



Associations between deployment, military rank, and binge drinking in active duty and Reserve/National Guard US servicewomen[☆]



Michael A. Cucciare^{a,b,c,*}, Anne G. Sadler^{d,e}, Michelle A. Mengeling^{d,f,g}, James C. Torner^h, Geoffrey M. Curran^{a,b,i}, Xiaotong Han^{a,b,c}, Brenda M. Booth^b

^a Center for Mental Healthcare and Outcomes Research, Central Arkansas Veterans Affairs Healthcare System, North Little Rock, AR 72205, USA

^b Department of Psychiatry, University of Arkansas for Medical Sciences, Little Rock, AR 72205, USA

^c VA South Central (VISN 16) Mental Illness Research, Education, and Clinical Center, Central Arkansas Veterans Healthcare System, North Little Rock, AR 72205, USA

^d The Center for Comprehensive Access and Delivery Research and Evaluation, Iowa City VA Health Care System, Iowa City, IA 52246, USA

^e Department of Psychiatry, University of Iowa Carver College of Medicine, Iowa City, IA 52242, USA

^f VA Office of Rural Health, Veterans Rural Health Resource Center-Central Region, Iowa City VA Health Care System, Iowa City, IA 52246, USA

^g Department of Internal Medicine, Carver College of Medicine, University of Iowa, Iowa City, Iowa, IA 52242, USA

^h Department of Epidemiology, College of Public Health, University of Iowa, Iowa City, IA 52242, USA

ⁱ Department of Pharmacy Practice, University of Arkansas for Medical Sciences, Little Rock, AR 72205, USA

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ABSTRACT

Background: Prior studies of mostly male U.S. service members suggest service characteristics such as deployment with combat exposure and lower rank may be a risk factor for alcohol misuse. However, these relationships have not been examined among servicewomen who may be at high risk for experiencing deployment-related stressors and associated health consequences. This cross-sectional report of US servicewomen in the Reserve or National Guard (RNG) and active component (AC) sought to examine these associations.

Methods: A Midwestern community sample of currently serving and veteran servicewomen ($N = 1339$) completed structured telephone interviews. The Generalized Linear Model was used to examine associations between service characteristics, any binge drinking, and frequency of recent binge drinking after adjusting for demographics.

Results: After adjusting for demographics, deployment to Iraq or Afghanistan was associated with greater odds of reporting a binge drinking episode, compared to no deployment, among servicewomen in the AC but not RNG. Deployment to Iraq or Afghanistan was also associated with more days binge drinking in both groups compared to servicewomen not deployed. Lower ranking servicewomen also reported higher odds of a binge drinking episode and higher frequency of binge drinking in both the RNG and AC. **Conclusions:** Service characteristics including deployment to Iraq or Afghanistan (vs. those not deployed) and lower rank (vs. officers) may be a risk factor for recent binge drinking and higher frequency of binge drinking among servicewomen, after adjusting for demographic covariates. Public health and clinical implications are discussed.

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* Corresponding author at: Division of Health Services Research, Department of Psychiatry/Psychiatric Research Institute, College of Medicine, University of Arkansas for Medical Sciences, 4301 West Markham Street, Little Rock, AR 72205, USA. Tel.: +1 501 526 8179.

E-mail address: macucciare@uams.edu (M.A. Cucciare).

1. Introduction

Rates of binge drinking among U.S. military personnel are high and associated with numerous negative health and social outcomes (Jacobson et al., 2008; Stahre et al., 2009). A recent study of U.S. servicewomen found that 8% of active duty women (or full-time military personnel, henceforth referred to as active component or AC) and 9% of women surveyed in the Reserve or National Guard (RNG) reported heavy drinking (consuming greater than 7 drinks in the past week) (Jacobson et al., 2008). Jacobson et al. (2008)

also found that 7% of RNG and 9% of AC servicewomen surveyed reported at least one alcohol-related problem such as missed work or school and/or driving a vehicle while intoxicated in the past year, respectively.

Research suggests that servicewomen are also at high risk for developing new onset heavy weekly drinking following military service (Jacobson et al., 2008) and women in general may experience a disproportionate frequency and scope of alcohol-related problems when compared to men (Sanchez-Craig et al., 1995), even at lower levels of alcohol consumption (NIAAA, 2010). These findings point to service involvement as a potential contributor to alcohol misuse among women and suggest that women experience greater health consequences as a result of harmful drinking patterns. Unfortunately, little is known about characteristics of service involvement that may be associated with alcohol misuse among servicewomen, especially amongst those who may have been deployed overseas.

Prior studies of mostly male samples have shown deployment with combat exposure to be a strong correlate of alcohol misuse among the larger population of male U.S. service members. A recent study found that being deployed and experiencing combat-related stressors was associated with a greater likelihood (compared to no deployment) of binge drinking post-deployment among AC service members (Jacobson et al., 2008: 73% male). In the same study, service in the RNG while deployed was associated with a greater likelihood of engaging in new onset heavy weekly drinking, binge drinking, and experiencing alcohol-related problems post-deployment when compared to their deployed AC peers but gender differences were not reported (Jacobson et al., 2008). Elsewhere, a sample of mostly male RNG service members also reported a greater likelihood of alcohol misuse or aggression (e.g., hitting someone) co-occurring with depression or posttraumatic stress disorder (PTSD) one-year post-deployment than men in the AC (Thomas et al., 2010: 99% male). Unfortunately, no studies have examined deployment in relation to alcohol misuse among U.S. servicewomen, and especially among servicewomen in the RNG who may be less prepared to cope with deployment-related stressors (Vogt et al., 2008). For example, servicewomen deployed overseas are at high risk for experiencing sexual harassment and sexual assault (LeardMann et al., 2013) which may contribute to alcohol misuse (Booth et al., 2011).

Lower military rank has also been shown to be associated with greater alcohol misuse among U.S. military personnel (Mattiko et al., 2011; Stahre et al., 2009). Mattiko and colleagues (2011) found, among a mostly male sample, that enlisted and non-commissioned officers (NCOs) in the AC were two to three times more likely than senior officers to engage in heavy drinking (≥ 5 drinks per typical drinking occasion at least once a week) in the past 30 days after controlling for age, race/ethnicity, and marital status. Stahre and colleagues (2009) found, among a subsample of AC servicewomen consuming alcohol in the past 30 days, that enlisted (47.8%), NCOs (36.1%), and warrant officers (37.3%) reported higher rates of 30-day binge drinking when compared to senior officers (18.2%) (Stahre et al., 2009). These studies are limited in terms of focusing mostly on men (i.e., Mattiko et al., 2011) or on subsamples of AC servicewomen reporting recent alcohol use (Stahre et al., 2009) and not on a more representative community sample of servicewomen. Therefore, there is a need to extend these findings to a community sample of servicewomen in the AC and RNG given that lower rank may put some servicewomen at greater risk of experiencing gender harassment, unwanted sexual attention, sexual coercion (Buchanan et al., 2008), and perhaps associated emotional distress which may contribute to alcohol misuse (Booth et al., 2011).

This cross-sectional report from a large sample ($N=1339$) of U.S. Operations Iraqi Freedom or Operations Enduring Freedom

(OIF/OEF) servicewomen attempts to address this gap in the literature by examining associations between military deployment (none, deployed to Iraq or Afghanistan [I/A], and deployed elsewhere) and military rank (junior enlisted, NCO, or officer) with any binge drinking and frequency of binge drinking in the past four weeks. We examined these relationships separately for women in the RNG and AC in light of prior research showing that RNG service members may be more vulnerable to the negative effects of deployment when compared to their AC peers (Thomas et al., 2010; Vogt et al., 2008). We hypothesized that (a) deployment to I/A and (b) lower military rank would be associated with greater likelihood of any binge drinking and days binge drinking in the past four weeks among servicewomen in both the RNG and AC.

2. Methods

2.1. Participants and procedure

Participants included women drawn from two mutually exclusive populations of RNG ($N=665$) and AC ($N=674$). At the time of study participation, some servicewomen were still serving ($N=1056$), while others had separated from service ($N=283$). There was no difference in binge drinking between separated and still serving women (8.7% vs. 6.4%, $p=0.20$). All participants had served or were currently serving in the Army or Air Force, and resided, served or had enlisted from a Midwestern state (Iowa, Illinois, Missouri, Nebraska, and Kansas). Our sampling strategy involved stratifying by deployment history (never deployed, deployed to I/A, or deployed elsewhere) and oversampling for officers. The Defense Manpower Data Center (DMDC) provided contact information and select military characteristics (e.g., rank, deployment) for all participants.

Recruitment involved first mailing invitation packets (i.e., letter describing this study, consent form, and brochure describing VA research in general) followed by telephone calls from study staff to potential participants. Women were reimbursed \$50 for participation and received an additional \$10 call-in incentive if they contacted the study team to participate after receiving the mailed invitation. Exclusion criteria included having a disability that might interfere with the quality of a telephone interview including problems hearing or with comprehension and/or a dishonorable discharge. Both studies were granted a waiver of signed consent by the authors' Institutional Review Board thus signed consent forms were not required.

Total response rate to the study was 57%. Response rate for the RNG sample was 70%, while the response rate for participants recruited from the AC sample was 47% (see Mengeling et al., 2014 for more details on participation rates). Comparisons on demographic characteristics between study non-responders and responders showed that the latter group was younger in age and less likely to have completed college. Study responders tended to be older in age, more likely to be Caucasian, and graduate from college. Common reasons for refusing to participate included being too busy (33%) and not interested in participating in the study (46%) (Mengeling et al., 2014).

A Computer-Assisted Telephone Interview was used to query participants' demographic and military characteristics, and occurrence and frequency of binge drinking in the past four weeks. This interview included other potentially relevant measures for drinking behavior such as history of sexual assault, including while in the military, deployment experiences, and current depression and PTSD. These measures are clearly important to evaluate with respect to current drinking behavior and will be examined in future reports.

RNG and AC interviews were conducted from March 2010 to September 2010 and from October 2010 to December 2011, respectively. The average interview lasted for 1.5 h and most participants (73%) completed the interview in a single phone call.

2.2. Measures

2.2.1. Independent variables.

2.2.1.1. Military characteristics. Deployment history and military rank were the independent variables of interest in this study. Military rank was provided by the DMDC and grouped into three categories including junior enlisted personnel (pay grades = E1 to E4), noncommissioned officers (NCO) (paygrades = E5 to E9), and officers (paygrades = O1 to O6 and W01 to W04).

2.2.1.2. Demographic characteristics. Demographic covariates were included in our statistical models based on review of the prior literature documenting characteristics of U.S. military personnel that are associated with alcohol misuse (Mattiko et al., 2011; Stahre et al., 2009). Thus, participants' age, marital status, and race/ethnicity were included as covariates in our adjusted statistical models.

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