The association of military discharge variables with smoking status among homeless Veterans

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ABSTRACT

Objective. There is a dearth of research examining the health correlates of tobacco use within the homeless population, particularly with respect to homeless Veterans. An aim of the present study was to compare homeless Veteran and homeless non-Veteran smokers across a series of socio-demographic and health variables, and to determine whether any of these variables were independently associated with Veteran status. A subsequent aim was to compare the socio-demographic and health profiles of Veteran smokers and Veteran nonsmokers, and to determine whether any of these variables were independently associated with current smoking.

Methods. Data were obtained from the 2009 Homelessness in Minnesota survey conducted by the Wilder Research Foundation. The final sample included 4750 homeless individuals living throughout Minnesota.

Results. The prevalence of smoking was greater among homeless Veterans (74%) than homeless non-Veterans (70%). The prevalence of physical and mental health problems was higher among homeless Veteran smokers than homeless non-Veteran smokers, although these variables were not independently associated with Veteran status after controlling for socio-demographics. Analyses of the homeless Veteran sample indicated that receipt of Veterans' benefits, type of discharge, and alcohol and/or chemical dependence were independently associated with current smoking.

Conclusion. Homeless Veteran smokers exhibit heightened rates of physical and mental health problems compared to homeless non-Veteran smokers. Military service and discharge characteristics may contribute to this high smoking prevalence. Future efforts should focus on increasing Veterans' access to and knowledge of Veterans' health resources, and on developing innovative strategies to boost cessation in this population.

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Introduction

The past several decades have seen a sharp decline in the prevalence of smoking in the US, with current rates near 18% (Agaku et al., 2014). In contrast, the prevalence of smoking among the homeless is in excess of 70% (Baggett and Rigotti, 2010; Tsai and Rosenheck, 2012). Unfortunately, the health burdens associated with smoking in this population have largely been overlooked (Baggett et al., 2013a). This is a pressing concern as more than 1.6 million individuals experience homelessness in the US in a given year (U.S. Department of Housing and Urban Development (HUD), 2011).

Veterans are at heightened risk for homelessness relative to the general population (Gamache et al., 2001; Rosenheck et al., 1994; Tsai et al., 2012). Indeed, Veterans comprise approximately 10% of the overall homeless population in the US; over 160,000 individuals (U.S. Department of Housing and Urban Development (HUD) and U.S. Department of Veterans Affairs (VA), 2011). Past research has demonstrated that this group exhibits a unique socio-demographic, mental health, and substance use profile compared to the general homeless population (Fargo et al., 2012; Gamache et al., 2001; Rosenheck et al., 1994; Tsai et al., 2012; Tessler et al., 2002). Homeless Veterans tend to be older, better educated, and have a higher risk for substance abuse disorders compared to their homeless non-Veteran counterparts (Rosenheck et al., 1994; Tsai et al., 2012; Tessler et al., 2002).

The present study sought to address whether the established differences between homeless Veterans and non-Veterans extend to homeless smokers. Currently, very little is known about the socio-demographic, health, substance use, and smoking characteristics of homeless Veteran smokers. As past research has demonstrated that Veterans smoke at higher rates than the general population (Brown, 2010; IOM (Institute of Medicine), 2009), and because it has been

demonstrated that the heightened prevalence of alcohol abuse disorders among Veterans is also seen among homeless Veterans (Rosenheck et al., 1994; Tsai et al., 2012; Tessler et al., 2002), it was hypothesized that homeless Veterans would exhibit a higher prevalence of smoking than homeless non-Veterans. In addition, we explored whether any socio-demographic, health, or substance use characteristics were independently associated with Veteran status among homeless smokers.

A subsequent aim was to examine the correlates of smoking among homeless Veterans. Identifying the factors associated with smoking among homeless Veterans is an important first step toward the development of effective smoking cessation and prevention strategies for this group. Therefore, homeless Veteran smokers and nonsmokers were compared across a series of factors found to be associated with smoking status in past studies of homeless populations (Baggett and Rigotti, 2010; Baggett et al., 2013b; Torchalla et al., 2011), as well as several Veteran-specific variables. Subsequent analyses explored whether any of these factors were independently associated with smoking status among homeless Veterans.

The aims of the present study were two-fold. First, we sought to compare the socio-demographic, health, substance use, and cigarette use profiles of homeless Veteran and homeless non-Veteran smokers. These analyses were meant to elucidate the health profile of a vulnerable homeless sub-population which has received little attention within the tobacco literature. A subsequent aim was to determine the correlates of smoking among homeless Veterans. Enhancing our understanding of the factors associated with smoking among homeless Veterans may provide a foundation for more effective cessation interventions on this deleterious health behavior.

Methods

Design

Data were obtained from the Homelessness in Minnesota survey conducted by the Wilder Research Foundation on October 22, 2009 (Wilder Research, 2010). This survey involved more than 1000 volunteers who conducted structured, face-to-face interviews with homeless individuals in over 80 cities throughout Minnesota. The criterion for homelessness was whether the individual was currently residing in an emergency or battered women's shelter, a transitional housing program, an open encampment, or an abandoned building.

Sample

The final dataset provided by the Wilder Research Foundation included data from 4750 participants. Those interviewed comprised approximately 60% of Minnesota's sheltered homeless population, and the survey participation rate was 90%. Approximately 67% of the homeless individuals identified by the study were located in the twin cities metropolitan area. Participants who responded to an item assessing Veteran status and identified as current smokers (n = 3182) were included in analyses comparing Veteran smokers (n = 351) and non-Veteran smokers (n = 2831). Subsequent analyses were conducted among the Veteran sample (n = 503), and compared smokers (n = 351) to nonsmokers (n = 152).

Measures

Military history. Type of military discharge was dichotomized (Honorable or Other). Era of military service was separated into four categories based on date of enlistment (Prior to August 1964, August 1964 to August 1980, September 1980 to March 2003, and after March 2003). Participants indicated whether they had ever served in a combat zone and whether they were currently receiving any Veterans' benefits.

Cigarette use. Participants who smoked a cigarette in the past 30 days were identified as current smokers, the criterion used by the CDC to assess current smoking (Agaku et al., 2014). These participants responded to items assessing age of smoking initiation and average number of cigarettes smoked per day.

Socio-demographics. Measures included age, gender, and number of grades completed. The education variable was subsequently dichotomized

(Less than 12 grades completed, or 12 or more grades completed). Participants were separated into four racial categories (African ancestry, White, American Indian, or another racial group). Current marital status was separated into three categories (married, separated/divorced/widowed, or never married).

Physical health. Participants indicated if they had experienced any of the following illnesses or conditions in the past 12 months: Asthma, other chronic lung or respiratory problems, frostbite or trenchfoot, high blood pressure, other chronic heart or circulatory problems, diabetes, tuberculosis, hepatitis, HIV/AIDS, a sexually transmitted infection (STI) other than HIV/AIDS. These measures were assessed both individually and as a dichotomous physical health status variable (One or more physical health problems, or no physical health problems). Participants also indicated whether they felt they needed help from a medical professional for a current physical health problem, dichotomized as yes/no.

Mental health. Participants indicated if a doctor or nurse had told them in the past 2 years that they had one of the following conditions: schizophrenia, paranoid or delusional disorder, manic depression or bipolar disorder, major depression, any severe personality disorder, or post-traumatic stress disorder (PTSD). These measures were assessed both individually and as a dichotomous mental health status variable (One or more mental health problems, or no mental health problems). Participants also indicated whether they felt they needed help from a medical professional for a current mental health problem, dichotomized as yes/no.

Substance use. Participants indicated whether they had used any of the following substances in the past 30 days: marijuana, crack or cocaine, heroin, inhalants, meth, LSD or another hallucinogen. Another item asked if the participant had consumed an alcoholic beverage in the past 30 days. Participants also indicated whether they considered themselves to currently be alcohol or chemical dependent.

Economic Status. Participants indicated their total income in the preceding month from all sources, not including food stamps. Another item asked whether they were currently employed, dichotomized as yes/no.

Statistical analyses

The first set of univariable analyses compared homeless Veteran smokers and homeless non-Veteran smokers across a series of socio-demographic, health, substance use, and cigarette use variables using Pearson chi-square tests and two-sample t-tests (Table 1). Variables significant at the $p < 0.05$ level were added to a multivariable logistic regression model predicting Veteran status among the homeless smokers (Table 2). Subsequent univariable analyses compared homeless Veteran smokers and homeless Veteran non-smokers across a series of variables hypothesized to be associated with smoking using Pearson chi-square tests and two-sample t-tests (Table 3). Variables significant at the $p < 0.05$ level were added to a multivariable logistic regression model predicting smoking status among the homeless Veterans. Although not significant in the unadjusted analyses, gender, age, race, and education were included as covariates in this regression model due to their well-documented association with smoking (Table 4). Analyses were conducted using SAS version 9.3.

Results

Comparison of homeless smokers by Veteran status

Analyses indicated that homeless Veteran smokers were older, more likely to be male, and better educated than homeless non-Veteran smokers (Table 1). There was a higher proportion of Whites in the Veteran compared to non-Veteran group. There were a higher proportion of separated, widowed, or divorced participants and a lower proportion of never married participants in the Veteran compared to the non-Veteran group. The Veterans also reported an older age of first homelessness than the non-Veterans.

The prevalence of alcohol and/or chemical dependence was significantly higher among homeless Veteran smokers compared to homeless non-Veteran smokers (Table 1). The prevalence of current smoking in the original sample (N = 4750) was higher among Veterans than non-Veterans. The Veterans also averaged more cigarettes per day than the non-Veterans. Veterans fared more poorly than non-Veterans across many acute and chronic health conditions. The prevalence of frostbite or trenchfoot, respiratory problems, high blood pressure,