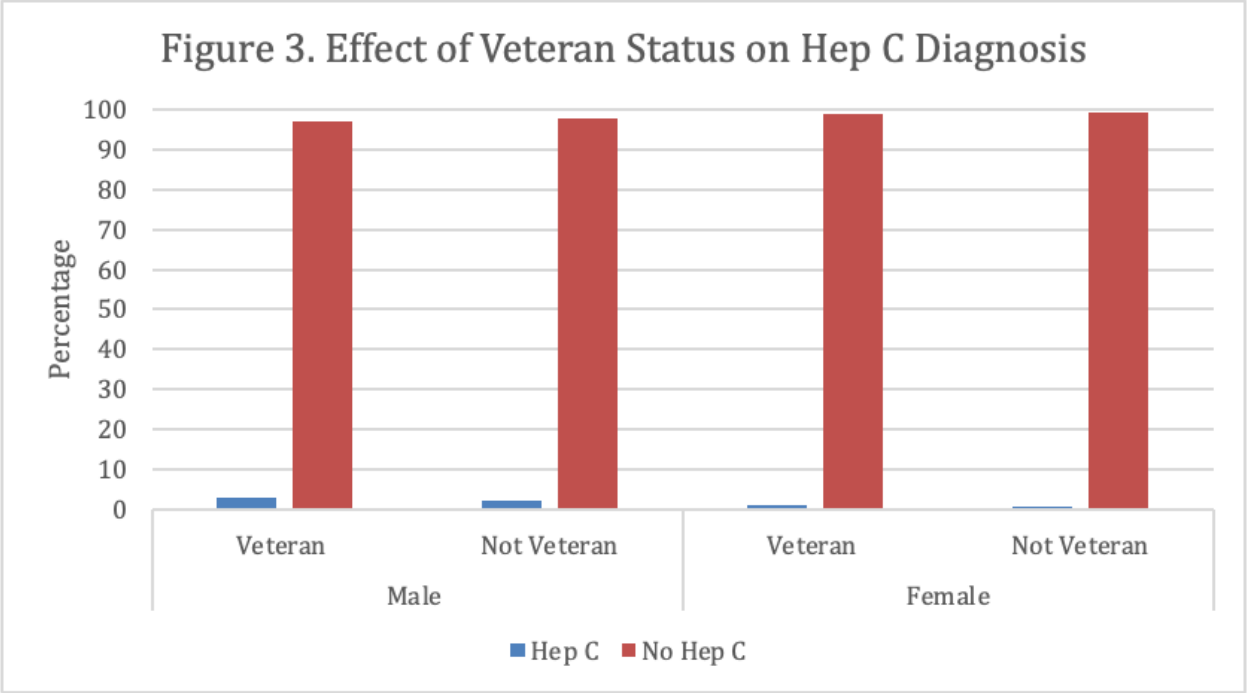
Figure 3. Effect of Veteran Status on Hep C Diagnosis
Percentage
100
90
80
70
60
50
40
30
20
10
0
Veteran
Not Veteran
Veteran
Not Veteran
Male
Female
Hep C
No Hep C

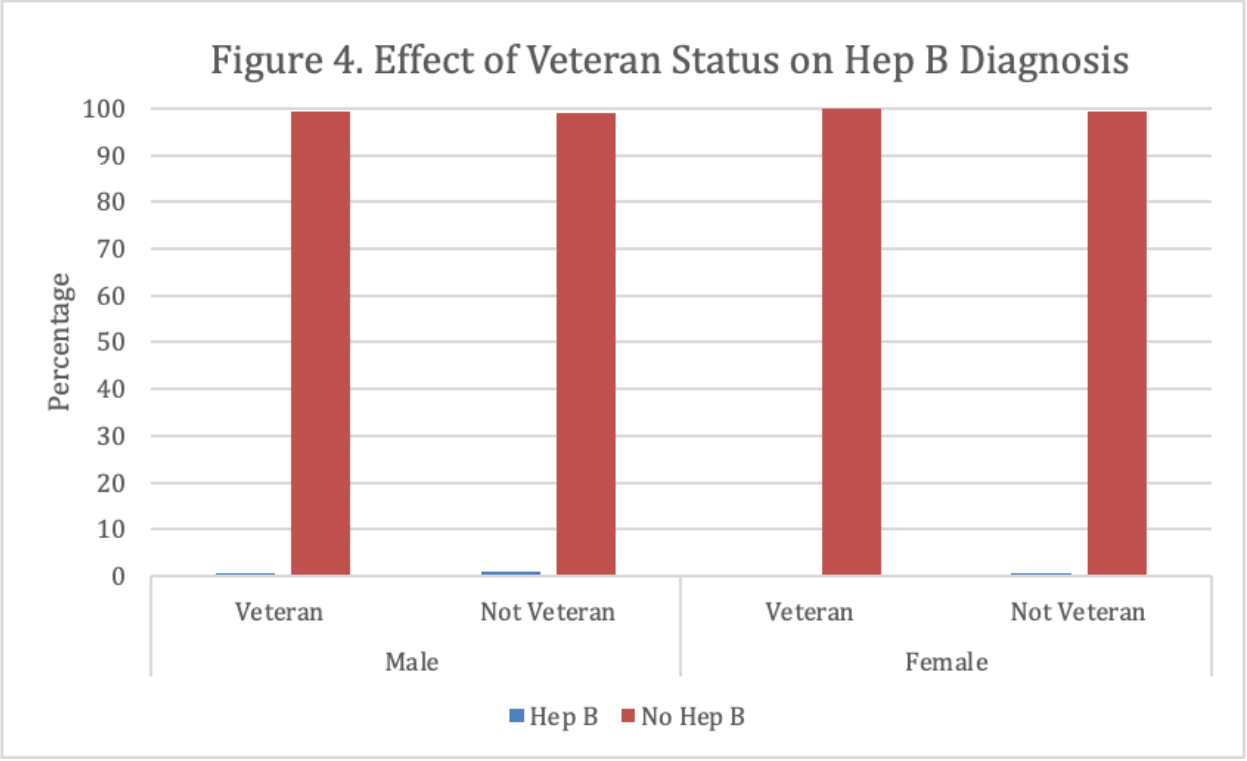
Figure 4. Effect of Veteran Status on Hep B Diagnosis
Percentage
100
90
80
70
60
50
40
30
20
10
0
Veteran
Not Veteran
Veteran
Not Veteran
Male
Female
Hep B
No Hep B

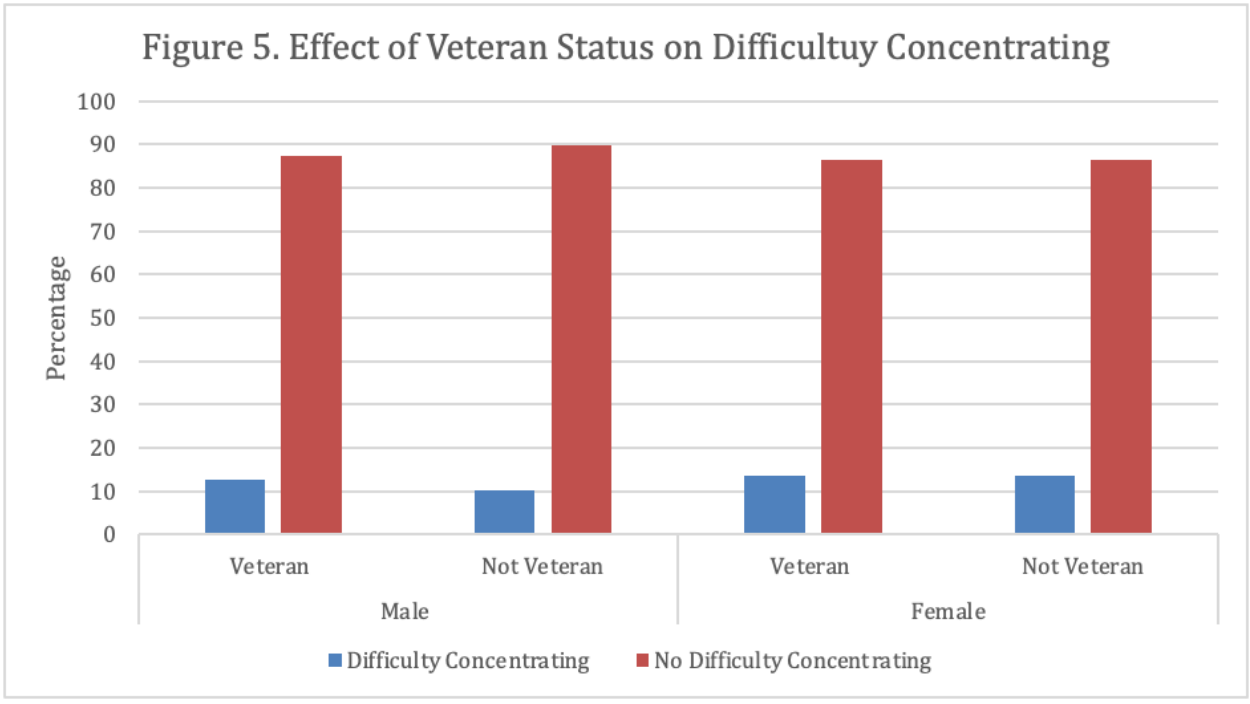
Figure 5. Effect of Veteran Status on Difficultuy Concentrating
100
90
80
70
60
50
40
30
20
10
0
Percentage
Veteran
Not Veteran
Veteran
Not Veteran
Male
Female
Difficulty Concentrating
No Difficulty Concentrating

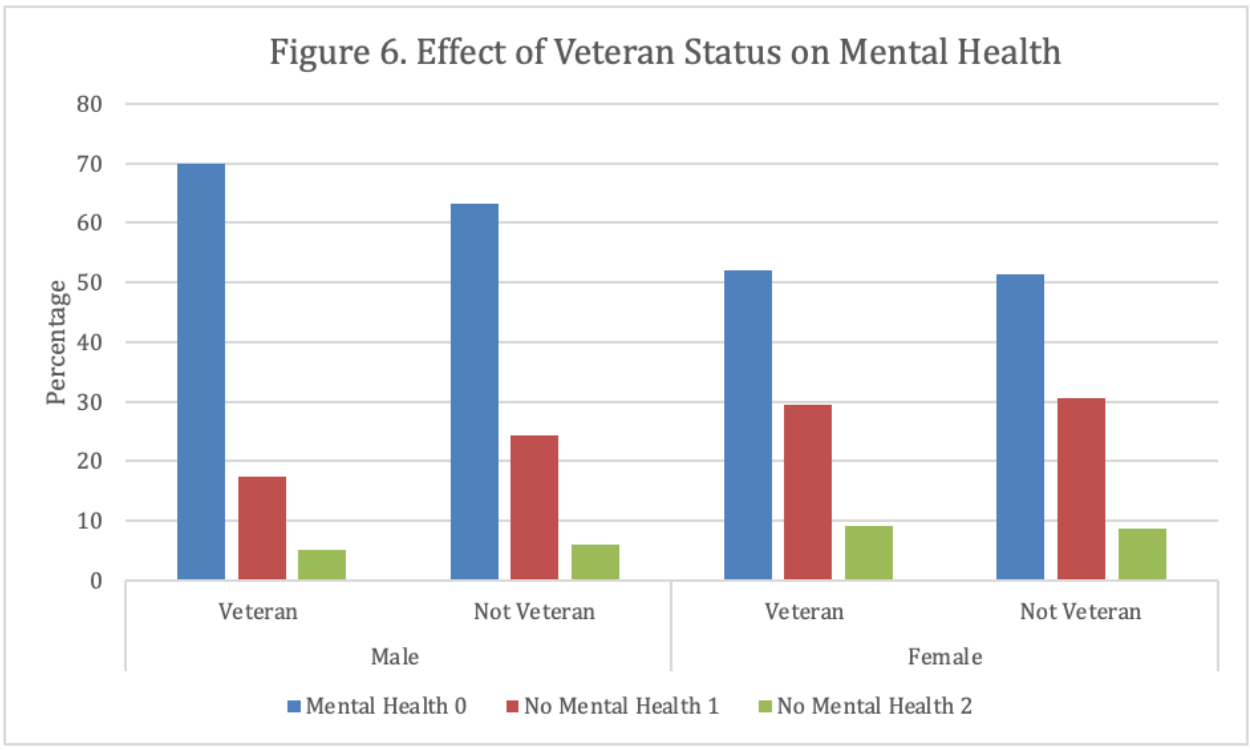
Figure 6. Effect of Veteran Status on Mental Health
80
70
60
50
40
30
20
10
0
Percentage
Veteran
Not Veteran
Veteran
Not Veteran
Male
Female
Mental Health 0
No Mental Health 1
No Mental Health 2

Discussion

Summary

Veteran status was associated with an increase in mental, physical, disability and cognitive health problems compared to non veterans. The strongest relationships were formed from infectious and chronic diseases. Sex, more specifically male, moderated the relationship between veteran status and chronic and infectious disease status.

Context

The current findings on veteran status relating to health problems are similar to those reported by others. For example, there was an increase of depression after deployments in Iraq and Afghanistan.[12] About one in five veterans who served in Iraq or Afghanistan experienced PTSD or major depression. About half of these veterans don't seek any medical help. When the veteran is not reaching out for help, these factors turn into substance abuse and homelessness which cause more chronic illnesses for veterans. Female veterans who experience PTSD and depression are at higher risk of dangerous pregnancies and at higher risk of suicide compared to non-veterans.[27] Female veterans from the Gulf war era had high rates of mental health disorders along with major depressive and others having many symptoms.[13] Post traumatic stress disorder was shown to be more prevalent in women overall, but it is shown that there is a higher rate from female veterans compared to non female veterans. This condition also may develop later after serving and not necessarily right after returning.[16]

Veterans who reported on physical health stated their physical health was good from their fitness in the military, but as time went on their physical health declined due to hazardous events during the time a veteran had served.[18] Older veterans were also more likely to be diagnosed with heart diseases later in life after serving.[19] Disability was shown to be present in about one-quarter of veterans due to their service.[20] Veterans who are 45 years old or older were more likely to experience cognitive decline.[24] Veterans who experience a traumatic brain injury (TBI) are more likely to develop memory loss or change in concentration. Psychological factors that may play into this would include depression, stress and PTSD. Memory loss may be caused by diseases, severe emotional trauma or sleep deprivation.[28] After months of serving in the military, most veterans found that they were not satisfied with their health compared to other aspects of their life. A majority of veterans deal with chronic physical health conditions and mental health conditions. These veterans had reported health conditions such as chronic pain, sleep problems, anxiety and depression.[29] Men are more likely to report hearing conditions, high blood pressure and high cholesterol while women are more likely to report mental health conditions, depression and anxiety.

Mechanism of Action

Many veterans are uninsured and not receiving insurance coverage and care from the VA. In 2003 1.69 million veterans didn't have health insurance or had not received ongoing care from the VA hospitals and clinics. Veterans that were uninsured had a harder time getting the medical care they needed.[30] Hazardous exposures such as Agent Orange, radiation, air pollutants, occupational hazards, warfare agents, noise

and vibration increase risk over health problems even long after serving.[31] Exposure to these substances can cause neurologic disorders, and exposed veterans are more likely at risk for dementia. Many chronic disorders are associated with hazardous exposures and can cause life threatening diseases.[21] Exposure to radiation can cause cancers to bile ducts, bone, brain, breast, colon, esophagus, gallbladder, liver, and pancreas.[31] Sand and dust particle exposure can cause airborne and respiratory illness when particles are deep in the lungs and airways. These particles could contain liquid drops of acid, chemicals, metals and soil.[32] More recently, veterans who are exposed to hazardous noise are at more of a risk for hearing loss when they are in combat.[22]

Lifestyle for veterans after serving may consist of homelessness. This causes those veterans to be involved in substance abuse, unemployment and mental illness along with pre-existing diseases from serving.[33] Twenty-seven percent of veterans reported having a hard time returning to civilian life. Veterans who reported having an emotionally traumatic experience and suffering service-related injuries said they had a harder time with re-entry. Those who also served in combat zones or may even killed or injured somebody had a harder time with their re-entry as well. Post 9/11 veterans had the hardest time with re-entry into civilian life based on the traumatic events that occurred on that day compared to any other war.[33] Factors that could cause veterans to have a harder time after serving are those who have experienced a traumatic event, seriously injured, post 9/11 veteran, served in combat and knew someone killed or injured.[34]

Implications

The United States Department of Veteran Affairs (VA) is an agency of government that provides benefits, health care and services to military veterans. The VA is supposed to support inpatient and outpatient care, prescription drugs, long-term care, community health care providers, mental health care and women's health care.[35] This may be the case, but the VA has been continuously plagued with problems for years. Reports of excessive spending and inadequate health care. The VA has been continuously struggling to keep up with the needs of veterans and forcing veterans to find cheaper and better options. The VA can't handle the demand with too many veterans and not enough medical staff or support staff. Veterans are being faced with unemployment and homelessness and not being provided the care that they should be getting after serving for their country. More than half of veterans have reported they are preferring to use other health care coverage, having trouble getting appointments, not trusting the VA, not feeling welcome or not having the services they need.[36] The VA could be better at these things by making sure they are having enough staff and providers to deal with the care they say they will help with and making sure veterans are feeling safe with the care they are being provided and not treating them disrespectfully. The VA should provide more resources for veterans who don't live close to their locations. They should also be making sure that appointments aren't scheduled months in advance for veterans who might need more urgent care. Not only should the VA be helping these veterans with their baseline health, but also preventing health issues in the future. They could provide access for veterans who are left homeless and be able to help them get back on their feet in the real world if they are also unemployed.

Currently there are many programs and organizations that exist to help veterans. The Wounded Warrior Project to help veterans with rehabilitation and career counseling. People can help by hosting a supporter event, giving monthly gifts or making donations. WWP claims that 100% of their donations go to veterans, and 71% pays for programs. In 2021, $210 million went to the programs for wounded warriors and more than 199,000 veterans were able to receive help from this. This organization can be improved by making sure all of the donations are going to the veterans. The program was designed to help veterans and by doing this they deserve all of the donations that are being sent to the organization. Home of Our Troops is another organization that helps injured post 9/11 veterans to rebuild their lives. Most of the veterans have multiple injuries or limb amputations, severe TBIs or paralysis.[37] Many small community programs throughout the United States work together to help with donations, food drives, collecting clothing and food, and shelter are many ways that these veterans can find help even if it's not just for their health problems. The American Red Cross helps veterans by referring them to community resources when there is no VA building close to them. The ARC also help with emergency for food, clothing and shelters along with counseling that can help these veterans find jobs.[38]

Limitations

There are several limitations to acknowledge in this study. The data was collected in a cross sectional survey where there is no causation. There may be a social desirability bias and subject to recall due to this survey being self-reported. There could also be a misclassification bias due to possible errors in coding. There might also be

misinformation due to most men not admitting weakness. Men are more likely to serve than women where there is more stigma. These findings may not be generalizable to the entire U.S population because the BRFSS study design excluded people from military installations, correctional institutions, long term care facilities and nursing homes. Those who are without a telephone are also excluded. The survey is based on self-reporting and is less accurate than physical measurements and may overreport physical activities. Some older adults may have a harder time reporting their past health behaviors and other health conditions.

Conclusions

Veteran status is associated with an increase in poor mental health, poor physical health, disabilities and cognitive impairment. Veterans are more unhealthy due to environmental factors and hazardous substances. They are more prone to developing health problems even after they have served due to the type of lifestyle they fall into. Veterans are less likely to use the VA and would rather go to a regular physician. Organizations and programs throughout the U.S are more likely to provide better options for lifestyle, health care and benefits.

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Appendix 1 - BRFSS Questions

Label: Are You A Veteran
Section Name: Demographics
Core Section Number: 9
Question Number: 13
Column: 189
Type of Variable: Num
SAS Variable Name: VETERAN3
Question Prologue:
Question: Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	52,518	12.02	9.77
2	No	382,958	87.62	89.85
7	Don't know/Not Sure	182	0.04	0.06
9	Refused	1,399	0.32	0.32
BLANK	Not asked or Missing	1,636	.	.

Label: Number of Days Mental Health Not Good
Section Name: Healthy Days
Core Section Number: 2
Question Number: 2
Column: 104-105
Type of Variable: Num
SAS Variable Name: MENTHLTH
Question Prologue:
Question: Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1 - 30	Number of days Notes: _ _ Number of days	159,615	36.38	39.85
88	None	271,161	61.81	58.38
77	Don't know/Not sure	5,723	1.30	1.27
99	Refused	2,192	0.50	0.49
BLANK	Not asked or Missing	2	.	.

Label: (Ever told) you had a depressive disorder
Section Name: Chronic Health Conditions
Core Section Number: 7
Question Number: 9
Column: 127
Type of Variable: Num
SAS Variable Name: ADDEPEV3
Question Prologue:
Question: (Ever told) (you had) a depressive disorder (including depression, major depression, dysthymia, or minor depression)?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	85,398	19.47	19.37
2	No	350,778	79.96	80.04
7	Don't know/Not sure	1,814	0.41	0.44
9	Refused	700	0.16	0.14
BLANK	Not asked or Missing	3	.	.

Label: Number of Days Physical Health Not Good
Section Name: Healthy Days
Core Section Number: 2
Question Number: 1
Column: 102-103
Type of Variable: Num
SAS Variable Name: PHYSHLTH
Question Prologue:
Question: Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1 - 30	Number of days	141,403	32.23	31.47
88	None	287,796	65.60	66.53
77	Don't know/Not sure	7,898	1.80	1.66
99	Refused	1,593	0.36	0.34
BLANK	Not asked or Missing	3	.	.

Label: Ever Diagnosed with Heart Attack
Section Name: Chronic Health Conditions
Core Section Number: 7
Question Number: 1
Column: 119
Type of Variable: Num
SAS Variable Name: CVDINFR4
Question Prologue:
Question: (Ever told) you had a heart attack, also called a myocardial infarction?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	22,831	5.20	3.98
2	No	413,207	94.19	95.41
7	Don't know/Not sure	2,319	0.53	0.54
9	Refused	334	0.08	0.06
BLANK	Not asked or Missing	2	.	.

Label: Ever Diagnosed with a Stroke
Section Name: Chronic Health Conditions
Core Section Number: 7
Question Number: 3
Column: 121
Type of Variable: Num
SAS Variable Name: CVDSTRK3
Question Prologue:
Question: (Ever told) (you had) a stroke.

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	17,213	3.92	3.25
2	No	420,051	95.75	96.47
7	Don't know/Not sure	1,130	0.26	0.22
9	Refused	297	0.07	0.06
BLANK	Not asked or Missing	2	.	.

Label: Ever Told Had Asthma
Section Name: Chronic Health Conditions
Core Section Number: 7
Question Number: 4
Column: 122
Type of Variable: Num
SAS Variable Name: ASTHMA3
Question Prologue:
Question: (Ever told) (you had) asthma?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	61,502	14.02	14.56
2	No—Go to Section 06.06 CHCSCNCR	375,445	85.58	85.05
7	Don't know/Not Sure—Go to Section 06.06 CHCSCNCR	1,441	0.33	0.34
9	Refused—Go to Section 06.06 CHCSCNCR	303	0.07	0.06
BLANK	Not asked or Missing	2	.	.

Label: (Ever told) you had skin cancer?
Section Name: Chronic Health Conditions
Core Section Number: 7
Question Number: 6
Column: 124
Type of Variable: Num
SAS Variable Name: CHCSCNCR
Question Prologue:
Question: (Ever told) (you had) skin cancer?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	41,112	9.37	6.12
2	No	396,140	90.30	93.60
7	Don't know / Not sure	1,151	0.26	0.22
9	Refused	288	0.07	0.06
BLANK	Not asked or Missing	2	.	.

Label: Ever told you had C.O.P.D. emphysema or chronic bronchitis?
Section Name: Chronic Health Conditions
Core Section Number: 7
Question Number: 8
Column: 126
Type of Variable: Num
SAS Variable Name: CHCCOPD3
Question Prologue:
Question: (Ever told) (you had) C.O.P.D. (chronic obstructive pulmonary disease), emphysema or chronic bronchitis?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	34,169	7.79	6.39
2	No	402,417	91.73	93.17
7	Don't know / Not sure	1,794	0.41	0.38
9	Refused	310	0.07	0.05
BLANK	Not asked or Missing	3	.	.

Label: Told Had Arthritis
Section Name: Arthritis
Core Section Number: 8
Question Number: 1
Column: 132
Type of Variable: Num
SAS Variable Name: HAVARTH5
Question Prologue:
Question: Has a doctor, nurse or other health professional ever told you that you had some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia? (Arthritis diagnoses include: rheumatism, polymyalgia rheumatic, osteoarthritis (not osteoporosis), tendonitis, bursitis, bunion, tennis elbow, carpal tunnel syndrome, tarsal tunnel syndrome, joint infection, Reiter's syndrome, ankylosing spondylitis;)

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	142,541	32.49	25.00
2	No—Go to Section 09.01 AGE	293,256	66.85	74.38
7	Don't know/Not Sure—Go to Section 09.01 AGE	2,490	0.57	0.55
9	Refused—Go to Section 09.01 AGE	403	0.09	0.07
BLANK	Not asked or Missing	3	.	.

Label: Ever been told by a doctor or other health professional that you have pre-diabetes or borderline diabetes?
Section Name: Pre-Diabetes
Module Number: 1
Question Number: 2
Column: 259
Type of Variable: Num
SAS Variable Name: PREDIAB1
Question Prologue:
Question: Have you ever been told by a doctor or other health professional that you have pre-diabetes or borderline diabetes? (If "Yes" and respondent is female, ask: "Was this only when you were pregnant?")

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	15,142	13.21	11.82
2	Yes, during pregnancy	1,266	1.10	1.20
3	No	97,580	85.14	86.41
7	Don't know/Not Sure	513	0.45	0.51
9	Refused	116	0.10	0.06
BLANK	Not asked or Missing Notes: Section 07.11, DIABETE4, is coded 1; If Section 07.11, DIABETE4, is coded 4 automatically code Module 01.02, PREDIAB1, equal to 1 (yes);	324,076	.	.

Label: Told had Hepatitis C
Section Name: Hepatitis Treatment
Module Number: 4
Question Number: 1
Column: 279
Type of Variable: Num
SAS Variable Name: TOLDHEPC
Question Prologue:
Question: Have you ever been told by a doctor or other health professional that you had Hepatitis C?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	163	1.51	1.50
2	No—Go to Module 04.05 HAVEHEPB	10,580	97.93	97.91
7	Don't know/Not Sure—Go to Module 04.05 HAVEHEPB	48	0.44	0.46
9	Refused—Go to Module 04.05 HAVEHEPB	13	0.12	0.13
BLANK	Not asked or Missing	427,889	.	.

Label: Told had hepatitis B
Section Name: Hepatitis Treatment
Module Number: 4
Question Number: 5
Column: 283
Type of Variable: Num
SAS Variable Name: HAVEHEPB
Question Prologue: The next question is about Hepatitis B.
Question: Has a doctor, nurse, or other health professional ever told you that you had hepatitis B?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	95	0.88	0.56
2	No—Go to Next Module	10,602	98.36	98.73
7	Don't know/Not Sure—Go to Next Module	63	0.58	0.55
9	Refused—Go to Next Module	19	0.18	0.16
BLANK	Not asked or Missing	427,914	.	.

Label: How Many Types of Cancer?
Section Name: Cancer Survivorship: Type of Cancer
Module Number: 13
Question Number: 1
Column: 342
Type of Variable: Num
SAS Variable Name: CNCRDIFF
Question Prologue:
Question: How many different types of cancer have you had?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Only one	7,653	76.81	78.38
2	Two	1,798	18.05	16.30
3	Three or more	355	3.56	3.46
7	Don't know/Not Sure—Go to next module	96	0.96	1.06
9	Refused—Go to next module	61	0.61	0.81
BLANK	Not asked or Missing Notes: Section 07.06, CHCSCNCR, is coded 2, 7, 9 or Missing and Section 07.07, CHCOCNCR, is coded 2, 7, 9 or missing;	428,730	.	.

Label: Are you deaf or do you have serious difficulty hearing?
Section Name: Disability
Core Section Number: 10
Question Number: 1
Column: 204
Type of Variable: Num
SAS Variable Name: DEAF
Question Prologue:
Question: Are you deaf or do you have serious difficulty hearing?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	37,578	8.86	6.85
2	No	384,717	90.72	92.76
7	Don't know/Not Sure	1,113	0.26	0.23
9	Refused	683	0.16	0.16
BLANK	Not asked or Missing	14,602	.	.

Label: Are you deaf or do you have serious difficulty hearing?
Section Name: Disability
Core Section Number: 10
Question Number: 1
Column: 204
Type of Variable: Num
SAS Variable Name: DEAF
Question Prologue:
Question: Are you deaf or do you have serious difficulty hearing?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	37,578	8.86	6.85
2	No	384,717	90.72	92.76
7	Don't know/Not Sure	1,113	0.26	0.23
9	Refused	683	0.16	0.16
BLANK	Not asked or Missing	14,602	.	.

Label: Blind or Difficulty seeing
Section Name: Disability
Core Section Number: 10
Question Number: 2
Column: 205
Type of Variable: Num
SAS Variable Name: BLIND
Question Prologue:
Question: Are you blind or do you have serious difficulty seeing, even when wearing glasses?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	21,745	5.14	5.11
2	No	399,597	94.48	94.53
7	Don't know/Not Sure	952	0.23	0.22
9	Refused	655	0.15	0.15
BLANK	Not asked or Missing	15,744	.	.

Label: Difficulty Concentrating or Remembering
Section Name: Disability
Core Section Number: 10
Question Number: 3
Column: 206
Type of Variable: Num
SAS Variable Name: DECIDE
Question Prologue:
Question: Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	46,337	10.98	12.38
2	No	372,376	88.27	86.85
7	Don't know/Not Sure	2,138	0.51	0.54
9	Refused	999	0.24	0.24
BLANK	Not asked or Missing	16,843	.	.

Label: Have you experienced confusion or memory loss that is happening more often or is getting worse?
Section Name: Cognitive Decline
Module Number: 18
Question Number: 1
Column: 364
Type of Variable: Num
SAS Variable Name: CIMEMLOS
Question Prologue:
Question: During the past 12 months, have you experienced confusion or memory loss that is happening more often or is getting worse?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	4,107	12.39	12.67
2	No—Go to next module	28,648	86.42	86.15
7	Don't know/Not sure	281	0.85	0.73
9	Refused—Go to next module	115	0.35	0.45
BLANK	Not asked or Missing Notes: AGE is less than 45;	405,542	.	.

Label: Are you male or female?
Section Name: Land Line Introduction
Section Number: 0
Question Number: 7
Column: 69
Type of Variable: Num
SAS Variable Name: COLGSEX
Question Prologue:
Question: Are you male or female?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Male—Go to Section 01.01 GENHLTH	11	36.67	46.74
2	Female—Go to Section 01.01 GENHLTH	19	63.33	53.26
BLANK	Not asked or Missing Notes: QSTVER >= 20; or if LL.03, COLGHOUS, is not coded 1	438,663	.	.

Label: Are you 18 years of age or older?
Section Name: Land Line Introduction
Section Number: 0
Question Number: 6
Column: 68
Type of Variable: Num
SAS Variable Name: LADULT1
Question Prologue: Variable only on the land line survey
Question: Are you 18 years of age or older?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes—If LL.03, COLGHOUS, is 1 go to LL.07, COLGSEX; else go to LL.08, NUMADULT	117,045	99.37	99.22
2	No—If LL.03, COLGHOUS, is 1 Terminate Phone Call, else go to LL.08, NUMADULT	741	0.63	0.78
BLANK	Not asked or Missing Notes: QSTVER >= 20	320,907	.	.

Label: Imputed race/ethnicity value
Section Name: Weighting Variables
Module Number: 1
Question Number: 12
Column: 1471-1472
Type of Variable: Num
SAS Variable Name: _IMPRACE
Question Prologue:
Question: Imputed race/ethnicity value (This value is the reported race/ethnicity or an imputed race/ethnicity, if the respondent refused to give a race/ethnicity. The value of the imputed race/ethnicity will be the most common race/ethnicity response for that region of the state)

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	White, Non-Hispanic	332,222	75.73	62.08
2	Black, Non-Hispanic	33,132	7.55	11.64
3	Asian, Non-Hispanic	11,557	2.63	5.88
4	American Indian/Alaskan Native, Non-Hispanic	7,410	1.69	0.96
5	Hispanic	38,688	8.82	17.19
6	Other race, Non-Hispanic	15,684	3.58	2.26

Label: Income Level
Section Name: Demographics
Core Section Number: 9
Question Number: 16
Column: 193-194
Type of Variable: Num
SAS Variable Name: INCOME3
Question Prologue:
Question: Is your annual household income from all sources: (If respondent refuses at any income level, code ´Refused.´)

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Less than $10,000	10,878	2.53	3.30
2	Less than $15,000 ($10,000 to < $15,000)	11,530	2.68	2.87
3	Less than $20,000 ($15,000 to < $20,000)	14,960	3.48	3.65
4	Less than $25,000 ($20,000 to < $25,000)	21,071	4.90	4.88
5	Less than $35,000 ($25,000 to < $35,000)	43,893	10.21	9.99
6	Less than $50,000 ($35,000 to < $50,000)	48,339	11.25	10.37
7	Less than $75,000 ($50,000 to < $75,000)	59,408	13.82	12.67
8	Less than $100,000? ($75,000 to < $100,000)	47,838	11.13	10.47
9	Less than $150,000? ($100,000 to < $150,000)?	47,642	11.08	11.07
10	Less than $200,000? ($150,000 to < $200,000)	19,769	4.60	5.00
11	$200,000 or more	18,952	4.41	5.41
77	Don’t know/Not sure	36,138	8.41	9.58
99	Refused	49,428	11.50	10.76
BLANK	Not asked or Missing	8,847	.	.

Label: Smoked at Least 100 Cigarettes
Section Name: Tobacco Use
Core Section Number: 11
Question Number: 1
Column: 210
Type of Variable: Num
SAS Variable Name: SMOKE100
Question Prologue:
Question: Have you smoked at least 100 cigarettes in your entire life? [Note: 5 packs = 100 cigarettes]

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	167,588	40.14	36.92
2	No—Go to Section 11.03 USENOW3	246,644	59.08	62.35
7	Don't know/Not Sure—Go to Section 11.03 USENOW3	2,298	0.55	0.48
9	Refused—Go to Section 11.03 USENOW3	931	0.22	0.26
BLANK	Not asked or Missing	21,232	.	.

Label: Binge Drinking
Section Name: Alcohol Consumption
Core Section Number: 12
Question Number: 3
Column: 219-220
Type of Variable: Num
SAS Variable Name: DRNK3GE5
Question Prologue:
Question: Considering all types of alcoholic beverages, how many times during the past 30 days did you have 5 or more drinks for men or 4 or more drinks for women on an occasion?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1 - 76	Number of Times	53,761	25.62	29.41
88	None	152,738	72.79	68.60
77	Don't know/Not Sure	2,646	1.26	1.66
99	Refused	680	0.32	0.33
BLANK	Not asked or Missing Notes: Section 12.01, ALCDAY5, is coded 888, 777, or 999;	228,868	.	.

Label: Exercise in Past 30 Days
Section Name: Exercise
Core Section Number: 4
Question Number: 1
Column: 113
Type of Variable: Num
SAS Variable Name: EXERANY2
Question Prologue:
Question: During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

Value	Value Label	Frequency	Percentage	Weighted Percentage
1	Yes	330,738	75.39	75.96
2	No	107,027	24.40	23.87
7	Don't know/Not Sure	617	0.14	0.12
9	Refused	309	0.07	0.05
BLANK	Not asked or Missing	2	.	.