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## Correlates of hopelessness in the high suicide risk police occupation

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### Abstract

Police officers are chronically exposed to work stress. We examined specific stressors that may be associated with hopelessness, a possible risk factor for suicide in this high suicide risk population. The study included 378 officers (276 men and 102 women) with complete data. Analysis of variance was used to estimate mean levels of hopelessness scores as associated with stress, adjusted for age, gender, and race/ ethnicity. Posttraumatic symptoms were tested as a modifier of the association between stress and hopelessness. Increasing stress of administrative practices and lack of support were significantly associated with increasing hopelessness among officers ( $p < .006$  – hopelessness range: 1.64–2.65; and  $p < .001$  – hopelessness range 1.60–2.80, respectively). Posttraumatic stress disorder (PTSD) symptoms significantly modified the association between lack of organizational support and hopelessness ( $p < .010$ ) with significant association only among individuals with higher PTSD symptoms ( $p < .001$ ). Results suggest that hopelessness is associated with specific stressors in police work, and this is modified by posttraumatic symptomatology.

### Keywords

police; hopelessness; stress; posttraumatic stress; support; suicide

### Introduction

Previous epidemiological evidence suggests an elevated risk of suicide in law enforcement (Charbonneau, 2000; Forastiere et al., 1994; Hartwig & Violanti, 1999; Hem, Berg, & Ekeberg, 2001; Loo, 2003; Marzuk, Nock, Leon, Portera, & Tardiff, 2002; O’Hara, Violanti, Levenson, & Clark, 2013; Stack & Kelley, 1994; Vena, Violanti, Marshall, & Fiedler, 1986;

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Violanti, 2007; Violanti, Robinson, & Chen, 2014; Violanti, Vena, & Petralia, 1998), yet little is known regarding possible etiological risk factors involved in such suicides.

Hopelessness has been considered a risk factor related to suicidal behavior through a pattern of negative future attributions, inferred consequences of those events, and feelings that the situation cannot be changed (Abramson et al., 2000; Conner, Duberstein, Conwell, Seidlitz, & Caine, 2001). According to Beck, hopelessness refers to situations where individuals systematically misconstrue their life experiences in a negative way and anticipate dire outcomes for their problems. Ultimately, the person is drawn to the idea of suicide as a way out of insoluble problems (Beck, 1967). In a 10-year prospective follow-up study of patients hospitalized with suicidal ideation, Beck, Steer, Kovacs, and Garrison (1985) reported that hopelessness was predictive of suicide. Beck, Brown, Berchick, Stewart, and Steer (2006) and Wetzel, Margulies, Davis, and Karam (1980) found that hopelessness is more directly related to suicide than depression.

A sense of hopelessness may occur among officers given the negative aspect and perceived futility of their work and work-related stress. For example, officers may work years on one case only to have it dismissed in court on a legal technicality or feel that their efforts against rising crime are futile (Marmar, McCaslin, Metzler, Best, & Weiss, 2006; Paton, Violanti, & Smith, 2002; Spielbergger, Westberry, Grier, & Greenfield, 1981). Stress and hopelessness have been found to be related (Dixon, Heppner, Burnett, & Lips, 1993; Beck et al., 2006), and police work is an occupation replete with stress (Abdollahi, 2002; Davey, Obst, & Sheehan, 2001; Paillas, Follette, & Perumean-Chaney, 2013; Rallings, 2002; Spielbergger, Westberry, Grier, & Greenfield, 1981; Zhao, He, & Lovrich, 2002).

The types of traumatic work exposures that police officers experience may facilitate the development of posttraumatic stress disorder (PTSD) symptoms (American Psychiatric Association, 2013), adding to the chronic stress of this occupation. Many studies have investigated trauma in law enforcement (Brough, 2004; Collins & Gibbs, 2003; Liberman et al., 2002; Maia et al., 2007; McCaslin et al., 2006; Violanti, 2007; Ward, Lombard, & Gwebushe, 2006). Police officers commonly experience unexpected and uncontrollable stressful occurrences, and such stress can increase the risk for hopelessness. Faced with responding to fatal accidents, crime, child abuse, homicide, suicide, and rape, police officers are exposed to potential factors that precipitate a detrimental psychological effect (Carlier, Lamberts, & Gersons, 1997). There is also frequent exposure to death and the threat of death (Sugimoto & Oltjenbruns, 2001).

Not all stress in policing is associated with the danger of this work. Officers report that the internal police administration and organization leave them with chronic stress, isolation, and a sense of betrayal (Gersons, 1989; Kroes, 1985; Spielbergger et al., 1981). Types of organizational stress include workload, inadequate decision input, and supervisory support as well as internal conflicts (Berg, Hem, Lau, & Ekeberg, 2005; Collins & Gibbs, 2003). Shane (2010) found that stressors, likely to create stress among officers, are organizational structure and various items such as facilities, equipment, role ambiguity, and role conflict. Shane commented that police officers at lower levels rarely communicate or interact with superior officers, impeding communication that is critical for feedback and decision-making

(Shane, 2010). Similar to this idea is Karasek and Theorell (1990) concept of job strain, the presence of high psychological demand in concert with low decision latitude in the psychosocial work environment.

This study examined associations among hopelessness and specific types of police work stress modified by PTSD symptoms in a sample of police officers. To our knowledge, no work has yet addressed these factors among officers, and we see this study as a step to assist future research in exploring the etiology of suicide in police work. We hypothesized that increasing levels of specific types of police stressors (physical danger, administrative, and lack of support) were associated with increasing levels of hopelessness and that PTSD symptoms would significantly modify this association.

## Methods

Between 2004 and 2009, 710 police officers from the Buffalo, New York police department, were invited to participate in the Buffalo Cardio-Metabolic Occupational Police Stress study. This cross-sectional study aims to examine health consequences of stress in law enforcement officers. Four hundred and sixty-four (65.4%) officers participated in the study and were examined. Two officers pregnant at the time of examination were excluded. Data were collected at the Center for Health Research, School of Public Health and Health Professions, University at Buffalo, State University of New York (Violanti et al., 2006). The study was approved by the State University of New York at Buffalo Internal Review Board and the National Institute for Occupational Safety and Health, and informed consent was obtained from all participants. Of the 464 officers, 64 were missing data either on occupational stress or the hopelessness inventory and were excluded from the analysis. Twenty-two officers were retired at the time of the examination and were also excluded resulting in a final sample of 378 officers (276 men and 102 women).

## Measures

The Police Stress Survey (Spielberger et al., 1981) consists of 60 items that measure a self-reported stress rating and frequency of occurrence for items describing events or conditions applicable and relatively prevalent in police work (e.g. 'Making arrests while alone'). Each item is then given a stress rating from 0 to 100, where the higher the score, the more stressful the situation described in the item. Each item also provides check boxes for the number of times the event or condition has occurred in the past year (0, 1, 2–5, 6–10, 11–24, 25+). Using these item scores, a total stress score is calculated by multiplying the subjective stress rating and the value of the frequency categories or midpoint (for ranges) for the past and then averaging these products over all 60 items. Subscales can be obtained for administrative and organizational stressors, physical or psychological stressors, and lack of support by averaging the stress times frequency products for items indicated for these subscales. The subscale scores mentioned above will be used in this study to assess the influence of organizational and personal threat stressors.

The Beck Hopelessness Scale (Beck & Steer, 1993) is a 20-item true–false self-report instrument that assesses the degree to which a person holds negative expectations about the future. Nine of the items are keyed false and 11 true. The items are summed to obtain a total

hopelessness score (range = 0–20). In a sample of 294 hospitalized patients who had made suicide attempts, the reliability coefficient for the Beck Hopelessness Scale was 0.93, and all of the item-total correlations, ranging from 0.39 to 0.76, were significant (Beck & Steer, 1993). The reliability coefficient for the population of this study was 0.81.

The PTSD checklist civilian version (PCL-C) (Weathers, Litz, Herman, Huska, & Keane, 1993) consists of 17 self-report items rated on a five-point scale with values as follows: (1) (not at all); (2) (a little bit); (3) (moderately); (4) (quite a bit); and (5) (extremely). Each of the 17 items refers to how much the individual has been bothered by the particular PTSD symptom (e.g. repeated, disturbing memories, thoughts or images of a stressful experience from the past). An overall PTSD symptom severity score is obtained for the PCL-C by summing the items. The PCL-C has also been shown to have high internal consistency, test-retest correlation, and convergent validity (Ruggiero, Del, Scotti, & Rabalais, 2003).

## Analysis

Descriptive statistics were used to characterize the study population. Quartiles were created for the indices over the past year for the three police stress subscales (administrative/organizational pressure, physical/psychological threat, and lack of support). Analysis of variance and analysis of covariance were used to estimate unadjusted and multivariable adjusted mean levels of hopelessness. The multivariable models were adjusted for age, gender, and race/ethnicity. The covariates were chosen based on evidence in the literature and/or their associations with stress and hopelessness in this study. Tests for trends across quartiles were obtained from linear regression models. Associations were also investigated by stratifying on low and high PTSD levels (<median vs. median) to assess effect modification. For effect modification analyses, the cut point for statistical significance was set at 0.05. All analyses were conducted using the SAS software, version 9.2 (SAS, 2008).

## Results

Table 1 provides a description of the police sample. Participants were primarily Caucasian (79.9%), male (73%), married (74.3%), had 15.1 (7.2) mean (SD) years of police service, and a mean age of 41.5 years. In Table 2, mean levels of hopelessness adjusted for age, gender, and race/ethnicity were calculated across increasing quartiles of types of police stress. Based on categories suggested by Beck and Steer (1993), the prevalence of individuals with different levels of hopelessness was as follows: 84.1% minimal (0–3); 11.4% mild (4–8); 3.4% moderate (9–14); and 1.1% severe (>14). As quartiles of administrative stress increased, mean levels of hopelessness also increased significantly ( $p < 0.006$ , hopelessness range: 1.64–2.65). Similar results were found with increasing levels of lack of support stress ( $p < 0.001$ , hopelessness range: 1.60–2.80). Hopelessness did not increase significantly across levels of physical danger ( $p = 0.214$ ).

Using a screening cut point of 35 and above for the PCL-C total score as an indicator of probable PTSD, suggested by the VA National Center for PTSD (2014), our sample has a prevalence of 14%. Examining correlations between PTSD symptom clusters, including re-experiencing, avoidance and arousal symptoms, and hopelessness, indicates statistically significant ( $p < 0.001$ ) associations between all three symptom cluster scores and

hopelessness after adjustment for age, sex, and race. Symptoms of re-experiencing and arousal had associations that were relatively similar and smaller in magnitude (re-experiencing:  $\beta$  (SE) = 0.27(0.05),  $t(327) = 5.21$ ,  $p < 0.01$ ; arousal:  $\beta$  (SE) = 0.30 (0.05),  $t(327) = 5.78$ ,  $p < 0.01$ ) when compared to avoidance, which had the strongest association with hopelessness ( $\beta$  (SE) = 0.41 (0.05),  $t(327) = 8.46$ ,  $p < 0.01$ ).

Table 3 describes associations between types of police stress and hopelessness modified by PTSD symptoms. PTSD symptom scores were dichotomized at the median and categorized as high or low to assure a sufficient number of participants for analysis in each PTSD group. There was a significant interaction effect between lack of support stress and PTSD symptoms in relation to mean levels of hopelessness ( $p = 0.01$ ). This led to detection of a significant positive association between lack of support stress and hopelessness, adjusted for age, gender, and race/ethnicity, for those officers with high PTSD symptom scores ( $p < 0.001$ , hopelessness range: 2.07–3.23), while the group of officers with low PTSD symptoms did not show a significant association. An interaction effect was also seen between levels of administrative stress and PTSD related to mean levels of hopelessness ( $p = 0.017$ ); however, hopelessness did not increase significantly as modified by PTSD ( $p < 0.135$ ). There was no significant interaction between PTSD symptoms and levels of physical danger stress ( $p = 0.096$ ) related to mean hopelessness, nor did the stratified results show any significant trends for either level of PTSD symptoms ( $p > 0.05$ ).

## Conclusion

We examined associations between hopelessness and work stress stratified by PTSD symptoms among police officers. We hypothesized that increasing levels of specific types of police stress (physical danger, administrative, and lack of support) were associated with increasing levels of hopelessness and that PTSD symptoms would significantly modify these associations. It was interesting that administrative stress and lack of organizational support, but not danger, were associated with significantly increasing levels of hopelessness. The potential of danger in police work is commonly considered a leading antecedent of stress (Gove, 2005). These results suggest that administrative practices and lack of support by the department have a greater effect upon officer's perceptions of hopelessness than does the danger of working the streets. Such actions may be a source of hopelessness for police officers because they perceive them as unchangeable and beyond their control. (Shane, 2010). Officers also comment that they are seldom acknowledged for doing a good job and more often cited for negative actions (Karasek & Theorell, 1990).

The association between hopelessness and lack of organizational support was particularly interesting. As shown in Table 2, hopelessness rose significantly ( $p < 0.001$ ) to its highest level as lack of organizational support increased. This result is in agreement with past organizational research. Classic research by LaRocco, House, and French (1980) reported that indicators of job stress and strain are directly affected by job-related sources of support. These authors add that support may help to facilitate cognitive reappraisal of work stress, therefore alleviating negative self-blame (a factor involved in hopelessness).

LaRocco et al. (1980) also point out that different sources of support may have differential effects on workers depending on the organizational structure that ties the person in need of support to others. In police work, leadership as a source of support appears to be an important issue. Sargent and Terry (2000) found that high levels of supervisory support protected against the effects of high strain jobs and led to reduced levels of depersonalization. Noblet, Rodwell, and Allisey (2009) found that lack of organizational justice in treatment of officers, a factor in support, contributed to stress. Favorable or unfavorable impressions of supervisors by their subordinates reflect the organization's level of support (Rhoades & Eisenberger, 2002; Talarico & Swanson, 1983). If officers believe they are treated fairly by those who supervise them, they will be more likely to hold positive attitudes about their work and their supervisors (Greenberg, 1990).

Lack of support may also have more impact on levels of hopelessness for individuals with higher levels of PTSD symptoms. We found that among individuals with higher levels of posttraumatic stress symptoms, lack of organizational support was significantly and positively associated with hopelessness, while lack of organizational support was not associated with hopelessness among individuals with lower levels of PTSD symptoms. This result suggested that officers with high PTSD symptoms who perceive that they have little organizational support may become increasingly hopeless and potentially at higher risk for suicidal behavior.

Support is crucial for those experiencing posttraumatic stress symptoms. Social support from family, friends, supervisors, and coworkers has been shown in repeated studies to attenuate or reduce the effects of psychological stress among police. Stephens (1997) found that greater support and opportunities to talk about traumatic experiences and their emotional impact, with others in the work place, were shown to be related to fewer PTSD symptoms among police. In a related study, Stephens and Long (1999) found that a positive trauma-PTSD relationship was moderated by emotional support from police peers. Marmar et al. (2006) found that lower levels of social support were associated with increased PTSD symptoms. Martin, Marchand, Boyer, and Martin (2009) found that social support from police colleagues during the event emerged as a significant protective factor.

Our findings may help to understand previous epidemiological evidence suggesting an elevated risk of suicide in law enforcement. Other previous work has examined potential factors associated with police suicide: suicide ideation (Berg, Hem, Lau, Loeb, & Ekeberg, 2003); posttraumatic stress and alcohol use (Violanti, 2004); depression (Violanti et al., 2008); identification with death (Violanti, Mnatsakanova, & Andrew, 2013); organizational size (Violanti, Hartley, Mnatsakanova, Andrew, & Burchfiel, 2012); and shift work (Violanti et al., 2008).

PTSD has been previously associated with suicidal ideation. Marshall et al. (2001) found that persons diagnosed with PTSD had a threefold risk of suicide ideation compared to those without PTSD. The high risk of ideation remained even when depression was controlled. Freeman, Roca, and Moore (2000) found that combat veterans with PTSD had significantly more suicide attempts and self-destructive behaviors. For those officers who cannot cope adequately, work stress interacting with symptoms of PTSD may lead to overwhelming

feelings of hopelessness. In some cases, officers might conclude that life is no longer worth living (Carlier et al., 1997; Violanti, 2004). Panagioti, Gooding, and Tarrrier (2012) demonstrated that hopelessness, defeat, and entrapment were significantly positively associated with suicidal behavior in those with PTSD even after controlling for depression. Hopelessness and defeat were also significantly positively associated with suicidal behavior in trauma victims with PTSD. It is accepted that PTSD and suicide are related and approximately 7–19% of police in the USA have PTSD (Carlier et al., 1997; Gersons, 1989; Robinson, Sigman, & Wilson, 1997).

Krysinska and Lester (2010) conducted a meta-analysis of 50 articles that examined the association between PTSD and past and current suicidal ideation and behavior. The evidence indicated that there was an association between PTSD and suicidality with concurrent depression and the pre-trauma psychiatric condition. Marshall et al. (2001) found that persons diagnosed with PTSD had a threefold risk of suicide ideation compared to those without PTSD. The high risk of ideation remained even when depression was controlled. Freeman et al. (2000) found that combat veterans with PTSD had significantly more suicide attempts and self-destructive behaviors.

There are limitations for this study. First, the study is a cross-sectional design, and causal inferences could not be made between work stress, hopelessness, and PTSD symptoms. Secondly, the findings in this study may not be generalizable to other police departments of similar size. Additional studies in police departments of different sizes and with differing characteristics will be useful in determining the degree to which findings from this study may be generalizable. Third, data were obtained primarily from self-report measures, which may bias results and possibly lead to an underestimation of responses to sensitive questions on hopelessness and PTSD symptoms. Fourth, we did not present any data associating hopelessness with suicide, but base our discussion of such an association on past research. Beck's measure of hopelessness used in this study is not itself directly related to suicide, but instead related to suicide *potential*. As Beck and Steer (1993) suggest, the Hopelessness Scale attempts to identify the potential for suicide and not the behavior itself. Beck et al. (2006) add that hopelessness is more directly related to suicide intent than depression. They caution that other important risk factors such as age, race/ethnicity and previous attempts should be taken into consideration in any investigation of suicide. In this sense, hopelessness among police officers may be the only one factor indicative of increased suicide risk given their exposure to inordinate stress, trauma, and lack of support. The strength of this study is that it includes a well-defined, cooperative group of officers from one department, lending to the homogeneity of the sample. Additionally, we used a standardized measurement protocol and had high response rates providing a representative look at the department.

In sum, we are in agreement with Conner, Duberstein, Conwell, Seidlitz, and Caine (2001) that hopelessness represents a psychological vulnerability and is an additional risk factor for potential outcomes such as stress, suicide, or depression in police work. These results suggest that hopelessness emerges within the social milieu and structure of the police organization and not in the danger of policing. Future work should include prospective analysis of the impact of police organizational stress on hopelessness and on the potential for suicidal ideation. Police organizations could consider further development of organizational

structural factors to help increase support for stress, exposure to trauma, and the everyday work life of police officers. These are factors that are modifiable and amiable to change.

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## Biographies

John M. Violanti, PhD, is a research professor in the Department of Epidemiology and Environmental Health, School of Public Health and Health Professions at the University at Buffalo, State University of New York and has been associated with this department for 30 years. Along with the other authors on this study, he has authored or co-authored over 90 peer-reviewed articles. Dr Violanti has also written and edited 18 books on suicide, stress, and PTSD. He has lectured nationally and internationally at academic institutions on matters of suicide, stress, and trauma at work.

Michael E. Andrew, PhD, is a senior statistician at NIOSH, CDC, Health Effects Laboratory Division, Morgantown, WV. His research interests include cardiovascular disease epidemiology with recent focus on associations of workplace stressors with autonomic dysfunction as measured by heart rate variability, and protective factors related to workplace stress.

Anna Mnatsakanova is a statistician at NIOSH, CDC, Health Effects Laboratory Division, Morgantown, WV. Her interests include identification of optimal statistical methods, study design and planning as well as interpretation of observational epidemiological data for studies of occupational stress and subclinical cardiovascular disease.

Tara A. Hartley, PhD, is an epidemiologist at NIOSH, CDC, Health Effects Laboratory Division, Morgantown, WV. Her research interests include exploring the association between occupational stress and subclinical cardiovascular disease and metabolic disorders, and more recently understanding why these associations differ in men and women.

Desta Fekedulegn, PhD, is a statistician at NIOSH, CDC, Health Effects Laboratory Division, Morgantown, WV. His research interests include application of statistical methodologies in epidemiological research, and associations of occupational stressors and lifestyle factors with adverse health outcomes.

Cecil M. Burchfiel, PhD, is chief statistician and epidemiologist at NIOSH, CDC, Health Effects Laboratory Division, Morgantown, WV. His research focuses on cardiovascular disease epidemiology with recent emphasis on associations of workplace stressors with subclinical cardiovascular and metabolic disorders.



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**Table 1**

Demographic, life style, and psychological characteristics in officers stratified by gender.

Characteristics <sup>a,b</sup>	Total (N = 378) N (%)	Female (N = 102) N (%)	Male (N = 276) N (%)
<i>Race</i>			
Caucasian	295 (79.9)	73 (72.3)	222 (82.8)
African American	74 (20.1)	28 (27.7)	46 (17.2)
<i>Marital status</i>			
Single	44 (11.8)	23 (22.8)	21 (7.7)
Married	277 (74.3)	60 (59.4)	217 (79.8)
Divorced	52 (13.9)	18 (17.8)	34 (12.5)
<i>Education</i>			
High school/GED	41 (11.0)	4 (4.0)	37 (13.6)
College < 4 years	208 (55.8)	61 (60.4)	147 (54.0)
College 4 + years	124 (33.2)	36 (35.6)	88 (32.4)
<i>Smoking status</i>			
Current	63 (16.9)	27 (27.6)	36 (13.2)
Former	87 (23.5)	29 (29.6)	58 (21.3)
Never	221 (59.6)	42 (42.9)	179 (65.6)
<i>Years in service</i>			
0–9 years	96 (25.7)	35 (34.7)	61 (22.3)
10–14 years	86 (22.9)	20 (19.8)	66 (24.2)
15–19 years	84 (22.5)	21 (20.8)	63 (23.1)
20 + years	108 (22.9)	25 (24.8)	83 (30.4)
<i>Rank</i>			
Police officer	263 (70.3)	79 (78.2)	184 (67.4)
Sergeant/lieutenant	49 (13.1)	12 (11.9)	37 (13.6)
Captain/detective	62 (16.6)	10 (9.9)	52 (19.0)
Age (years) <sup>b</sup>	41.5 (6.8)	41.0 (6.1)	41.7 (7.2)
Depressive symptoms (Beck)	7.8 (6.9)	8.6 (8.1)	7.5 (6.5)
PTSD symptoms (PCL-C)	26.3 (8.9)	26.9 (9.2)	26.0 (8.7)
Hopelessness (Beck)	2.1 (2.6)	2.1 (2.2)	2.1 (2.8)

<sup>a</sup>For categorical variables, the values are counts and percentages.<sup>b</sup>For continuous variables the values are means and standard deviations.

**Table 2**

Mean levels of hopelessness across quartiles of Spielberger stressor components.

Quartiles of Spielberger components (stress indices for the past year)	<i>N</i>	Unadjusted Mean (SD)	Model 1 Mean (SE)
<i>Administrative stress</i>			
[0.0–101.74]	94	1.51 (1.71)	1.64 (0.28)
[102.83–260.87]	95	2.33 (3.22)	2.20 (0.27)
[261.96–497.39]	95	1.73 (2.00)	1.70 (0.27)
[503.04–1619.13]	94	2.67 (3.17)	2.65 (0.27)
<i>p</i> -Value		0.003	0.006
<i>Physical or psychological danger stress</i>			
[0.0–96.04]	94	2.30 (3.27)	2.44 (0.28)
[100.10–235.21]	95	1.83 (2.36)	1.75 (0.28)
[235.63–439.79]	95	1.76 (1.79)	1.71 (0.27)
[443.23–1210.0]	94	2.35 (2.91)	2.32 (0.27)
<i>p</i> -Value		0.127	0.214
<i>Organizational support stress</i>			
[0.0–78.08]	95	1.48 (1.69)	1.60 (0.27)
[79.04–196.15]	94	1.74 (2.42)	1.69 (0.27)
[196.92–385.38]	94	2.15 (2.96)	2.10 (0.27)
[390.38–1547.69]	95	2.85 (3.10)	2.80 (0.27)
<i>p</i> -Value		<0.001	<0.001

Notes: Model 1: Adjusted for age, sex, and race/ethnicity.

*p*-Values obtained from linear regression.

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Mean levels of hopelessness across quartiles of Spielberger stressor components stratified by PTSD symptoms (PCL-C).

**Table 3**

Quartiles of Spielberger components (stress indices for the past year)	Total PCL-C < Med (24.0), N = 163			Total PCL-C Med (24.0), N = 177		
	N	Unadjusted	Model 1	N	Unadjusted	Model 1
<i>Administrative stress</i>						
[0.0–101.74]	62	1.37 (1.36)	1.33 (0.20)	24	1.92 (2.32)	2.26 (0.73)
[102.83–260.87]	43	1.51 (1.37)	1.40 (0.24)	38	3.16 (4.28)	2.97 (0.52)
[261.96–497.39]	37	1.24 (1.61)	1.33 (0.25)	48	2.00 (1.94)	1.99 (0.46)
[503.04–1619.13]	21	1.38 (2.06)	1.49 (0.34)	67	3.09 (3.39)	3.04 (0.39)
<i>p</i> -Value		0.975	0.638		0.101	0.135
<i>Physical or psychological danger stress</i>						
[0.0–96.04]	53	1.38 (1.70)	1.32 (0.22)	24	3.54 (4.50)	3.90 (0.70)
[100.10–235.21]	57	1.46 (1.20)	1.39 (0.21)	31	2.61 (3.69)	2.48 (0.60)
[235.63–439.79]	29	1.31 (1.20)	1.39 (0.28)	56	2.11 (2.07)	2.08 (0.42)
[443.23–1210.0]	24	1.29 (2.07)	1.39 (0.32)	66	2.80 (3.15)	2.78 (0.39)
<i>p</i> -Value		0.845	0.533		0.603	0.628
<i>Organizational support stress</i>						
[0.0–78.08]	62	1.44 (1.34)	1.41 (0.19)	26	1.77 (2.42)	2.07 (0.64)
[79.04–196.15]	54	1.31 (1.58)	1.27 (0.21)	33	2.33 (3.13)	2.17 (0.56)
[196.92–385.38]	30	1.20 (1.35)	1.24 (0.28)	51	2.51 (3.42)	2.45 (0.45)
[390.38–1547.69]	17	1.71 (2.11)	1.73 (0.37)	67	3.25 (3.26)	3.23 (0.39)
<i>p</i> -Value		0.295	0.233		0.001	0.001

Notes: Model 1: Adjusted for age, sex, and race/ethnicity.

*p*-Values obtained from linear regression.

*p*-Interaction is *p*-value for the interaction term obtained from multivariable linear regression model.