Occupational stress and suicidality among firefighters: Examining the buffering role of distress tolerance

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Abstract

Past research indicates that firefighters are at increased risk for suicide. Firefighter-specific occupational stress may contribute to elevated suicidality. Among a large sample of firefighters, this study examined if occupational stress is associated with multiple indicators of suicide risk, and whether distress tolerance, the perceived and/or actual ability to endure negative emotional or physical states, attenuates these associations. A total of 831 firefighters participated (mean [SD] age = 38.37y[8.53y]; 94.5% male; 75.2% White). The Sources of Occupational Stress-14 (SOOS-14), Distress Tolerance Scale (DTS), and Suicidal Behaviors Questionnaire—Revised (SBQ-R) were utilized to examine firefighter-specific occupational stress, distress tolerance, and suicidality, respectively. Consistent with predictions, occupational stress interacted with distress tolerance, such that the effects of occupational stress on suicide risk, broadly, as well as lifetime suicide threats and current suicidal intent, specifically, were attenuated at high levels of distress tolerance. Distress tolerance may buffer the effects of occupational stress on suicidality among firefighters. Pending replication, findings suggest that distress tolerance may be a viable target for suicide prevention initiatives within the fire service.

Keywords

1. Introduction

Over the past several years, research has identified firefighters to be an occupational group at increased risk for suicide (see Stanley et al., 2016, for review). One study of 1,027 male and female career and volunteer firefighters throughout the United States (U.S.) found rates of suicide ideation and attempts occurring throughout one's career as a firefighter (i.e., career rates) to be 46.8% and 15.5%, respectively (Stanley et al., 2015). Similarly, a separate

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investigation of female firefighters found elevated rates of suicidality, with 37.7% reporting career suicide ideation and 3.5% reporting a career suicide attempt (Stanley et al., 2017a). Moreover, converging data from the U.S. Centers for Disease Control and Prevention (CDC) suggest that firefighters are at increased risk for suicide (McIntosh et al., 2016). The CDC found that workers in protective service roles, including firefighters, demonstrate elevated rates of death by suicide compared to other occupational groups (McIntosh et al., 2016; see also Tiesman et al., 2015). Thus, together with research demonstrating elevated rates of mental health disorders associated with increased suicide risk among firefighters (Carleton et al., 2017), research into factors that exacerbate and mitigate suicide risk among this population is deserving of increased empirical inquiry. (Fig. 1)

Indeed, the occupational responsibilities of firefighters include routine exposure to events that may pose a substantial risk for serious injury or death, such as running into burning buildings, extracting car accident victims from the side of a busy highway, and recovering dead bodies, some of which are themselves suicide fatalities (see Kimbrel et al., 2016). These traumatic exposures could, in part, contribute to a diagnosis of posttraumatic stress disorder (PTSD; American Psychiatric Association, 2013). Incidentally, to date, four separate investigations have implicated PTSD symptoms in the pathogenesis of suicidal thoughts and behaviors among firefighters (Boffa et al., 2018b, 2017; Martin et al., 2016; Stanley et al., 2017b). However, beyond onthe-job traumatic exposures, there are many other occupational stressors experienced by firefighters (Henderson et al., 2016). These stressors include sleep disturbances, due in part to long and erratic shift schedules (U.S. Department of Labor, 2015), marital and family stress (Sanford et al., 2017), and harassment (Griffith et al., 2016). The mosaic of occupational stressors experienced by firefighters may, in part, contribute to elevated rates of suicidal thoughts and behaviors observed across multiple studies (Stanley et al., 2017a, 2015). Nevertheless, research examining the effects of occupational stress on suicidal and suicide-related symptoms among firefighters is scarce, with a few exceptions.

For one, a study of 334 U.S. firefighters examined the effects of occupational stress on suicidal ideation (Carpenter et al., 2015). Although the researchers did not find a main effect of occupational stress on suicidal ideation, they did find an interaction with social support such that the concomitant presence of high occupational stress and low social support conferred increased risk for reporting suicidal ideation. This study is noted for several strengths, including its large sample size and use of a measure of occupational stress developed specifically for firefighter populations (i.e., the Sources of Occupational Stress Scale—14 [SOOS-14]; Kimbrel et al., 2011). One limitation is that only suicidal ideation was examined as the criterion variable, which does not capture the severity of suicide risk more broadly (e.g., past suicide attempts, recent suicidal ideation, self-reported future likelihood of making a suicide attempt; Chu et al., 2015; Osman et al., 2001). Yet, this study confirms the importance of examining the effects of occupational stress on suicidal symptoms among firefighters.

Given that occupational stress is, in many ways, endemic to the fire service, it is important to identify associated constructs that are amenable to interventions and may temper the impact of occupational stress on suicidality. One such cognitive-affective factor is distress tolerance

—the perceived and/or actual ability to endure negative emotional or physical states (Leyro et al., 2010; Zvolensky et al., 2011). Low levels of distress tolerance have been found to be associated with elevated levels of PTSD symptoms (Marshall-Berenz et al., 2010; Vujanovic et al., 2011) as well as increased suicidal desire (Anestis et al., 2011; Vujanovic et al., 2017a). Thus, distress tolerance is an important construct to consider in the context of both occupational stress and suicidality. Importantly, distress tolerance is amenable to cognitive-behavioral interventions (Bornovalova et al., 2012; Linehan, 2015). Thus, if occupational stress is related to suicide risk at low, but not high, levels of distress tolerance, the administration of interventions designed to augment distress tolerance may reduce suicide risk among firefighters.

Indeed, among a sample of 268 paid U.S. firefighters who work 24-h shifts, Sawhney et al. (2017) found that occupational stress predicted mental health symptoms (e.g., depression, anger, anxiety) one-month later. Moreover, the researchers found that engagement in "work recovery strategies" such as exercise, spending time with coworkers, and recreational activities (cf. distress tolerance activities) mitigates the effects of occupational stress on mental health symptoms. The study by Sawhney and colleagues is noted for several strengths, including a longitudinal design utilizing a large sample of firefighters. However, the study did not evaluate the effects of occupational stress on suicidal symptoms (Stanley et al., 2016). To our knowledge, no study to date has examined the moderating role of distress tolerance on the association between occupational stress and suicide risk among firefighters.

1.1. The current study

Utilizing a large sample of career firefighters, the purpose of this study was to examine the association of occupational stress and suicide risk. Suicide risk was operationalized separately as a total score on the Suicidal Behaviors Questionnaire—Revised (SBQ-R; Osman et al., 2001) as well as each of the four SBQ-R items (i.e., lifetime suicidal ideation/attempts, past-year suicidal ideation, lifetime suicide threats, and current suicidal intent). Consistent with past research (Boffa et al., 2018a; Osman et al., 2001; Stanley et al., 2017c), we examined individual SBQ-R items as the criterion variable because the SBQ-R total score, though clinically informative and empirically justified (Batterham et al., 2015), conflates multiple aspects of suicidality. Differentiating between the different facets of suicidality is important because factors associated with suicidal ideation may be different than factors associated with suicidal behaviors (Klonsky and May, 2014; Nock et al., 2016). Further, we examined whether distress tolerance attenuates the association between occupational stress and suicide risk outcomes (i.e., an occupational stress by distress tolerance interaction). We predicted that occupational stress would be associated with increased levels of suicide risk (SBQ-R total score and each SBQ-R item) and that this association would be attenuated with higher self-reported distress tolerance.

2. Methods

2.1. Participants

Data from 831 firefighters were available for the current study, which was part of a larger ongoing study examining stress and health-related behaviors among career firefighters in a

large southern U.S. metropolitan area. In this department, all firefighters also perform emergency medical service (EMS) duties. To be included in the study, participants must have been current firefighters aged 18 years or older. See Table 1 for a summary of participant characteristics.

2.2. Measures

2.2.1. Demographic questionnaire—Participants reported information pertaining to sociodemographic and fire service characteristics.

2.2.2. Sources of occupational stress-14 (SOOS-14; Kimbrel et al., 2011)—
Occupational stress severity was measured with the 14-item revised version of the Sources of Occupational Stress Scale (Beaton and Murphy, 1993). The SOOS-14 measures on-the-job stress (e.g., "Discrimination based on gender, ethnicity, or age," "Financial strain due to inadequate pay," "Disruption of sleep," and "Concerns about serious personal injury/ disablement/death due to work"). Items are scored on a

2.2.3. Distress tolerance scale (DTS; Simons & Gaher, 2005)—The DTS is a 15-item self-report measure that evaluates the extent to which respondents believe that they can experience and withstand distressing emotional states (e.g., "I can't handle feeling distressed or upset" and "Being distressed or upset is always a major ordeal for me"). Respondents rate their responses to each item on a 5-point Likert-style scale (1 = *strongly agree* to 5 = *strongly disagree*). Subscales are derived for the first-order factors (i.e., tolerance, absorption, appraisal, and regulation) by averaging across relevant items. In turn, the higher-order score is derived by averaging subscale scores (Simons & Gaher, 2005). For the current study, the DTS Total Score was used as a predictor variable to index perceived psychological distress tolerance, consistent with past research (Vujanovic et al., 2013). The DTS has demonstrated good psychometric properties (Simons & Gaher, 2005). In the current study, the DTS was analyzed as a continuous variable and internal consistency was excellent (α = 0.93).

2.2.4. Suicidal behaviors questionnaire-revised (SBQ-R; Osman et al., 2001)
—The SBQ-R is a 4-item self-report measure used to assess suicidality. Each of the four items on the SBQ-R assesses a different aspect of suicidality: Item 1 assesses *lifetime* suicide ideation and/or suicide attempts (i.e., "Have you ever thought about or attempted to kill yourself?"; 1 = *never* to 4 = *I have attempted to kill myself, and really hoped to die*); Item 2 assesses the *frequency* of suicidal ideation over the past twelve months (i.e., "Have often have you thought about killing yourself in the past year?"; 1 = *never* to 5 = *very often* [5 or *more times*]); Item 3 assesses the threat of suicide attempt (i.e., "Have you ever told someone that you were going to commit suicide, or that you might do it?; 1 = *no* to 3 = *Yes, more than once, but did not want to do it / Yes, more than once, and really wanted to do it*); and Item 4 evaluates the self-reported *likelihood* of suicidal behavior in the future (i.e., "How likely is it that you will attempt suicide someday?"; 0 = *never* to 6 = *very likely*). Total scores range from 3–18, with higher scores indicating greater levels of suicidal ideation and/or behavior. Suggested cutoff scores to identify at-risk individuals and specific risk behaviors for the adult general population are   7 (Osman et al., 2001). The total SBQ-R

demonstrates good psychometric properties (Osman et al., 2001) and has been identified as a gold standard assessment of suicidality (Batterham et al., 2015). In the current study, the SBQ-R was analyzed as a continuous variable and internal consistency was acceptable (α = 0.77).

2.2.5. Center for epidemiologic studies depression scale (CES-D; Radloff, 1977)—The CES-D is a 20-item measure of depressive symptom severity. Participants self-report the frequency of depression symptoms in the past week on a 4-point scale (0 = *never or rarely*/less than 1 day per week to 3 = *almost all the time*/5–7 days per week); higher total scores indicate greater severity of depression symptoms. This instrument has been validated in a sample of firefighters (Chiu et al., 2010). In the current study, the CES-D was analyzed as a continuous variable and internal consistency was good (α = 0.82).

2.3. Procedure

Firefighters completed a voluntary online survey that included questions about stress and mental health. A department-wide email was sent to all firefighters, notifying them of the opportunity to complete an online research survey for one continuing education (CE) credit and a chance to win one of several raffle prizes (e.g., restaurant gift cards, movie theatre passes, drink tumblers). A total of three monthly reminders regarding the survey were sent via the department-wide email notification system. All notification emails indicated that the purpose of the survey was to better understand how firefighters cope with stress and how much firefighters engage in health-related behaviors. The fire department from which these data were obtained employs approximately 4,035 firefighters. Although data collection is ongoing and thus a precise response rate is indeterminable, the 831 firefighters included in this study represent approximately 20.6% of the fire department; importantly, the sociodemographic characteristics of our sample is generally consistent with the sociodemographic characteristics of the fire department as a whole.

Firefighters were given access to the informed consent form and survey through an online fire department CE portal. Once firefighters accessed the fire department CE portal, they were provided with a description of the survey and the opportunity to review the informed consent form. Participants who then indicated that they were interested in participating (by clicking 'yes') were automatically directed to the study informed consent form in Qualtrics. Once the participants electronically signed off on the study informed consent form, they were immediately directed to the online survey questionnaires in Qualtrics, which took approximately 45–60 min to complete. Firefighters had the option to discontinue participation at any time without penalty. The current study is based on secondary data analyses of participants who provided data on the variables of interest and has been approved by all relevant institutional review boards.

2.4. Data analytic strategy

Variables were initially screened for outliers and violations of normality. The SBQ-R demonstrated a violation of normality (i.e., skew = 3.015; kurtosis = 11.175). Thus, consistent with past research (Kimbrel et al., 2016; Rogers et al., 2016), we applied a log transformation to the SBQ-R to reduce skew (1.918) and kurtosis (3.179) to acceptable

levels. We constructed models both using the transformed and non-transformed SBQ-R variable. For the moderation analyses, we utilized linear regression modeling within the PROCESS macro for SPSS (see Hayes, 2013) to examine the interaction between SOOS-14 occupational stress and DTS distress tolerance in the prediction of SBQ-R suicide risk (total score and individual SBQ-R items). We centered predictor variables around their means and probed significant interactions at low (−1 SD) and high (+ 1 SD) levels of DTS distress tolerance. Analyses controlled for depression symptom severity, as measured by the CES-D (Radloff, 1977) as well as sociodemographic characteristics (i.e., age, race [White = 1, non-White = 0], and sex [Male = 1, nonMale = 0]) that have been shown to be associated with suicide risk among firefighters (Stanley et al., 2015). Missing data were minimal (< 2% for cases included as part of this ongoing study) and handled utilizing listwise deletion. SPSS version 23 was used.

3. Results

See Table 2 for study variable means, standard deviations, normality statistics, and intercorrelations. In the current study, a total of 8.2% (n = 68) of participants exceeded previously established cutoff scores indicating clinically significant suicide risk (i.e.,   7; Osman et al., 2001). In total, 30.6% of participants reported nonzero SBQ-R levels.[1]

Please see Table 3 for results from each of our linear regression models testing our hypotheses that SOOS-14 occupational stress would interact with DTS distress tolerance to predict SBQ-R suicide risk (total score and individual items), controlling for sociodemographic characteristics and CES-D depression symptoms. Briefly, the interaction between SOOS-14 occupational stress and DTS distress tolerance was statistically significant for the SBQ-R total score (B = −0.001, SE = 0.001, p = 0.043),[2] SBQ-R Item 3 (i.e., lifetime suicide threats; B = −0.002, SE = 0.001, p = 0.040), and SBQ-R Item 4 (i.e., current suicidal intent; B = −0.007, SE = 0.002, p = 0.005). The form of the interactions indicates that higher levels of DTS distress tolerance mitigate the effect of SOOS-14 occupational stress on SBQ-R suicide risk (globally as well as for lifetime suicide threats and current suicidal intent, specifically). The interaction between SOOS-14 occupational stress and DTS distress tolerance was not statistically significant for SBQ-R Item 1 (i.e., lifetime suicidal ideation/attempts; B = −0.003, SE = 0.002, p = 0.140) or SBQ-R Item 2 (i.e., past-year suicidal ideation; B = −0.004, SE = 0.002, p = 0.071).

4. Discussion

Firefighters represent an occupational group at increased risk for suicide, in part due to stressors associated with the nature of their profession. As evidence accumulates for the effects of occupational stress on suicide risk among firefighters, it is important to investigate how individual differences in cognitive-affective variables may moderate this effect. The results of the present study revealed that greater occupational stress was associated with higher global suicide risk and greater lifetime suicide threats and current suicidal intent

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[1]The range of SBQ-R scores is 3–18 (Osman et al., 2001); thus a "nonzero" score on the SBQ-R is > 3.
[2]This pattern of findings remained consistent when utilizing the non-transformed SBQ-R variable as the outcome: the interaction was statistically significant in the expected direction (B=−0.015, SE=0.006, p=0.008).

among firefighters—and, importantly, that this effect was moderated by individual differences in distress tolerance. Notably, although occupational stress exerted a strong influence on lifetime suicide threats and current suicidal intent for individuals low in distress tolerance, the effect of occupational stress on suicide threats and intent was non-significant at high levels of distress tolerance. This finding is particularly significant, given that suicidal intent may more accurately reflect an individual's current suicidal mode as compared to a confluence of retrospective criteria (cf. SBQ-R total scores comprising past year ideation and lifetime suicide attempts; see Chu et al., 2015). As such, these results indicate important clinical considerations with respect to mitigating the likelihood of future suicide attempts among firefighters with low distress tolerance.

The present study contributes to a growing compendium of research examining suicidality and its correlates among firefighters. Several recent studies have focused on the relationship between PTSD symptoms and suicidality. For instance, PTSD symptom severity is associated with a lifetime history of suicide ideation and prior suicide attempts in two large samples of firefighters (Boffa et al., 2017; Martin et al., 2016). Relevant to the present investigation, two recent studies of firefighters extended these results to show that PTSD symptom severity is related to global suicide risk (Boffa et al., 2018b; Stanley et al., 2017b). The present study expands these findings by broadening the scope of psychological stressors beyond trauma to that which are broadly inherent in the occupation (i.e., SOOS-14 items). Moreover, while past research has found that individual stressors such as harassment (Hom et al., 2017), sleep disturbances (Carey et al., 2011; Hom et al., 2016), and social disconnectedness (Chu et al., 2016) are associated with suicide-related symptoms among firefighter samples, this study extends these results using a more comprehensive index of occupational stress (Kimbrel et al., 2011), including those not previously explored in relation to suicidality among this population. Although SOOS-14 occupational stress scores were higher in the current study than in a previous firefighter sample (VanderVeen et al., 2012), it is worth noting that the previous sample comprised firefighter cadets. As such, the cumulative stress experienced by firefighters throughout their career may not have been captured in that relatively junior population, as compared to our sample (for which the average span of firefighter service was 13.02 years [$SD = 8.71$ years]).

Beyond the presence of occupational stressors, this study also adds to a nascent body of literature examining the relationship between suicidality and individual differences in perceived ability to tolerate distress. Prior studies have reported associations between low distress tolerance and increased suicidal desire among undergraduates (Anestis et al., 2011) and acute-care psychiatric inpatients (Vujanovic et al., 2017a,b). While the present results extend this pattern to occupational stress and suicide risk as well as lifetime suicide threats and current suicidal intent among firefighters, there are unique considerations regarding the function of distress tolerance among firefighters. DTS distress tolerance scores in the present sample were significantly higher compared to prior reports of trauma-exposed adults in the community (Vujanovic et al., 2013), which we speculate may capture the broader influence of stoicism within the fire service. High distress tolerance is a desirable trait of a firefighter, and it is possible that firefighters are, in part, selected for or self-select into emergency service careers such as the fire service. However, we must consider that examining the range

of these traits among firefighters means that some individuals will inevitably possess relatively lower distress tolerance.

Our findings indicated that distress tolerance attenuates the effect of occupational stress on global suicide risk as well as lifetime suicide threats and current suicidal intent, specifically. Perhaps most encouraging, we found that occupational stress did not significantly impact the reported likelihood of making a future suicide attempt for firefighters with higher levels of distress tolerance. A negligible effect of occupational stress on an individual's current projection of likely suicidal behavior *at high levels of distress tolerance* is clinically meaningful for assessing, and therefore managing, present risk for a suicide attempt. As distress tolerance is malleable to therapeutic intervention (Zvolensky et al., 2011), intervening upon low distress tolerance may inoculate firefighters against the effects of occupational stress on suicide risk and intent. Various intervention formats, such as Dialectical Behavior Therapy (DBT; Becker & Zayfert, 2001; Linehan, 2015) and Skills for Improving Distress Intolerance (SIDI; Bornovalova et al., 2012), have each been shown to improve distress tolerance. Portable computerized modules targeting distress tolerance, which may be most conducive to implementation among firefighters on call or in rural areas, have likewise demonstrated positive effects (Macatee and Cougle, 2015). Despite these modalities for improving distress tolerance, few psychological interventions have been tested among first responders (Haugen et al., 2012), pointing to a critical future direction. A crucial consideration in this domain is that past research has linked high distress tolerance, as measured by a behavioral task, to increased capability for suicide (Anestis and Joiner, 2012)—a construct that the interpersonal theory of suicide theorizes develops in part through exposure to painful and provocative experiences and is necessary but not sufficient for suicidal behaviors (Chu et al., 2017; Van Orden et al., 2010). Put another way, Anestis and Joiner (2012) suggest that the ability to endure distress might facilitate the transition from thinking about suicide to engaging in suicidal behavior. Thus, a focus of clinical work should not be on merely enduring distress but finding healthy ways to mitigate distress (e.g., exercise; see Sawhney et al., 2017).

4.1. Limitations and future directions

Our findings are subject to several limitations. First, we utilized a sample of firefighters from a single, all-career fire department that serves an urban locale. Thus, findings might not generalize to firefighters at large. It is also necessary to highlight that firefighters in this study were all career (compared to volunteer) firefighters because psychiatric symptoms (e.g., suicidal intent) may have been underreported due to fears of job repercussions (cf. Anestis & Green, 2015). Further, we relied exclusively on self-report methodologies. Future research might benefit from the use of behavioral indices of distress tolerance (e.g., physiological reactivity; Nock & Mendes, 2008), rather than merely self-reported psychological distress tolerance. Moreover, the SBQ-R, while a gold standard self-report assessment instrument for suicide risk (Batterham et al., 2015), is limited in that it assesses the concomitant presence of lifetime suicide attempts, past-year suicidal thoughts, and the future likelihood of making a suicide attempt; even more, the single SBQ-R item that assesses for lifetime suicide attempt (i.e., Item 1) simultaneously assesses for lifetime suicidal ideation. In this regard, our findings are unable to distinguish if occupational stress

predicts who, among suicide ideators, has made a suicide attempt (cf. the ideation-to-action framework; Klonsky & May, 2014; Klonsky et al., 2016; Nock et al., 2016). Distinguishing between suicidal ideation and suicidal behaviors is especially important because there are some data to suggest that high levels of distress tolerance, while protective against suicidal *desire*, may actually confer increased risk for suicidal *behaviors* (Anestis et al., 2012; Vujanovic et al., 2017b). We did, however, attempt to address this limitation by examining each SBQ-R individual item, including an item assessing suicidal intent, and observed a consistent pattern of findings. Finally, it is worth noting that our models explained a nontrivial proportion of variance in our suicide-related outcomes, corresponding to effect sizes in the medium-to-large range; however, the additional variance accounted for by our interaction terms, though statistically significant, was relatively smaller in magnitude.

4.2. Conclusions

Among a large sample of firefighters, the present study found that greater occupational stress is associated with elevated levels of global suicide risk as well as lifetime suicide threats and current suicidal intent—and, moreover, that these associations were attenuated at higher levels of self-reported distress tolerance. Given that distress tolerance is amenable to therapeutic intervention, should these results be replicated among other firefighter samples, suicide prevention efforts within the fire service might benefit from the inclusion of distress tolerance skills building (see Linehan, 2015; Zvolensky et al., 2011).

Acknowledgements

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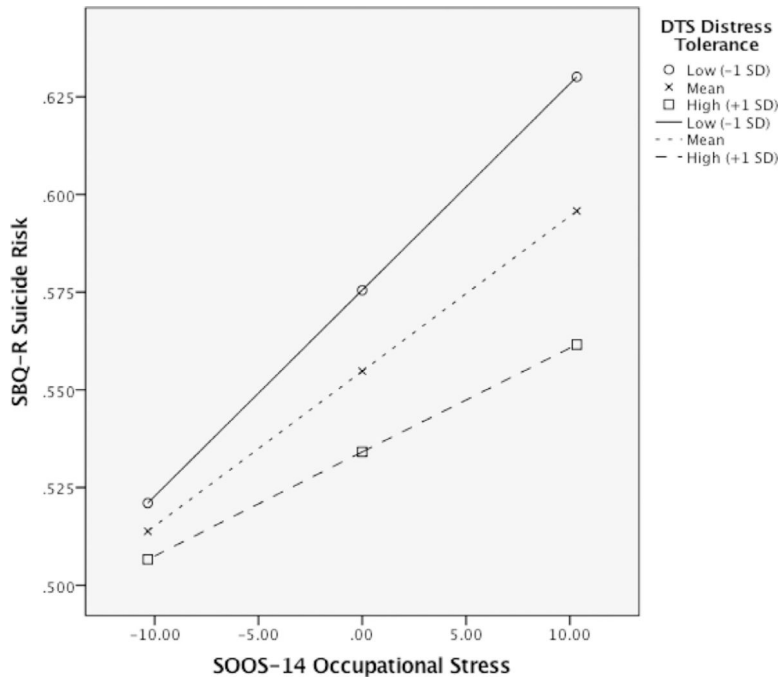
Fig. 1.
The Effects of Occupational Stress on Suicide Risk as a Function of Distress Tolerance

Note. Interaction presented at low (−1SD), mean, and high (+1SD) levels of DTS distress tolerance. The form of the interaction indicates that the effects of SOOS-14 occupational stress on suicide risk is attenuated at high levels of distress tolerance (and potentiated at low levels of distress tolerance). DTS = Distress Tolerance Scale; SBQ-R =Suicidal Behaviors Questionnaire—Revised; SOOS-14 =Sources of Occupational Stress Scale—14. Predictor variables centered around their means. SBQ-R transformed variable utilized. Uncontrolled model presented to enhance interpretability.

Table 1

Participant Sociodemographic Characteristics (N = 831).

Characteristic	Value
Age, Mean (SD) [Range: 20y–63y]	38.37y (8.53y)
Sex	
Male	785 (94.5%)
Female	40 (4.8%)
Transgender	6 (0.7%)
Race, No. (Valid %)	
White/Caucasian	625 (75.2%)
Black/African American	106 (12.8%)
Native American or Alaska Native	13 (1.6%)
Asian/Pacific Islander	12 (1.4%)
Native Hawaiian or Other Pacific Islander	1 (0.1%)
Other	74 (8.9%)
Ethnicity, No. (Valid %)	
Hispanic or Latino/a	216 (26.0%)
Not Hispanic or Latino/a	615 (74.0%)
Education, No. (Valid %)	
Did Not Complete High School	11 (1.3%)
High School Graduate/GED	67 (8.1%)
Some College	387 (46.6%)
College Graduate	366 (44.0%)
Total Years as a Firefighter, Mean (SD) [Range: 0y–42y]	13.02y (8.71y)
Military Status, No. (Valid %)	
Active Duty in the Past (Not Now)	188 (22.6%)
Active Duty (Now)	4 (0.5%)
Participated in Initial/Basic Training Only	20 (2.4%)
No Military Experience	691 (74.5%)

Table 2

Study Variable Means, Standard Deviations, and Intercorrelations (N =831).

Variable	1	2	3	4	5	6	7	8	α	M	SD	Range
1. SOOS-14 Occupational Stress	–								0.92	24.57	10.33	14–70
2. DTS Distress Tolerance	−0.137 **	–							0.93	4.06	0.92	1–5
3. SBQ-R Suicide Risk (Total Score)	0.326 **	−0.193 **	–						0.77	3.85	1.79	3–16
4. SBQ-R Item 1 (Lifetime Suicidal Ideation/Attempts)	0.315 **	−0.142 **	0.852 **	–					–	1.30	0.59	1–4
5. SBQ-R Item 2 (Past-Year Suicidal Ideation)	0.265 **	−0.227 **	0.823 **	0.620 **	–				–	1.20	0.63	1–5
6. SBQ-R Item 3 (Lifetime Suicide Threats)	0.167 **	−0.128 **	0.596 **	0.497 **	0.366 **	–			–	1.06	0.27	1–3
7. SBQ-R Item 4 (Current Suicidal Intent)	0.252 **	−0.116 **	0.830 **	0.559 **	0.515 **	0.373 **	–		–	0.30	0.73	0–6
8. CES-D Depression Symptoms	0.478 **	−0.364 **	0.370 **	0.283 **	0.375 **	0.150 **	0.298 **	–	0.82	10.60	7.80	0–49

Note.

**
$p < 0.01$.

CES-D=Center for Epidemiologic Studies Depression Scale; DTS=Distress Tolerance Scale SBQ-R=Suicidal Behaviors Questionnaire—Revised (SBQ-R); SOOS-14=Sources of Occupational Stress Scale —14.

Table 3

Results from Linear Regression Analyses Examining Occupational Stress and Distress Tolerance in the Prediction of SBQ-R Suicide Risk Total and Item-Level Scores.

	B	SE	P
SBQ-R Total Score			
$F(7,823) = 25.329$, $p < 0.001$; $R^2 = 17.7\%$; $f^2 = 0.215$			
Age	0.001	0.001	0.313
Race (White)	0.026	0.011	0.013
Sex (Male)	−0.051	0.020	0.010
CES-D Depression Symptoms	0.004	0.001	<0.001
DTS Distress Tolerance	−0.013	0.005	0.021
SOOS-14 Occupational Stress	0.003	0.001	<0.001
SOOS-14 Occupational Stress x DTS Distress Tolerance	−0.001	0.001	0.043
R^2 increase due to the interaction: 0.4%, $p = 0.043$; $f^2 = 0.004$			
Interaction: −1SD of DTS Distress Tolerance	0.004	0.001	<0.001
Interaction: +1SD of DTS Distress Tolerance	0.002	0.001	0.005
SBQ-R Item 1 (Lifetime Suicidal Ideation/Attempts)			
$F(7,823) = 18.391$, $p < 0.001$; $R^2 = 13.5\%$; $f^2 = 0.156$			
Age	- < 0.001	0.002	0.918
Race (White)	0.081	0.045	0.070
Sex (Male)	−0.179	0.084	0.033
CES-D Depression Symptoms	0.011	0.003	0.001
DTS Distress Tolerance	−0.044	0.023	0.054
SOOS-14 Occupational Stress	0.013	0.002	<0.001
SOOS-14 Occupational Stress x DTS Distress Tolerance	−0.003	0.002	0.140
R^2 increase due to the interaction: 0.2%, $p = 0.140$; $f^2 = 0.002$			
Interaction: −1SD of DTS Distress Tolerance	0.016	0.003	<0.001
Interaction: +1SD of DTS Distress Tolerance	0.010	0.003	<0.001
SBQ-R Item 2 (Past-Year Suicidal Ideation)			
$F(7,823) = 25.785$, $p < 0.001$; $R^2 = 18.0\%$; $f^2 = 0.220$			
Age	- < 0.001	0.002	0.896
Race (White)	0.093	0.046	0.045
Sex (Male)	−0.294	0.087	<0.001
CES-D Depression Symptoms	0.022	0.003	<0.001
DTS Distress Tolerance	−0.086	0.024	<0.001
SOOS-14 Occupational Stress	0.006	0.002	0.005
SOOS-14 Occupational Stress x DTS Distress Tolerance	−0.004	0.002	0.071
R^2 increase due to the interaction: 0.3%, $p = 0.071$; $f^2 = 0.003$			
Interaction: −1SD of DTS Distress Tolerance	0.010	0.003	<0.001
Interaction: +1SD of DTS Distress Tolerance	0.003	0.003	0.329
SBQ-R Item 3 (Lifetime Suicide Threats)			
$F(7,823) = 7.234$, $p < 0.001$; $R^2 = 5.8\%$; $f^2 = 0.062$			

	B	SE	P
Age	−0.001	0.001	0.461
Race (White)	0.004	0.021	0.869
Sex (Male)	−0.122	0.040	0.002
CES-D Depression Symptoms	0.001	0.001	0.379
DTS Distress Tolerance	−0.031	0.011	0.004
SOOS-14 Occupational Stress	0.003	0.001	0.003
SOOS-14 Occupational Stress x DTS Distress Tolerance	−0.002	0.001	0.040
R^2 increase due to the interaction: 0.5%, $p = 0.040$; $f^2 = 0.005$			
Interaction: −1SD of DTS Distress Tolerance	0.005	0.001	<0.001
Interaction: +1SD of DTS Distress Tolerance	0.001	0.001	0.345
SBQ-R Item 4 (Current Suicidal Intent)			
$F_{(7,823)} = 16.517$, $p < 0.001$; $R^2 = 12.3\%$; $f^2 = 0.140$			
Age	0.006	0.003	0.051
Race (White)	0.117	0.055	0.034
Sex (Male)	−0.067	0.104	0.522
CES-D Depression Symptoms	0.020	0.004	<0.001
DTS Distress Tolerance	−0.033	0.029	0.248
SOOS-14 Occupational Stress	0.008	0.003	0.003
SOOS-14 Occupational Stress x DTS Distress Tolerance	−0.007	0.002	0.005
R^2 increase due to the interaction: 0.9%, $p = 0.005$; $f^2 = 0.009$			
Interaction: −1SD of DTS Distress Tolerance	0.014	0.003	<0.001
Interaction: +1SD of DTS Distress Tolerance	0.002	0.004	0.605

Note. CES-D = Center for Epidemiologic Studies Depression Scale; DTS =Distress Tolerance Scale SBQ-R =Suicidal Behaviors Questionnaire—Revised (SBQ-R); SOOS-14 = Sources of Occupational Stress Scale—14.