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Differences in psychiatric symptoms and barriers to mental health care between volunteer and career firefighters

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ABSTRACT

Firefighters are at increased risk for mental health problems. However, little is known about differences in psychiatric symptoms between volunteer and career firefighters. This study aimed to (1) describe differences in psychiatric symptoms and barriers to mental health care between U.S. firefighters in volunteer-only and career-only departments; and (2) determine if greater self-reported structural barriers to mental health care (e.g., cost, availability of resources) explain the differences in psychiatric symptom levels. Overall, 525 current U.S. firefighters participated. Analyses of covariance and logistic regression analyses were used to evaluate group differences between volunteer (n=204) and career (n=321) firefighters, adjusting for demographic and occupational characteristics. Volunteer firefighters reported significantly elevated levels of depression, posttraumatic stress, and suicidal symptoms compared to career firefighters. Career firefighters reported relatively elevated levels of problematic alcohol use. Volunteer firefighters additionally reported greater structural barriers to mental health care (e.g., cost, availability of resources), and these barriers accounted for the differences in mental health variables between volunteer and career firefighters. Findings suggest that volunteer firefighters report elevated psychiatric symptoms compared to career firefighters and greater structural barriers to mental health treatment may explain this link. Increased efforts are needed to develop firefighter-specific interventions and bolster mental health service utilization.

1. Introduction

Each year in the U.S., over 1,000,000 firefighters risk their lives by responding to high-risk emergencies (Haynes and Stein, 2016). The nature of the firefighter vocation (e.g., repeated exposure to painful and provocative experiences, erratic sleep schedules) likely poses a significant risk to firefighters' mental health. Indeed, past research has revealed elevated rates of a myriad of mental health problems among firefighters, including depression (Hom et al., 2016c), substance abuse (Carey et al., 2011), sleep disturbances (de Barros et al., 2012; Hom et al., 2016c), and posttraumatic stress symptoms (PTSS) and posttraumatic disorder (PTSD; Heinrichs et al., 2005). Emerging research also suggests that firefighters may be at elevated risk for suicidal thoughts and behaviors (Chu et al., 2016; Henderson et al., 2016; Kimbrel et al., 2016; Stanley et al., 2016, 2015), likely in part due to repeated exposures to traumatic events (Boffa et al., 2017), including the suicide attempt of another person (Kimbrel et al., 2016). Given the scope of psychiatric symptoms that have been found to be elevated among firefighters, empirical efforts to examine firefighter-specific characteristics that may potentiate risk is warranted. In so doing, specific at-risk sub-populations can then be identified, allowing for targeted prevention and intervention efforts. Indeed, among the highest research priorities identified by the 2015 National Fire Service Research Agenda is that which aids in "identifying those individuals within the fire service who are at a higher risk for specific occupational injury/illness/disease" (National Fallen Firefighters Foundation, 2016a).

One major distinction between firefighters is whether they are serving in career versus volunteer departments. Of note, most U.S. firefighters are volunteers (69%), of whom the vast majority serve communities of fewer than 25,000 people (95%; Haynes and Stein, 2016). Moreover, of the estimated 29,980 fire departments in the U.S. in 2014, approximately 19,915 (66.4%) were designated as volunteer-only. Although the nature of volunteer and career firefighting is in many ways similar, there are important differences, among them being cumulative time exposed to potentially traumatic events, competing

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Table 1
Demographic Characteristics Stratified by Firefighter Respondents in Volunteer-Only Versus Career-Only Departments: United States, 2015.

	Total sample		Volunteer-only		Career-only		Group differences
Characteristic	**Total *N* =525**	**Valid %**	**Total *n* =204**	**Valid %**	**Total *n* =321**	**Valid %**	
Age	*M*=37.72 ± 10.81, Range=18–68		*M*=36.04 ± 11.54, Range=18–68		*M*=38.79 ± 10.20 Range=19–63		$F(1, 523) = 8.188$, $p = 0.004$
Sex							$\chi^2 = 16.021$, $p < 0.001$
Male	480	91.4%	174	85.3%	306	95.3%	
Female	45	8.6%	30	14.7%	15	4.4%	
Race/Ethnicity							$\chi^2 = 47.054$, $p < 0.001$
White	463	88.2%	167	81.9%	296	92.2%	
Hispanic or Latino	14	2.7%	1	0.5%	13	4.0%	
Native American or Alaska Native	39	7.4%	34	16.7%	5	1.6%	
Other	9	1.7%	2	1.0%	7	2.2%	
Marital Status							$\chi^2 = 33.425$, $p < 0.001$
Married	390	74.3%	126	61.8%	264	82.2%	
Divorced or Separated	38	7.2%	16	7.8%	22	6.9%	
Widowed	5	1.0%	4	2.0%	1	0.3%	
Never Married	92	17.5%	58	28.4%	34	10.6%	
Military Status							$\chi^2 = 40.739$, $p < 0.001$
Active Duty	47	9.0%	36	17.6%	11	3.4%	
Reserves	34	6.5%	4	2.0%	30	9.3%	
National Guard	12	2.3%	5	2.5%	7	2.2%	
Veteran or Retiree	37	7.0%	11	5.4%	26	8.1%	
Other	6	1.1%	3	1.5%	3	0.9%	
Civilian (No Military Service)	389	74.1%	145	71.1%	244	76.0%	

demands (e.g., volunteers often have a separate, paid job), and areas served. Indeed, it is possible that these factors create stress vulnerabilities that contribute to the development and/or exacerbation of psychiatric conditions. Moreover, it may be that organizational factors (e.g., more systematic and stringent recruitment and screening process within career compared to volunteer departments) may account for differences in psychiatric symptoms between these two fire service sectors. Potentially greater availability of mental health resources (e.g., access to employee assistance programs [EAPs], formal peer support training) among career compared to volunteer fire departments may also contribute to differences in psychiatric symptoms between volunteer and career firefighters.

Despite these conjectures, to our knowledge, no study has empirically examined differences in psychiatric symptoms between volunteer and career firefighters. Research examining mental health among firefighters has repeatedly relied on samples of career-only (Carey et al., 2011; Heinrichs et al., 2005) or volunteer-only (Bryant and Harvey, 1996) firefighters, or studies are ambiguous in this regard. We are only aware of two studies that have explicitly examined descriptive differences in mental health among a hybrid sample of firefighters (i.e., the sample included both career and volunteer firefighters; Haddock et al., 2012; Stanley et al., 2015). In a study of alcohol use among a sample of 656 firefighters (n=459 career, n=197 volunteer), 58% of career and 40% of volunteer firefighters reported heavy drinking; however, data were not presented on the statistical significance of this difference (Haddock et al., 2012). Additionally, in a large study of 1,027 firefighters, volunteer firefighters were significantly more likely than career firefighters to report career suicide plans and attempts in uncontrolled analyses (Stanley et al., 2015). These findings suggest that there may be meaningful differences between career and volunteer firefighters, underscoring these distinctions as an important area for future inquiry. However, these past examinations are limited in scope and do not systematically examine within-fire service differences in symptom severity across other domains (e.g., depression, insomnia, and PTSD). Moreover, although mental health services serve as a conduit to symptom reduction, no data exist on differential barriers to mental health service use among firefighters serving in volunteer versus career departments.

1.1. Study objective

The purpose of this study was to describe differences in psychiatric symptoms and barriers to mental health care between current U.S. firefighters in volunteer-only and career-only departments. Moreover, in exploratory mediation analyses, we aimed to determine if greater structural barriers to mental health care (e.g., cost, availability of resources) significantly accounted for the relationship between firefighter type (i.e., volunteer versus career) and psychiatric symptom levels. Given past research demonstrating elevated rates of specific psychiatric symptoms among firefighters generally, the following symptom domains were assessed: depression (Carey et al., 2011; Hom et al., 2016c), problematic alcohol use (Carey et al., 2011), insomnia (de Barros et al., 2012; Hom et al., 2016c), PTSS/PTSD (Heinrichs et al., 2005), and suicidality (Henderson et al., 2016; Kimbrel et al., 2016; Stanley et al., 2016, 2015). Stigma-specific and structural barriers to mental health care were additionally assessed.

2. Methods

2.1. Participants and procedures

This study is a sub-investigation of a larger study examining suicidality among U.S. firefighters (Stanley et al., 2015). Firefighters were invited to participate through listserv and web-based announcements posted by firefighter organizations (February 2015). Respondents were presented with a web-based informed consent form and completed self-report measures through Qualtrics, a secure web-based platform. Total study participation time averaged 30 min. Participants were given the option of receiving a $10 electronic gift card. The University's IRB approved study procedures.

For the present investigation, only current firefighters with complete data on the variables of interest were included to increase relevance to current prevention and intervention efforts within the fire service. Likewise, firefighters from hybrid departments (i.e., those in which both career and volunteer firefighters serve) were excluded to increase specificity with regard to the primary study aim. Although the present sample was a convenience sample subject to differential responding biases, our sample characteristics (e.g., sex, years of service, rank distribution) were comparable to national estimates