Suicidal ideation among young Afghanistan/Iraq War Veterans and civilians: Individual, social, and environmental risk factors and perception of unmet mental healthcare needs, United States, 2013

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A B S T R A C T

Suicidal Ideation among Afghanistan/Iraq War Veterans remains a health concern. As young Veterans adjust to civilian life, new risk factors might emerge and manifest differently in this group versus those in the general population. We explored these differences. With 2013 National Survey on Drug Use and Health data, we examined differences in risk of past-year suicidal ideation between Veterans of the Afghanistan/Iraq War periods aged 18–34 years (N=328) and age-comparable civilians (N=23,222). We compared groups based on individual and socio-environmental risk factors as well as perceptions of unmet mental healthcare needs. We report adjusted rate ratios (aRRs); interaction terms tested for between-group differences. PY suicidal ideation rates for Veterans and civilians did not differ (52 versus 59 per 1,000, p=0.60) and both groups shared many risk factors. However, drug problems and perceived unmet mental health care needs were vastly stronger risk factors among Veterans versus civilians (interaction terms indicated that the aRRs were 3.8–8.0 times higher for Veterans versus civilians). Other differences were discovered as well. Past-year suicidal ideation rates did not differ by Veteran status among young adults. However, different risk factors per group were detected, which can inform Veteran suicide prevention efforts.

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1. Introduction

The suicide rate among active duty Army personnel nearly doubled from 2001 to 2010 (Bachynski et al., 2012; Schoenbaum et al., 2014), during the Afghanistan and Iraq wars, Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF) (Torreon, 2015). Non-fatal suicidal behavior among military populations was frequently documented as well (Bush et al., 2013). For example, Bush and colleagues (2013) reported there were 1514 suicide attempts among Army personnel during 2008–2010 (Bush et al., 2013). The Veteran Health Administration (VHA) also reported similar increases in suicide rates among some OEF/OIF Veteran groups (Hoffmire et al., 2015; Kang et al., 2015; U.S. Department of Veterans Affairs, 2016). In 2014, the suicide rate among young VHA service users aged 18–24 years was still high at 110 deaths per 100,000 population, which is over eight times higher than the rate for the general population of similar age (Centers for Disease Control and Prevention, *WISQARS*; U.S. Department of Veterans

Affairs, 2016). Therefore, suicide-related outcomes including ideation (i.e. having thoughts of suicide) remain critical aspects of health and well-being among military personnel and Veterans of the Afghanistan/Iraq war periods (National Research Action Plan, 2013; Castro and Kintzle, 2014).

Research has sought to understand the causes of suicide-related outcomes among persons who served during the Afghanistan and Iraq wars (Castro and Kintzle, 2014) and many risk factors have been discovered. Men are at increased risk of fatal suicidal behavior (Luxton et al., 2012; Bush et al., 2013; Schoenbaum et al., 2014; Logan et al., 2015) and women are at increased risk of non-fatal behavior (Lemaire and Graham, 2011; Ursano et al., 2015). Risk factors for most suicide-related outcomes have included: non-Hispanic white race/ethnicity (Luxton et al., 2012; Bush et al., 2013; Schoenbaum et al., 2014; Logan et al., 2015); under 25 years old (among active duty) (Luxton et al., 2012; Bush et al., 2013; Schoenbaum et al., 2014; Logan et al., 2015); enlisted rank of E1-E5 (among active duty) (Bachynski et al., 2012; Hyman et al., 2012; Luxton et al., 2012; Bush et al., 2013; Schoenbaum et al., 2014; Logan et al., 2015); sexual minority status (Blosnich et al., 2013, 2014); pre-enlisted and/or current mental health conditions (Ilgen et al., 2010a; Guerra and Calhoun, 2011; Lemaire and Graham,

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2011; Bachynski et al., 2012; Hyman et al., 2012; Skopp et al., 2012; Conner et al., 2013; Luxton et al., 2013; Nock et al., 2014; Ramsawh et al., 2014, 2015; Ramchand et al., 2015); a history of self-directed violence (Lemaire and Graham, 2011; Weiner et al., 2011; Bryan et al., 2015b); substance use problems (Mansfield et al., 2011; Bachynski et al., 2012; LeardMann et al., 2013; Alexander et al., 2014); poor physical health and functionality (e.g., bodily pain, traumatic brain injury) (Ilgen et al., 2010c; Brenner et al., 2011; Magruder et al., 2012; Dobscha et al., 2014); recent disciplinary action from a commanding officer (i.e., Article 15), a demotion, a dishonorable discharge, or recent denial for promotion (among active duty) (Hyman et al., 2012; Schoenbaum et al., 2014; Reger et al., 2015); and intimate partner problems (Hyman et al., 2012; Skopp et al., 2012; Alexander et al., 2014). Suicidal ideation is also associated with lack of social support (Pietrzak et al., 2010; Monteith et al., 2013; Monteith et al., 2015), sexual trauma (Lemaire and Graham, 2011; Lutwak and Dill, 2013), and sleep deprivation (Luxton et al., 2011; Ribeiro et al., 2012). Some evidence has suggested that suicide-related outcomes are associated with deployment and combat exposure (Schoenbaum et al., 2014; Bryan et al., 2015a); however, study results have been mixed (Kang et al., 2015; Reger et al., 2015). Collectively, these risk factors have informed public health prevention efforts and clinical efforts including suicide screening, risk assessment, and mental health treatment (Logan et al., 2011b; Pringle et al., 2013; Castro, 2014; McCarthy et al., 2015).

Updated rates of suicide-related outcomes and related risk factors among Veterans of the Afghanistan/Iraq wars are still needed. As many OEF/OIF military personnel discharge from service and adjust to civilian life, different risk factors might emerge. This transition period can be a difficult time accompanied by frustration with gaining employment, anger or reckless behavior, and substance abuse (Make the Connection; Shared Experiences and Support for Veterans).

Additionally, an updated assessment of risk factors framed within the socio-ecological model is needed. This model examines risk in relation to individuals and their environments and organizes factors into multiple levels: individual characteristics; interpersonal relationships; community/environmental exposures; and societal influences (Centers for Disease Control and Prevention, *The Social-Ecological Model*; Dahlberg and Krug, 2002). This model is also the paradigm used for studying the etiology of suicide by leading public health agencies such as the Centers for Disease Control and Prevention. By using this model, the present study expanded the assessment of risk to include important factors that have not been thoroughly examined among military and Veteran populations. For example, suicide-related outcomes have been heavily studied in relation to interpersonal violence perpetration among young civilian groups (Swahn et al., 2008; Logan et al., 2011b) but not as much among young Veterans. Perpetration of interpersonal and self-direct violence has been found to be correlated among some youth and adults (Swahn et al., 2008; Ilgen et al., 2010b) making interpersonal violence a potential factor that can help screen for suicidal ideation and behavior. Also, while individual mental health conditions have been assessed as suicide-related risk factors in great detail among military personnel and Veterans, perceptions of unmet mental healthcare needs has not, which may reflect the mental health services available among those who need them.

Finally, an updated comparison of rates of suicide-related outcomes and associated risk factors between Veterans of the Afghanistan and Iraq wars and civilians is needed. Past comparisons between Veterans and civilians with regard to suicide-related outcomes have not been without controversy with similar studies reaching different conclusions (Kaplan et al., 2007; Miller et al., 2012a, 2012b). An updated comparison can help determine whether new risk factors have emerged differently between these two groups.

Using national data provided by the Substance Abuse and Mental Health Services Administration (SAMHSA), we explored these areas of research to help advance Veteran suicide prevention research.

2. Methods

2.1. Data source and study population

This study used 2013 data from the National Survey on Drug Use and Health (NSDUH) (Substance Abuse and Mental Health Services Administration, 2013 (SAMHSA)). Details on NSDUH survey methods are reported elsewhere (Jones, 2013; Muhuri et al., 2013; SAMHSA, 2014). To summarize, SAMHSA employed a state-based sampling design for NSDUH that uses independent, multi-stage area probability sampling within each state and the District of Columbia. Approximately 3600 respondents were sampled from each of the eight states with the largest populations (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas) and 900 respondents were sampled from each of remaining 42 States and the District of Columbia. The design oversampled young adults; each state's sample was approximately equally distributed among three age groups: 12–17 years; 18–25 years; and 26 years or older. The weighted response rates for the 2013 household screens and interviews were 84% and 72%. Surveys are implemented through computer-assisted interviewing.

We selected adults of ages 18–34 years. Respondents were considered Veterans of the Afghanistan/Iraq war period if they reported serving on active duty from 2001 or later (N=328). Civilian respondents were those who reported never serving in the military (N=23,222). Fig. 1 illustrates the inclusion and exclusion criteria.

2.2. Variables of interest

Variable definitions are provided in the online materials. Suicidal ideation (i.e., having suicidal thoughts within the past year) was the outcome variable. The risk factors assessed spanned multiple levels of the socio-ecological model: individual characteristics; interpersonal relationship factors; perceptions of community/environmental exposures (Centers for Disease Control and Prevention, *The Social-Ecological Model*).[1]

Individual characteristics included sex, age, race/ethnicity, employment status, and reports of past-year: major depression diagnosis; anxiety diagnosis; psychological distress; perceptions of general health; and substance abuse/dependence involving alcohol, marijuana, cocaine, opioid pain relievers, other psychotherapeutic drugs, and heroin. We also examined perceptions of past-year unmet mental health care needs.

Interpersonal relationship characteristics is limited in NSDUH; however, we were able to examine marital status and one variable that captured past-year interpersonal violence (i.e., "attacked someone with intent to seriously hurt them").

For community/environmental exposures, we included geographical location (i.e., residing in core based statistical areas with ≥ 1 million persons versus other areas) to determine if there were differences in suicidal ideation between respondents in large metropolitan areas versus those in less populated areas. Among

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[1] It should be noted that we analyzed the survey respondents' personal perceptions of their individual, relationship, and environmental characteristics as opposed to linking our individual-level data to community-level data, which is often found in multi-level analyses.