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Age moderates the association of depressive symptoms and unhealthy alcohol use in the National Guard

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HIGHLIGHTS

- Depression, sex, and deployment did not predict Guardsmen's unhealthy drinking.
- Guardsmen's depressive symptoms and unhealthy drinking depend on age.
- Depression is related to unhealthy drinking only for Guardsmen over 33 years old.
- SBIRT with Guardsmen appears effective in identifying unhealthy drinking.

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ABSTRACT

Unhealthy drinking is a significant problem contributing to poor health and performance of military personnel. The Iowa Army National Guard and the Iowa Department of Public Health have collaborated with the Substance Abuse and Mental Health Administration to better identify unhealthy substance use via Screening, Brief Intervention, and Referral to Treatment program (SBIRT). Yet, little research has been conducted on the Guard's use of SBIRT. This study examined depression, age, deployment status, and sex as factors contributing to unhealthy drinking. Of the Guardsmen who took part in SBIRT, 3.7% (n = 75) met the criteria for unhealthy drinking and 3.9% (n = 78) had some level of depression. The overall multivariate model significantly predicted unhealthy drinking ($\chi^2(5) = 41.41$, $p < 0.001$) with age moderating the association of depressive symptoms and unhealthy alcohol (Wald $\chi^2(1) = 7.16$, $p = 0.007$). These findings add to the existing understanding of factors contributing to unhealthy drinking suggesting the association between the presence of depression and unhealthy drinking depends on age of the Guradsman. This age and depression interaction may be an important diagnostic feature to consider for unhealthy drinking in the Guard. Furthermore, previous research on the general military population finds similar percentages, providing support for SBIRT as an effective screening tool in the Guard.

1. Introduction

Problem substance use in the military is a significant problem contributing to poor health and performance of personnel. The Department of Defense (DoD) has enacted a health promotion initiative aimed at increasing positive health behaviors while decreasing negative health behaviors to include drug abuse and excessive alcohol use (DoD, 2014). Major preventive advances have been made in the reduction of military tobacco and illicit substance use; yet, unhealthy drinking continues to increase (Bray, Pemberton, Lane, Hourani, & Mattiko, 2010). Unhealthy drinking may consist of binge drinking or heavy drinking. Binge drinking is defined as drinking at least five drinks on one occasion at least one time in the past 30 days (SAMHSA, 2015). Heavy drinking is defined by drinking at least five drinks on one occasion, on at least five or more days in the past 30 days (SAMHSA, 2015).

In the general US population it is estimated that 56% of adults drink alcohol (Dwyer-lindgren et al., 2015) and 14% demonstrate past-year unhealthy drinking (Dawson, Grant, Stinson, & Zhou, 2005). Among all active-duty military personnel, approximately 45% demonstrate past-year moderate to heavy drinking (Mattiko, Olmsted, Brown, & Bray,

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2011). Many other studies have noted problems with binge and heavy drinking in the military, although this is not directly comparable as they measure past-month use (Bray et al., 2010; Jacobson et al., 2008; Lande, Marin, Chang, & Lande, 2008; Seal et al., 2009; Stahre, Brewer, Fonseca, & Naimi, 2009). The associations between the military and past-year drinking in the literature, along with the disparity between the general US population and active-duty military drinking behaviors, suggest needed research in enhanced screening and brief intervention to assess for unhealthy drinking among other sectors of military personnel.

Active-duty military personnel and the National Guard (NG) have similar levels of alcohol use disorders; 1.1% and 1.7% respectively (Seal et al., 2009). In the NG, heavy and binge drinking is associated with age (Ferrier-Auerbach et al., 2009; Vander Weg, DeBon, Sherrill-Mittleman, Klesges, & Relyea, 2006; Waller, Mcguire, & Dobson, 2015), deployment status (Ferrier-Auerbach et al., 2009; Jacobson et al., 2008), sex (Jacobson et al., 2008; Vander Weg et al., 2006), and depression (Ferrier-Auerbach et al., 2009; Jacobson et al., 2008). For instance, younger guardsmen and those over the age of 21 are associated with increased drinking (Ferrier-Auerbach et al., 2009; Vander Weg et al., 2006). Being previously deployed is noted in increasing the risk of heavy drinking and binge drinking behaviors and may be attributed to coping with transitioning to civilian life after combat (Jacobson et al., 2008). In addition, only the anticipation of an upcoming deployment may lead to increased drinking (Ferrier-Auerbach et al., 2009). Women are associated with increased heavy drinking, but men are associated with increased binge drinking after seeing combat (Jacobson et al., 2008). Furthermore, the presence of depressive symptoms are associated with the onset of new heavy and binge drinking behaviors after seeing combat (Jacobson et al., 2008), and increased drinking frequency prior to deployment (Ferrier-Auerbach et al., 2009). Yet, interactions are unexplored among the known associations with dinking in the NG and may provide important clinical evidence informing of assessment, intervention, and referrals to treatment.

In an effort to address substance use behaviors, the Iowa Army National Guard (IANG) and the Iowa Department of Public Health (IDPH) have collaborated with the Substance Abuse and Mental Health Administration (SAMHSA) to better identify unhealthy substance use and provide appropriate interventions (SAMHSA, 2014). SAMHSA introduced a large-scale public health approach to screening, intervening, and effectively referring patients with substance use problems. The Screening, Brief Intervention, and Referral to Treatment (SBIRT) program uses motivational interviewing, brief intervention, and referrals, which may be an important factor in increasing perceived incentives to change (Madras et al., 2009). SBIRT is functioning in federally funded medical facilities, which include residency cooperative agreements, state cooperative agreements, colleges, and universities. Yet, there is little research conducted on the NG's use of SBIRT to investigate correlates predictive of unhealthy alcohol use since the collaboration began in 2012. SBIRT was designated as a potential intervention strategy for use as a means of indicated prevention (Witkiewitz & Estrada, 2011). Currently, the IDPH SBIRT program is working in partnership with the IANG. SBIRT Iowa uses brief intervention using motivational interviewing, brief treatment (5–12 sessions) using motivational enhancement and cognitive behavioral techniques aligned with the American Society of Addiction Medicine criteria for early intervention, and referral to treatment to Iowa substance use treatment facilities (Iowa Department of Public Health, 2012).

The present study seeks to explore correlates of unhealthy drinking in the IANG by evaluating SBIRT data. It is expected that depression, age, deployment status, and sex will be factors contributing to unhealthy drinking. Furthermore, interactions among the study variables are explored. This study is an initial exploratory investigation aimed at identifying factors associated with unhealthy drinking to inform health practitioners and addiction professionals in identifying NG personnel who may be in need of services.

2. Methods

2.1. Participants

The IANG took part in a SAMHSA awarded SBIRT project. Between October 2014 to and February 13, 2015, 2033 soldiers took part of the standard SBIRT admission process during their routine physical examinations and data were collected. The total IANG admissions represent all consecutive admissions during the window of observation. In case of repeated screenings, only the participant's first record remained in the analysis. Soldiers were primarily White (96.3%, n = 1958) males (86.1%, n = 1750). Black/African Americans (2.3%, n = 47) were infrequent, as were Latinos (3.1%, n = 63). Less than 1% reported some other race or ethnic group. The mean age was 28.4 years (SD = 9.2, range = 18 to 55). The majority were never deployed (58%, n = 1179) and many had been previously deployed (42.0%, n = 854), most often to Iraq or Afghanistan (39.4%, n = 801). Because these data represent de-identified pre-existing service data collected by IDPH, there was no informed consent and the University of Iowa Human Subjects Office Institutional Review Board exempted this study from review.

2.2. Measures

2.2.1. Outcome measure

For males, the alcohol-pre-screening question was “How many times in the past year have you had 5 or more drinks in a day?” For females, the question asked about 4 or more drinks. Clients who answered “1 or more times” to this question were considered positive for the screening. A positive screening signaled administration of the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; Skinner, 1982). Unhealthy alcohol use was defined as a positive response to the pre-screening question and an AUDIT score of 8 or above. This cut off was adopted because in primary care facilities clients with AUDIT scores of 8 or above are referred to intervention or treatment (Babor et al., 2001). The AUDIT screening criteria for SBIRT IOWA scoring is: encouragement and education (0–7), brief intervention (8–15), brief treatment (16–19), referral to outside treatment (20+; SAMHSA, 2014). The AUDIT has demonstrated high overall sensitivity (92%) and specificity (93%) with international samples of patients in healthcare settings (Babor et al., 2001).

2.2.2. Depression

Soldiers filled out the Patient Health Questionnaire (PHQ-9) to assess depression symptoms (Kroenke, Spitzer, & Williams, 2001). These authors categorized levels of depression severity using PHQ-9 scores in the following way: none-minimal (scores of 1–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe (20–27). The PHQ-9 was developed for use with healthcare samples and upon initial validation demonstrated sensitivity (88%) and specificity (88%) for identifying major depression (Kroenke & Spitzer, 2002).

2.2.3. Deployment status

Deployment status consisted of any past lifetime deployment. None of the sample was currently deployed. Deployment was coded as Never Deployed and Previously Deployed. Previously Deployed included Iraq and Afghanistan, Persian Gulf, Vietnam and South East Asia, Korea, World War II, and Deployed but Not Listed.

2.2.4. Demographics

Sex was self-reported at the initial SBIRT pre-screening as male or female. The pre-screening was conducted at the initial physical examination. Age was also self-reported at pre-screening. For comparison and follow up tests, age was categorized in quartiles.