



ELSEVIER

Contents lists available at ScienceDirect

## Journal of Psychiatric Research

journal homepage: [www.elsevier.com/locate/jpsychires](http://www.elsevier.com/locate/jpsychires)

# The physical and mental health burden of obesity in U.S. veterans: Results from the National Health and Resilience in Veterans Study



Elina A. Stefanovics<sup>a,b,\*</sup>, Marc N. Potenza<sup>a,c,d,e,f</sup>, Robert H. Pietrzak<sup>a,g</sup>

<sup>a</sup> Department of Psychiatry, Yale University School of Medicine, New Haven, CT, USA

<sup>b</sup> U.S. Department of Veterans Affairs New England Mental Illness Research and Education Clinical Center (MIRECC), West Haven, CT, USA

<sup>c</sup> Department of Neuroscience and Child Study Center, Yale University School of Medicine, New Haven, CT, USA

<sup>d</sup> National Center on Addiction and Substance Abuse, Yale University School of Medicine, New Haven, CT, USA

<sup>e</sup> Connecticut Mental Health Center, New Haven, CT, USA

<sup>f</sup> Center of Excellence in Gambling Research, Yale Program for Research on Impulsivity and Impulse Control Disorders, Yale University School of Medicine, New Haven, CT, USA

<sup>g</sup> U.S. Department of Veterans Affairs National Center for Posttraumatic Stress Disorder, VA Connecticut Healthcare System, West Haven, CT, USA

## ARTICLE INFO

## Keywords:

Obesity  
Veterans  
Physical health  
Mental health  
Trauma

## ABSTRACT

In this study, we provide an updated estimate of the prevalence of obesity in U.S. military veterans, and evaluate a broad range of sociodemographic, military, physical and mental health, and lifestyle characteristics associated with obesity in this population. Data were analyzed from a nationally representative sample of 3122 U.S. veterans who participated in the National Health and Resilience in Veterans Study (NHRVS). Associations between obesity status, and physical and mental health, and lifestyle variables were evaluated using multivariate logistic regression and linear regression analyses. Results revealed that 32.7% of U.S. veterans are obese, which is higher than the previously reported estimates for U.S. military veterans nationally, and was particularly high among younger and non-white veterans and those using the Veterans Health Administration (VHA) healthcare system. Obesity was associated with greater trauma burden; elevated rates of a broad range of health conditions such as diabetes, arthritis, and heart disease, PTSD, nicotine dependence; poor physical and mental functioning and quality of life, and decreased engagement in an active lifestyle. Taken together, these results suggest that the prevalence of obesity is high in U.S. veterans and associated with substantial health burden. Results have implications for informing obesity prevention and treatment programs in veterans, and underscore the importance of assessing, monitoring, and treating obesity in this population.

## 1. Introduction

Obesity is defined as a condition of abnormal or excess fat accumulation in adipose tissue that may impair health (WHO, 2005). Globally, the prevalence of obesity among adults has grown by 28% between 1980 and 2013 (Ng et al., 2014). According to recent estimates in the United States, the prevalence of obesity in 2013–2014 was 35.0% among men and 40.4% among women, with an overall prevalence of 37.7% (Flegal et al., 2016). Linear-time-trend-model forecasts suggest that by 2030, 51% of the U.S. population will be obese (Finkelstein et al., 2012). Obesity is a worldwide epidemic associated with increased comorbidities (Lavie et al., 2009; Lementowski and Zelicof, 2008; Peppard et al., 2000; Rahmouni et al., 2005), disability (Alley and Chang, 2007) and mortality (Adams et al., 2006). It has also been recognized as a significant burden to healthcare systems (Ezzati et al.,

2002).

Military veterans are a subpopulation in which obesity may be of particular concern. However, there are limited U.S. national epidemiological data on the prevalence of obesity, levels of physical activity, and comorbid medical health problem associated with obesity among veterans (Almond et al., 2008; Koepsell et al., 2009; Nelson, 2006). Other studies are restricted to samples of VHA users (Breland et al., 2017; Das et al., 2005; Noël et al., 2010) or data from a single VHA site (Haskell et al., 2010). Studies of the prevalence of obesity in the entire U.S. military veteran population, regardless of VHA user status, revealed that the prevalence of obesity among military veterans was 25.1% (Almond et al., 2008). Research based on the VHA data suggest a much higher prevalence of obesity (32.9%–41%). One recent study reported that obesity rate varies across 140 VHA sites and sometimes reached 49%, with even higher among veterans under age 65 (48%),

\* Corresponding author. VA New England Mental Illness, Research, Education and Clinical Center, VA Connecticut Healthcare System (116A-4), 950 Campbell Avenue, Building 36, West Haven, CT 06516, USA.

E-mail address: [elina.stefanovics@yale.edu](mailto:elina.stefanovics@yale.edu) (E.A. Stefanovics).

<https://doi.org/10.1016/j.jpsychires.2018.05.016>

Received 8 February 2018; Received in revised form 30 April 2018; Accepted 21 May 2018  
0022-3956/ © 2018 Published by Elsevier Ltd.

among racial minorities (51%), in a subpopulation with medical and psychiatric co-morbidity (women with schizophrenia (56%), and patients with diabetes (68%); (Breland et al., 2017). Similar to the general population, obesity in veterans is associated with elevated rates of medical and psychiatric morbidities (Hoerster et al., 2012).

In the current study, we sought to build on prior work by providing an updated estimate of the prevalence of obesity in U.S. military veterans, and evaluating a broad range of sociodemographic, military, physical and mental health factors associated with obesity and investigate impact of obesity on functional status and health-related quality of life in this population. We hypothesized that the prevalence of obesity would be higher than that observed in previous national veteran samples, and that obesity would be associated with younger age, racial/ethnic minority status, poorer physical and mental health, more sedentary lifestyles, and reduced quality of life.

## 2. Materials and methods

### 2.1. Sample

Data for the current study were drawn from the NHRVS, a nationally representative survey of 3157 U.S. veterans conducted from October to December of 2011. Participants were surveyed by GfK Knowledge Network, Inc., a survey research company that uses KnowledgePanel, a probability-based, online survey panel of a nationally representative sample. Details regarding the KnowledgePanel sampling methodology are reported elsewhere (“KnowledgePanel Design Summary,” 2013). Of the 4750 veterans sampled, 3408 (71.7%) completed a screening question about current or past active military duty status. Of those, 3188 (93.5%) verified current or past active military status, with 3157 (92.6%) fully completed the questionnaire. All participants provided informed consent, and the study was approved by the Human Subject Subcommittee of the VA Connecticut Healthcare System.

### 2.2. Assessments

#### 2.2.1. Sociodemographic and military characteristics

Age, gender, race/ethnicity, education, marital status, employment, annual income, housing type, and household size were assessed (Pietrzak and Cook, 2013). *Military characteristics* included self-reported enlistment status, years in the military and combat exposure: “Did you ever serve in a combat or war zone?”

#### 2.2.2. Body mass index

*Body mass index (BMI)* was calculated from the self-reported patient height and weight according to the standard BMI calculation: weight (kg)/height (m)<sup>2</sup> (Jensen et al., 2013). Anyone with BMI in excess of 30.0 kg/m<sup>2</sup> was considered obese (WHO, 2000). Participants were classified as underweight and excluded from the analysis if their BMI was less than 18.5 kg/m<sup>2</sup>.

#### 2.2.3. Mental health variables

*Lifetime trauma exposure* was evaluated using the Trauma History Screen (Carlson et al., 2011) a self-report measure that assesses the lifetime occurrence of 14 potentially traumatic events across the lifespan, including military trauma, physical and sexual trauma during adulthood or childhood, and other emotional traumas (e.g. accidents, unexpected loss of a loved one, and natural disasters).

*Lifetime posttraumatic stress disorder symptoms* were assessed using the PTSD Checklist-Specific Stressor version PCL-S (Weathers et al., 1993), a 17-item self-report scale that assesses how much in the past month an individual had been bothered by each of the 17 *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* symptoms for PTSD related to their “worst” stressful event assessed by the THS. Response options ranged from 1 (not at all) to 5 (extremely). In the current sample, Cronbach’s alpha ( $\alpha$ ) on PCL-S items was 0.94. A PCL score of

50 or higher (lifetime and past month) is indicative of probable PTSD.

*Depression and anxiety* symptoms in the past 2 weeks were assessed using the Patient Health Questionnaire-4 (Kroenke et al., 2009). A score of  $\geq 3$  on the depression and anxiety questions indicated a positive screen for major depression and anxiety, respectively. In the current sample  $\alpha = 0.92$  for all items and  $\alpha = 0.87$  and  $\alpha = 0.88$  for depression and anxiety items, respectively.

*The Mini International Neuropsychiatric Interview (Sheehan et al., 1998)* modified for self-report was used to assess lifetime major depression, social phobia, and alcohol and drug use disorders.

*The Fagerstrom Test for Nicotine Dependence (Fagerstrom et al., 1990)* was used to assess lifetime nicotine dependence. In the current sample  $\alpha = 0.70$ .

*Mental health treatment history* was assessed with the following question: “Have you ever received mental health treatment (e.g., prescription medication or psychotherapy for a psychiatric or emotional problem)?” Individuals who endorsed this question were asked whether they were currently taking prescription medication and/or receiving psychotherapy or counseling for a psychiatric or emotional problem.

#### 2.2.4. Physical health variables

*Physical health conditions* were assessed via a self-report measure, which asked respondents, “Has a doctor or health care professional ever told you that you have any of the following medical conditions?” Medical conditions assessed included arthritis; asthma, chronic bronchitis, or chronic obstructive pulmonary disease; cancer; chronic pain; liver disease; diabetes; heart disease; heart attack; high cholesterol; high blood pressure; kidney disease; sleep disorders; migraine; multiple sclerosis; osteoporosis or osteopenia; rheumatoid arthritis; stroke; traumatic brain injury; and HIV/AIDS.

*Physical and mental functioning, and quality of life* were assessed using the Short-Form 8 Health Survey ( $\alpha = 0.93$  and  $\alpha = 0.90$  for physical and mental health respectively (Ware et al., 1996); and Quality of Life Enjoyment and Satisfaction Questionnaire-Short Form ( $\alpha = 0.93$ ) (Endicott et al., 1993).

*Active lifestyle* was assessed using questions that asked veterans how many days per week they typically engage in various activities, such as sports/exercise, reading, and doing housework ( $\alpha = 0.57$ ) (Montross et al., 2006).

*Sleep quality* was assessed using an item from the Pittsburgh Sleep Quality Index (Buysse et al., 1989): “During the past month, how would you rate your sleep quality overall?”

### 2.3. Data analysis

Data analysis proceeded in three steps. First, weighted respondent characteristics were summarized and compared across the groups. Between-group (obese vs. non-obese) differences in sociodemographic and military characteristics were analyzed using weighted  $\chi^2$  tests for categorical variables and ANOVAs for continuous variables. Odds ratios and 95% confidence intervals (CIs) as well as Cohen’s *d* (Cohen, 1988) were also computed for each variable to estimate the magnitudes of group differences. Second, raw frequencies and weighted percentages for lifetime and past-year psychiatric disorders, medical conditions, trauma history, and sleep quality by obesity status were calculated. Bivariate odds ratios (ORs) were reported for each of the physical and mental health conditions to estimate effect sizes for categorical variables. Means and standard deviations (SDs) were computed for the general physical and mental health and quality of life variables. Cohen’s *d* effect sizes were calculated to reflect the magnitudes of those differences. Third, weighted multivariate logistic regression models were used to evaluate the odds of physical and mental health conditions by obesity status, adjusting for sociodemographic and military variables that differed significantly (i.e.,  $p < 0.05$ ) by obesity status in bivariate analyses. Linear regression analyses for continuous outcomes were also adjusted for potentially confounding variables, such as age, race,

Download English Version:

<https://daneshyari.com/en/article/6799465>

Download Persian Version:

<https://daneshyari.com/article/6799465>

[Daneshyari.com](https://daneshyari.com)