The impact of emotional labor on the severity of PTSD symptoms in firefighters

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ABSTRACT

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Background: Despite attempts to identify predictors for posttraumatic stress disorder (PTSD) in firefighters, it is still uncertain whether occupational stress factors impact PTSD symptoms. Given the emotionally taxing job environment of firefighters, this population has been known to suffer from emotional labor. In this study, we investigated whether and how emotional labor, one of the occupational stress factors, influences the severity of PTSD symptoms in firefighters.

Methods: A total of 7151 Korean firefighters (age range 21–60 years, 6484 (90.7%) male participants) were included for analysis. PTSD symptoms were assessed using the PTSD Checklist-Civilian Version, and the demands of emotional labor and emotional damage were measured using the Korean Emotional Labor Scale. Hierarchical multivariate regression was performed.

Results: Hierarchical multivariate regression showed that a 2-way interaction between the presence of recent trauma and emotional damage was significantly associated with the severity of PTSD symptoms, even after adjusting for demographic factors, job-related factors, and perceived stress. The independent main effects of emotional labor were not significantly associated with PTSD symptoms.

Conclusion: These findings suggest that emotional labor can be a risk factor that makes firefighters vulnerable to PTSD symptoms by modulating the effect of traumatic experiences on PTSD symptoms.

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1. Introduction

Emergency workers, such as firefighters, are vulnerable to posttraumatic stress disorder (PTSD) [1–4]. The severity and frequency of traumatic experiences in firefighters have been widely acknowledged as major risk factors for PTSD [5–7]. Additionally, life stress following traumatic events has also been reported to be an additional risk factor for PTSD [8]. Considering the accumulated findings of the association of occupational stress, including job demand, limited job control, inter-group conflict, and poor support, with PTSD in emergency workers [9–11], it is necessary to pay attention to work-related stress of firefighters who are predisposed to experiencing traumatic events.

Emotional labor has been receiving much consideration as a stress factor in the field of public mental health, due particularly to its potential negative impact on the mental health of employees. Emotional labor is defined as the process by which workers have to control their feelings in accordance with the organizational demands and occupational role [12,13]. To date, studies investigating emotional labor of employees have mostly focused on commercial and customer-service jobs, disregarding for the most part, emotional labor of emergency workers, like firefighters. However, given the emotionally taxing job environment of firefighters, in addition to its demanding and insecure nature of the work, this group has been known to suffer greatly from emotional labor. Firefighters have to stay calm and hide their own emotions when they face sickness, death, suicide, and violent accidents. Moreover, it has been reported that Korean firefighters usually suffer from emotional labor because of unreasonable demands of people and aggressive or picky persons, which is similar situation with customer-service work. The National Human Rights Commission of Korea surveyed 8072 Korean firefighters and found that 37.9% of them have suffered from verbal abuse over the past three months [14]. Furthermore, the survey showed that 81.2% of respondents of the survey, who were working at the emergency operation center, reported that they usually suppress their emotions when receiving calls. However, there is a lack of organizational protective system and legal measures for emotional labor of firefighters. Hence, the objective of this study was to investigate whether and how high demands of emotional labor affect the severity of PTSD symptoms in Korean firefighters. For this purpose, we measured the level of

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emotional labor in 7151 firefighters in South Korea and examined whether emotional labor is an independent predictor or a moderator of the effect of traumatic experiences on PTSD symptoms.

2. Methods

2.1. Participants and procedures

A total of 7190 firefighters from 37 institutions (34 fire stations, 2 headquarters, and 1 educational institution) in the Gyeonggi province of South Korea participated in an online survey. They asked their demographic and job-related characteristics, perceived stress, emotional labor, presence of traumatic experience during the previous year, and PTSD symptoms. Among the total, 39 were excluded from the final analyses due to missing data. Thus, the final analyses included a total of 7151 firefighters, for whom demographic information is presented in Table 1. Survey respondents were apprised of the anonymity and voluntary nature of the self-report survey. This study was approved by the Institutional Review Board of Seoul National University Bundang Hospital.

2.2. Measures

2.2.1. Traumatic experience

Whether participants experienced traumatic events during the previous year was asked using the self-report measure assessing duty-related incident stressors of firefighters developed by Beaton and colleagues [15]. 22 items were selected among the original 33 incident stressors that were associated with high levels of stress according to Beaton et al.; of these stressors, two related to gunshots were excluded due to the generally low incidence of gunshot incidents in South Korea. Finally, an additional stressor, ‘remove the body of a suicide victim’, which was reported to be frequently encountered and associated with high level of stress in Korean firefighters was added (Table S1). Firefighters who reported 1 or more events in the previous year were coded as 1, while those who reported none were coded as 0.

2.2.2. Emotional labor

The level of emotional labor was measured by the Korean Emotional Labor Scale (KELS) [16]. KELS was developed to measure emotional labor of Korean workers, and was validated with a nationwide random sample of 1042 Korean employees by Korean Occupational Safety & Health Agency. It was based on the literatures related to emotional labor [12,13,17–22], emotional labor scales, such as Emotional Labor Inventory [23], Emotional Labor Scale [24], Emotion Work Requirements Scale [25], and Frankfurt Emotion Work Scale [26], as well as a focused group interview. The KELS has five subscales (Effort to Control Emotion, Organizational Monitoring System, Demands of Emotional Labor, Emotional Damage, and Organizational Support System). The survey included only two subscales, Demands of Emotional Labor (3 items) and Emotional Damage (6 items) excluding effort to control emotion and other two subscales related to organizational system. We regarded the two subscales scores as proxies for emotional labor in firefighters, because the Emotional Damage, which measures the severity of emotional hurt due to emotional labor, is a factor that explained the most variance of the KELS in the results of a factor analysis in the study developing the scale. In addition, the Demands of Emotional Labor measures the level of emotional labor that employees have to do during work. The Emotional Damage measures the severity of emotional hurt due to emotional labor. Table 1 shows each item of the two subscales of KELS and the descriptive statistics for it.

Each item in the questionnaire was rated on a 4-point Likert scale, from 1 (not at all) to 4 (very much). The scores for each subscale were calculated based on the scoring system provided by the developers. Possible ranges for each subscale were 0–100, with higher scores representing higher levels of emotional labor.

2.2.3. Perceived stress

Perceived stress was assessed to control its effect on PTSD symptoms, by the 10-item version of the Perceived Stress Scale (PSS-10) [27,28]. The PSS is a self-report questionnaire originally developed by Cohen and colleagues [29]. This measure is widely used to identify the extent to which respondents feel that their stress is unpredictable, uncontrollable, and overwhelming. It uses a five-point Likert scale that ranges from 0 (never) to 4 (very often) and the total scores range from 0 to 40, with higher scores indicating greater perceived stress.

2.2.4. Posttraumatic stress symptoms

PTSD symptoms during the previous month were assessed with the 17-item PTSD Checklist-Civilian Version (PCL-CV) [30]. PCL is a standardized self-report instrument for PTSD, comprising of 17 items that correspond to key symptoms of PTSD outlined in the DSM-IV-TR. PCL-CV is applied to general traumatic experiences while PCL-M is specific to PTSD caused by military trauma. It indicates the degree to which respondents had been bothered by a particular symptom from 1 (not at all) to 5 (extremely). The PCL total score ranges from 17 to 85, with higher scores indicating higher severity of PTSD symptoms.

2.3. Statistical analysis

We assessed group differences of emotional labor by demographic and clinical characteristics using independent t-test or analysis of variance with a least significant difference (LSD) test as a post-hoc test. Correlations between each measure were determined using Pearson’s correlation coefficient. In order to investigate whether emotional labor has an impact as an independent predictor or a moderator on PTSD symptoms, a hierarchical multivariate regression analysis was performed. In the first step, age, work length, sex, current job (EMS = 1, others = 0), and perceived stress during the previous month were entered into a regression model. The analysis using the regression model revealed that there was a multicollinearity (defined as variance inflation factor, VIF > 5) between age and work length. Therefore, we excluded age, based on the results of the regression model (age: $\beta = -0.004$, $p > 0.05$; work length: $\beta = 0.060$, $p < 0.05$). In the second step, the presence of traumatic experience in the previous year (experienced or not), demands of emotional labor, and emotional damage were included into the first model. Finally, in the third step, two interaction terms were included into the second model; one was the multiplication of traumatic experiences and the demands of emotional labor, and the other was the multiplication of traumatic experiences and the emotional damage. All the variables used in multivariate regression were centered to have a mean of 0 and SD of 1. The data were analyzed using IBM SPSS statistics 22 software (SPSS Inc.; Chicago, IL, USA). A two-tailed $p$-value $< 0.05$ was considered statistically significant.

<table>
<thead>
<tr>
<th>Items</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demands of Emotional Labor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I have to deal with persons who are aggressive or picky.</td>
<td>2.37</td>
<td>1.02</td>
</tr>
<tr>
<td>2. I have to deal with persons who demand things beyond my capacity or power.</td>
<td>2.16</td>
<td>0.96</td>
</tr>
<tr>
<td>3. I usually experience trouble with my work because of unreasonable demands of people.</td>
<td>2.31</td>
<td>1.02</td>
</tr>
<tr>
<td>Total</td>
<td>6.84</td>
<td>2.70</td>
</tr>
<tr>
<td>Emotional damage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. My pride is often hurt when dealing with people.</td>
<td>1.93</td>
<td>0.92</td>
</tr>
<tr>
<td>2. I am hurt when I have to hide my real emotions.</td>
<td>2.21</td>
<td>1.02</td>
</tr>
<tr>
<td>3. I feel my emotion as any commodity when dealing with people.</td>
<td>2.03</td>
<td>0.99</td>
</tr>
<tr>
<td>4. Hard feelings remains even after work.</td>
<td>1.98</td>
<td>0.99</td>
</tr>
<tr>
<td>5. I am very hurt during the process of dealing with people.</td>
<td>2.04</td>
<td>1.00</td>
</tr>
<tr>
<td>6. It is emotionally difficult as I have to do my best dealing with people even when I am very tired.</td>
<td>2.19</td>
<td>1.03</td>
</tr>
<tr>
<td>Total</td>
<td>12.39</td>
<td>5.26</td>
</tr>
</tbody>
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