Suicidal thoughts and behaviors among women firefighters: An examination of associated features and comparison of pre-career and career prevalence rates

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ABSTRACT

Background: Women protective service workers die by suicide at a higher rate than women workers in other occupational groups. However, no study has examined rates and correlates of suicidal thoughts and behaviors among women firefighters, despite the potential for these data to inform suicide screening, prevention, and intervention initiatives. The purpose of this study is to describe and compare pre-career and career rates of suicidal thoughts and behaviors and identify their sociodemographic and occupational correlates among women firefighters.

Methods: Data were obtained from 313 current U.S. women firefighters who completed a web-based survey (mean age = 37.30y, SD = 9.70y, 92.7% White). Pre-career rates of suicide ideation, plans, attempts, and non-suicidal self-injury (NSSI) were found to be 28.4%, 10.2%, 5.8%, and 11.2%, respectively. Career rates of suicide ideation, plans, attempts, and NSSI were found to be 37.7%, 10.9%, 3.5%, and 9.3%, respectively. Pre-career rates of suicide ideation (OR = 4.760, 95% CI = 2.820–8.034, p < 0.001), plans (OR = 4.867, 95% CI = 2.067–11.463, p < 0.001), attempts (OR = 7.175, 95% CI = 1.726–29.828, p = 0.007), and NSSI (OR = 9.676, 95% CI = 4.130–22.670, p < 0.001) were significantly associated with career suicidality. With few exceptions, neither sociodemographic characteristics nor firefighter experiences were associated with career suicidal symptoms.

Limitations: Study limitations include a cross-sectional design and convenience sample recruitment strategy. Women firefighters report elevated rates of suicidal thoughts and behaviors. Suicidality occurring prior to one's tenure as a firefighter—and not solely an aspect of firefighter career experiences—should be considered in suicide risk screening, prevention, and intervention initiatives. Studies examining modifiable suicide risk factors and correlates (e.g., psychiatric symptoms, workplace harassment) are needed.

Conclusions: Women firefighters report elevated rates of suicidal thoughts and behaviors. Suicidality occurring prior to one's tenure as a firefighter—and not solely an aspect of firefighter career experiences—should be considered in suicide risk screening, prevention, and intervention initiatives. Studies examining modifiable suicide risk factors and correlates (e.g., psychiatric symptoms, workplace harassment) are needed.

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1. Introduction

Nearly one million individuals worldwide and over 40,000 individuals in the United States (U.S.) die by suicide annually (Centers for Disease Control and Prevention CDC, 2017, World Health Organization WHO, 2014). Moreover, an estimated 9.8 million individuals in the U.S. think about suicide each year, among whom approximately 2.7 million make a suicide plan and 1.4 million make a nonfatal suicide attempt (Pisco et al., 2016). The emotional effects of suicide on the bereaved are profound (Cerel et al., 2008; Hom et al., 2017), and its economic effects are widespread (e.g., lost work productivity; CDC, 2014); thus, efforts are needed to enhance suicide prevention efforts. Indeed, given the high rates of suicidality (i.e., suicidal thoughts and behaviors) among U.S. adults, recent policy statements have advocated specifically for the examination of at-risk subgroups (US Department of Health and Human Services, 2012), including high-risk occupational groups (McIntosh et al., 2016; Milner et al., 2015, 2013; Tiesman et al., 2015).

Emerging research suggests that of occupational groups, first responder populations may be at particularly elevated suicide risk (Stanley et al., 2016). For example, a recent study of 1027 career and volunteer firefighters in the U.S. found rates of suicide ideation, plans, attempts, and non-suicidal self-injury (NSSI) since beginning one's career as a firefighter to be 46.8%, 19.2%, 15.5%, and 16.4%, respectively (Stanley et al., 2015). Of note, the vast majority of participants in this sample were men (i.e., 91.2%; Stanley et al., 2015), which is generally consistent with the demographic makeup of the U.S. fire service...
population will be critical in informing suicide screening, prevention, and intervention efforts among women firefighters, more research is needed on the health of women firefighters, in particular (Jahnke et al., 2012).

A recent CDC report on suicide rates by occupational groups provides a compelling reason to study women firefighters as a distinct group (McIntosh et al., 2016). This report revealed that, among women workers, the highest rate of death by suicide was among protective service workers—a group inclusive of firefighters (McIntosh et al., 2016). Indeed, the researchers concluded that suicide prevention activities should focus on women workers in protective service roles. Nevertheless, there is a paucity of research on suicidality and its associated features among women protective service workers, including women firefighters (Stanley et al., 2016).

The import of examining women firefighters, specifically, is augmented by a call in the 2015 National Fire Service Research Agenda to identify “individuals within the fire service who are at a higher risk for specific occupational injury/illness/disease” (National Fallen Firefighters Foundation, 2016). Women firefighters—who comprise approximately 7% of the fire service (82,550 of 1,134,400 firefighters; Haynes and Stein, 2016)—represent one potentially at-risk group (Jahnke et al., 2012). Possible reasons for differential health outcomes among women firefighters include gender-based discrimination and sexual harassment (Jahnke et al., 2012).

1.1. Pre-career and career suicidality

Examining rates of suicidal thoughts and behaviors is important to understand the degree to which women firefighters may experience suicidal symptoms. Importantly, rates of suicidal thoughts and behaviors within a particular occupational group do not necessarily signal that the thoughts and/or behaviors onset during one’s vocational tenure, nor do the rates indicate that the occupation caused one’s suicidality. In this regard, and consistent with the approach of investigations into suicidality among U.S. military personnel (Bryan et al., 2014; Nock et al., 2014), it is imperative to determine the degree to which pre-career suicidal symptoms predict career suicidal symptoms.

1.2. Putative correlates of suicidality

Beyond examining rates of suicidal thoughts and behaviors among women firefighters, the identification of correlates of suicide risk in this population will be critical in informing suicide screening, prevention, and intervention efforts. The fire service milieu may present unique experiences that influence suicide risk (Henderson et al., 2016). Although research examining suicidality among firefighters is sparse (Stanley et al., 2016), several investigations have identified the following factors as contributing to risk for suicidality among firefighters: the concurrent provision of Emergency Medical Services (EMS; Kimbrel et al., 2016; Stanley et al., 2015); membership in a volunteer compared to career department (Stanley et al., 2017, 2015); and years of service, and relatedly, rank (Martin et al., 2016; Stanley et al., 2015). Past research among the general population has established demographic risk factors (e.g., sexual minority status (King et al., 2008) and protective factors (e.g., marital status (Kposowa, 2000), number of children (Höyer and Lund, 1993; Qin and Mortensen, 2003) for suicidality. However, the relation of these characteristics and suicidality have not been examined among women firefighters, specifically.

1.3. The present study

Given the need for research to understand and identify potential leverage points for suicide screening, prevention, and intervention efforts among women firefighters, the overarching aim of the present study is to investigate the prevalence and associated features of suicidal thoughts and behaviors among U.S. women firefighters. Specifically, this study aims to: (1) describe rates of suicidal thoughts and behaviors prior to (i.e., pre-career) and since (i.e., career) beginning one’s work as a firefighter (both assessed retroactively); (2) describe associations between pre-career and career suicidal thoughts and behaviors; and (3) identify sociodemographic and occupational correlates of career suicidal thoughts and behaviors. Given that previous studies of correlates of suicidality among firefighters have utilized predominantly male samples, we approached the present study without any a priori hypotheses.

2. Methods

2.1. Participants and procedures

Women firefighters were invited to participate in the present study through various web-based announcements (e.g., listserv, social media) posted by firefighter and suicide prevention organizations (September–November, 2016). Interested individuals were initially presented with a web-based consent form that required them to correctly answer five comprehension questions to proceed with the survey. The first two survey questions served as screening items. Individuals who reported they are a current firefighter (volunteer or paid) and who identify as female were able to proceed with the survey. Eligible participants then completed a 30-min battery of self-report measures assessing demographic and occupational characteristics; experiences with suicidal thoughts and behaviors; past and current psychiatric symptoms; and other psychological constructs. Study participation occurred via Qualtrics, a secure web-based survey platform. At the conclusion of the survey, participants were presented with a debriefing form listing national mental health resources (e.g., 1-800-273-TALK; Gould et al., 2012; Joiner et al., 2007). They were also given the option of providing their email address to be entered into a raffle for one of fifteen $20 Amazon.com gift cards. Past research among firefighters has found that giving individuals the option to provide an email address, and thereby disclose potentially identifiable information, does not appear to systematically preclude participation from individuals reporting more severe suicidal and suicide-related symptoms (Hom et al., 2016a). The University’s Institutional Review Board approved study procedures.

Ideally an investigation of this scope would utilize a nationally representative sample derived from rigorous epidemiological methods such as probability sampling strategies (Kessler et al., 2005), as well as the prospective delineation of risk and protective factors as compared to correlates (Kraemer et al., 1997). However, this novel investigation represents an initial step in elucidating patterns and associated features of suicidality among women firefighters, a potentially high-risk group for suicide. Indeed, as noted, the CDC has identified that of women workers, those in protective service roles (e.g., firefighters) die by suicide at rates higher than any other occupational group (McIntosh et al., 2016).

2.2. Measures

Demographics overview. A self-report questionnaire was administered to participants to assess for demographic characteristics (e.g., age, race/ethnicity, sexual orientation, marital status, number of children, education), past and current military service experiences, and firefighter-specific characteristics (e.g., total years of service, department type, firefighter type, rank, certification as an Emergency Medical Technician [EMT] or paramedic). The firefighter characteristics assessed were consistent with questionnaires administered by several leading firefighter organizations, such as the NFFF, as well as past research (Stanley et al., 2015).

Self-Injurious Thoughts and Behaviors Interview—Short Form (SITBI-SF; Nock et al., 2007). The SITBI-SF is a comprehensive 72-item measure assessing the nature and timing of past suicidal thoughts and behaviors. Questions were modified to specify two timeframes of
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