



A test of the interpersonal theory of suicide in a large sample of current firefighters



Carol Chu^{*}, Jennifer M. Buchman-Schmitt, Melanie A. Hom, Ian H. Stanley, Thomas E. Joiner Jr.

Florida State University, Department of Psychology, Tallahassee, FL, USA

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ABSTRACT

Recent research suggests that firefighters experience elevated rates of suicidal ideation and behaviors. The interpersonal theory of suicide may shed light on this finding. This theory postulates that suicidal desire is strongest among individuals experiencing perceived burdensomeness and thwarted belongingness, and that the combination of suicide desire and acquired capability for suicide is necessary for the development of suicidal behaviors. We tested the propositions of the interpersonal theory in a large sample of current United States firefighters ($N=863$). Participants completed self-report measures of perceived burdensomeness, thwarted belongingness, fearlessness about death (FAD; a component of acquired capability), and career suicidal ideation and suicide attempt history. Regression models were used to examine the association between interpersonal theory constructs, career suicidal ideation severity, and the presence of career suicide attempts. In line with theory predictions, the three-way interaction between perceived burdensomeness, thwarted belongingness, and FAD was significantly associated with career suicide attempts, beyond participant sex. However, findings were no longer significant after accounting for years of firefighter service or age. Contrary to predictions, the two-way interaction between perceived burdensomeness and thwarted belongingness was not significantly related to career suicidal ideation severity. Applications of the theory to firefighters and future research are discussed.

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1. Introduction

Firefighters represent an occupational group at elevated risk for suicide. One study found that firefighters reported notably high rates of suicidal ideation, plans, and attempts during their firefighting careers (46.8%, 19.2%, and 15.5%, respectively; Stanley et al., 2015). These rates are higher than those found in the general population (Nock et al., 2008a, 2008b) and military samples (Nock et al., 2014). Further, firefighters have also been found to have elevated rates of psychiatric conditions associated with increased suicide risk (Carey et al., 2011; Corneil et al., 1999; de Barros et al., 2012; Murphy et al., 1999). That the rates of suicide-related behaviors among firefighters are higher than rates in the general population is particularly noteworthy, as firefighters undergo pre-enlistment screening for physical and mental health morbidities. Thus, firefighters are expected to be healthier than the general population (e.g., lower rates of suicide-related symptoms)—an epidemiological phenomenon termed the “healthy worker” effect

(Li and Sung, 1999; Pearce et al., 2007).

To further our understanding of factors that may account for suicide risk among firefighters, specifically, the interpersonal theory of suicide may be particularly useful and applicable. The interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010), one of the most empirically tested and corroborated theories of suicide, provides a framework through which to understand why individuals think about, attempt, and die by suicide. The theory posits that three constructs—*perceived burdensomeness*, *thwarted belongingness*, and *acquired capability*—interact to confer risk for death by suicide. Perceived burdensomeness is the belief that one is a burden to family, friends, and/or society and that one's death will be worth more than one's life to others; thwarted belongingness is represented by an unmet need for social connection (cf. loneliness). The theory asserts that when these two constructs co-occur, suicidal desire arises, and that when an individual feels hopeless about these constructs' potential for improvement, active suicidal ideation emerges. However, the theory posits that individuals will not act on these thoughts unless they possess the capability for suicide. Capability for suicide is characterized by both a sense of fearlessness about death and elevated physical pain tolerance. Thus, according to the theory,

^{*} Corresponding author.

E-mail address: chu@psy.fsu.edu (C. Chu).

individuals die by suicide not only because they desire suicide, but also because they have developed (e.g., through painful and provocative experiences; Van Orden et al., 2008) and/or have an innate (e.g., through genetic predispositions; Smith et al., 2012) capability for lethal self-injury.

Over the past decade, numerous studies have sought to test the interpersonal theory's conjectures, with empirical support emerging across various groups, including young adults (Czyz et al., 2014; Franklin et al., 2011; Joiner et al., 2009a, 2009b; Van Orden et al., 2008), adults (Christensen et al., 2013), older adults (Cukrowicz et al., 2013), and military personnel (Anestis et al., 2015a, 2015b; Bryan et al., 2010; Joiner et al., 2009a, 2009b; Monteith et al., 2013).

In examining the stressors and experiences that firefighters typically undergo, it seems reasonable to hypothesize that support for the interpersonal theory may also emerge among this occupational group. For example, firefighters are frequently exposed to various traumas (e.g., responding to suicide- and non-suicide-related fatalities, serious injuries) and are required to develop a distinct level of pain tolerance and fearlessness about death to successfully carry out job-related tasks (e.g., tolerating physical demands of firefighting, enduring pain and discomfort, placing themselves in potentially life-threatening situations). Therefore, it logically follows that this group may acquire a high capability for suicide, which explains their increased risk for suicide attempts (Bender et al., 2011; Franklin et al., 2011; Smith et al., 2010).

Furthermore, firefighters place themselves in harm's way to save others—a trait marked by immense self-sacrificial qualities. Although this trait is essential and highly valued within this line of work, it is possible that, over time, this pattern of thoughts and behaviors may increase risk for adopting the belief that one's death is worth more than one's life (Joiner et al., 2016). This belief is central to the perceived burdensomeness construct, which has been repeatedly identified as a potent predictor of suicide risk (Batterham et al., 2014; Jahn et al., 2011; Joiner, 2005; Van Orden et al., 2006, 2010), thereby potentially in part accounting for the increased rates of suicidal ideation identified in this population.

Finally, firefighters may also experience significant strains in interpersonal relationships due to shift work schedules and difficulties maintaining a work-life balance (Regehr et al., 2005). This may increase firefighters' feelings of thwarted belongingness, the third construct within the interpersonal theory. Thwarted belongingness has been shown to interact with perceived burdensomeness to increase risk for suicidal ideation (Czyz et al., 2014; Joiner et al., 2009a, 2009b; Van Orden et al., 2008), again providing a plausible explanation for the elevated prevalence of suicidal ideation in this group. In support of this point, one study of 334 firefighters found that a relationship between occupational stress and suicidal ideation only emerged among those with low levels of social support (Carpenter et al., 2015).

Taken together, there are compelling reasons to believe that the interpersonal theory of suicide may help to explain the increased rates of suicidal ideation and behaviors identified among firefighters. Despite this, to our knowledge, no studies have probed these hypotheses within this specific occupational group. This work is clearly needed since findings from this type of investigation have the potential to bolster researchers' and clinicians' efforts both to more effectively identify at-risk firefighters and to craft prevention and intervention strategies to reduce suicide risk.

1.1. The present study

This study aimed to test the conjectures of the interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010) in a large sample of current United States firefighters. Specifically, in line with the theory, we hypothesized that the interaction between

perceived burdensomeness and thwarted belongingness would be significantly associated with severity of career suicidal ideation among firefighters.¹ We additionally hypothesized that the three-way interaction between perceived burdensomeness, thwarted belongingness, and fearlessness about death, a central component of the acquired capability for suicide, would be significantly associated with career suicide attempts.

2. Method

2.1. Participants and procedures

This study is part of a larger investigation ($N=1027$) on the prevalence and associated features of suicidal thoughts and behaviors among a convenience sample of firefighters within the United States who completed a web-based survey (Stanley et al., 2015). Participants for the current study reflect a subset of current firefighters who completed variables of interest for the aforementioned aims ($N=863$). Sociodemographic characteristics of the study sample are presented in Table 1. Individuals were between 18 and 76 years old ($M=37.14$, $SD=10.87$), and 91.0% were male. The majority was non-Hispanic White (88.2%) and married (72.7%). Most respondents reported completing some college (34.0%) or having a 2- (20.4%) or 4-year (27.3%) college degree. Previous or current military service was reported by 25.6% of the sample.

Regarding firefighting occupational characteristics, respondents reported an average of 14.88 years ($SD=10.20$, range=0.5–60) of service as a firefighter. Respondent ranks included Firefighter I (10.9%); Firefighter II (21.1%); Engineer, Technician, or Chauffeur (14.1%); Sergeant (5.0%); Lieutenant (13.5%); Captain (12.5%); Chief Officers² (15.0%); and "other" rank (7.9%). In terms of characteristics of respondents' fire departments, 41.4% were full-time, 28.7% volunteer, 27.8% hybrid of full-time and volunteer, 1.4% wildland, and 0.7% military. Only 7.1% of participants indicated that their departments did not respond to Emergency Medical Services (EMS) calls; 54.8% reported that their departments were full-service EMS providers. A comparison of our sample with data from the United States Bureau of Labor and Statistics regarding the national firefighter population reveals consistent sociodemographic (e.g., sex, age, race/ethnicity) characteristics (see Stanley et al., 2015).

Participants were recruited through email listservs and social media outlets maintained by national firefighter organizations (e.g., National Fallen Firefighters Foundation). Potential participants were presented with a web-based consent form; in order to proceed with the survey, respondents were required to correctly answer five comprehension questions demonstrating informed consent. The survey took approximately 30 min to complete, and participants who provided their email address following survey completion were compensated with a \$10 electronic gift card. Following participation, all survey respondents were presented with a debriefing form listing several national resources, including the National Suicide Prevention Lifeline (i.e., 1-800-273-TALK). This study was carried out in accordance with the most recent version of the Declaration of Helsinki and approved by the University's Institutional Review Board.

¹ Career suicidal ideation and suicide attempts are defined as self-reported suicidal ideation and attempts, respectively, from the time one began one's career as a firefighter to the time one completed the survey.

² Chief Officers include Battalion Chiefs, Assistant Chiefs, Deputy Chiefs, and Commissioners. These individuals were collapsed into a single category for privacy concerns given the relatively small number of individuals within the fire service having a ranking within the Chief structure or as a Commissioner.

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