INTERNATIONAL PREMIER JOURNAL OF LANGUAGES & LITERATURE (IPJLL)
VOLUME 3, ISSUE 3, 2025 p-ISSN: 3007-2336 e-ISSN: 3007-2344

CONSEQUENCES OF TRAUMA EXPOSURE AMONG FIRE FIGHTER WORKERS: MODERATING ROLE OF COPING STRATEGIES

Muhammad Sajid Naseer naseersajid101@gmail.com	MS Clinical Psychology Student, Department of Clinical Psychology, The Superior University Lahore, Punjab, Pakistan.
Dr Abid Ali Abidali.fsd@superior.edu.pk	Assistant Professor, Department of Clinical Psychology, The Superior University Lahore, Punjab, Pakistan.

Abstract

The present study aimed to find out the relationship between work place burden, burnout, trauma exposure and coping strategies among fire fighter workers. Sample of 100 Fire fighters (50 Male, 50 Female) were taken from different fire fighter offices of Faisalabad. Purposive sampling technique was used in order to collect data. Age range of the participants were 20-35. The Workplace Stress Scale by The Marlin Company (1978), The Maslach-Burnout Inventory (MBI) by Maslach and Jackson (1981), The Traumatic Exposure Severity Scale (TESS) by Elklit and Brink (2004) and Coping Scale by Hamby et al. (2013) were used for data collection in current research. The SPSS 23 was used for data analysis. Results revealed that greater job burden has been associated with burnout and heightened vulnerability to traumatic experiences meaning that greater job burden leads to both emotional stress and traumatic experiences. There is a tendency that the coping strategies decrease with an increase in the workplace burden and this postulates that the effectiveness of coping efforts is diminished by the high level of work pressure. Traumatic situations also contribute to burnout in that firefighters are exposed to more traumatic experiences which also shows the extent to which the job can be very emotionally taxing. Also, the exposures to trauma are linked to poorer coping skills as demonstrated by the ability to wear off emotional resilience which can be caused by repeated episodes of critical events. Results revealed that coping strategies do not moderate the relationship between work place burden, burnout and trauma exposure among fire fighter workers. Findings indicated that there were a higher workplace load and exposure to trauma in males, with no observable significant difference between the genders in burnout and coping.

Keywords: *Work Place Burden, Burnout, Trauma Exposure, Coping Strategies*

Corresponding Author: Muhammad Sajid Naseer (MS Clinical Psychology Student, Department of Clinical Psychology, The Superior University Lahore, Punjab, Pakistan). **Email:** naseersajid101@gmail.com

1. Introduction

Firefighting is a health hazardous occupation where it is frequently exposed to traumatic experiences of accidents, injuries, and death, making firefighters at high-risk of psychological distress, work stress, and burnout (Smith et al., 2019; Stanley, 2021). Prolonged exposure of crisis situations causes the depleted emotional and cognitive resources, resulting in emotional exhaustion, diminished job satisfaction, and poor work-life balance which are fundamental pillars of burnout (Bakker et al., 2014; Maslach and Leiter, 2016). The importance of cumulative trauma, irregular work hours, and work demands has been persistently found to be negative predictors of adverse mental health conditions in firefighters, such as depression, anxiety, and post-traumatic stress symptoms (Armstrong et al., 2014; Pietrzak et al., 2014). Job Demands resources (JD-R) model and the Burnout Theory by Maslach offer an explanation of how high levels of job demand produced in combination with low levels of organizational and personal resources which lead to chronic strain, disengagement and reduced professional efficacy. These results indicate that burnout is not only a personal problem but a professional and organizational issue, which is based on the chronic burden at work and exposure to trauma (Bakker & Demerouti, 2017; Schaufeli et al., 2009).

The role played by coping strategies is a critical moderation influence in determining the effect of exposure on trauma on the workplace burden and burnout among fire fighters. It has been demonstrated that adaptive coping strategies counteracting the adverse psychological consequences of the trauma and decreasing emotional exhaustion are problem-focused coping, emotional regulation, physical fitness, and the need to find social support (Carver et al., 2010; Prati and Pietrantoni, 2010). Maladaptive coping styles (avoidance, emotional suppression, and substance use) on the contrary aggravate stress responses and the probability of burnout and psychological morbidity is very high (Skeffington et al., 2017; Li et al., 2020). This process can be well explained on the basis of the Conservation of Resources (COR) theory, which assumes that the threats to major personal resources, including energy, self-efficacy, and emotional stability, are presented by the trauma, and the resources can be preserved or replaced through the effective coping (Hobfoll, 1989). It has been proven that the firefighters who experience greater self-efficacy and adaptive strategies to deal with stress are less likely to report elevated levels of perceived stress, emotional exhaustion, and depersonalization despite the presence of

highly demanding settings (Ogińska-Bulik, 2020; Kim and Kao, 2021).

Recent empirical and review literature also underline the relevance of interventions on organizations and individuals to reduce burnout in firefighters. The sleep disruption, work-long hours, staffing, and supervisory support are the factors that increase workload and high burnout, job performance, and safety risks (Wolkow et al., 2019; Baier et al., 2018). On the other hand, the resilience-building program, workload management, peer support program and trauma-informed organizational policy have been reported to be the main protective tools to improve the psychological well-being and occupational sustainability (Dyal et al., 2021; West et al., 2018). The systematic reviews corroborate this finding, as shown by consistent evidence to state that resilience, social support, and adaptive coping no longer moderate the impact of cumulative trauma and occupational stress in firefighting groups (Bonanno, 2020; Dyal et al., 2021). Taken together, these results demonstrate that psychological support and coping-skills training interventions, along with organizational changes, are highly needed to safeguard the mental health of firefighters, this facet of their service activity, as well as foster its sustainable viability in professions susceptible to trausssma (Bonanno, 2020; Dyal et al., 2021).

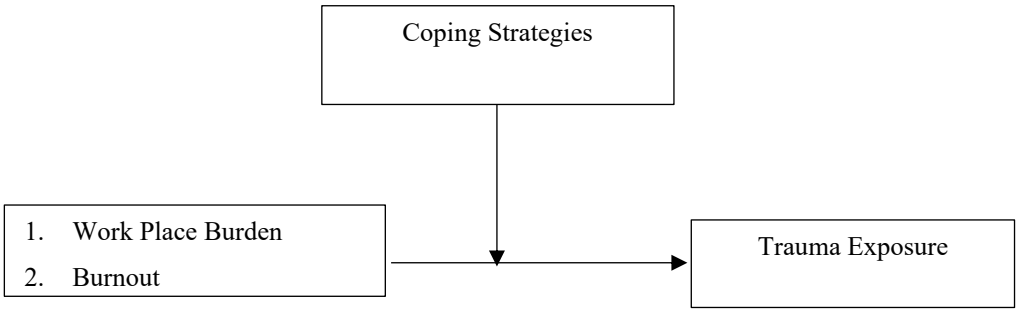
1.1. Objectives of the study

1. To examine the relationship between work place burden, burnout, trauma exposure and coping strategies among fire fighter workers.
2. To investigate the moderating role of coping strategies on work place burden, burnout and trauma exposure among fire fighter workers.
3. To measure gender difference on work place burden, burnout, trauma exposure and coping strategies among fire fighter workers.

1.2. Hypotheses

1. There will be a significant relationship between work place burden, burnout, trauma exposure and coping strategies among fire fighter workers.
2. Coping strategies will significantly moderate the relationship between work place burden, burnout and trauma exposure among fire fighter workers.
3. There will be the significant gender difference on work place burden, burnout, trauma exposure and coping strategies among fire fighter workers.

1.3. Conceptualized Model



2.Methods

2.1. Sample

Sample of 100 Fire fighters (50 Male, 50 Female) were taken from different fire fighter offices of Faisalabad. The sampling strategy used was purposive sampling in order to collect data. Age range was 20-35.

2.2. Instruments

2.2.1. Workplace Stress Scale

The Workplace Stress Scale was created by The Marlin Company and the American Institute of Stress (1978) as a quick measure for assessing stress levels in the workplace. The scale is comprised of 8 items that were designed to capture the perceptions of employees about the pressures experienced in work and how they affect well-being. Responses are rated on a 5-point Likert scale from never to very often and total scores often range from 8 to 40, with higher scores indicating higher levels of stress in the workplace. A Cronbach's alpha reliability coefficient (a measure of internal consistency) reported about .80.

2.2.2. Maslach Burnout Inventory

The Maslach-Burnout Inventory (MBI) was developed by Maslach and Jackson (1981) and is one of the most widely used burnout assessment tools in existence. The scale has 22 items and a 7-point Likert score for each item that is scored from never (0) to every day (6). Moreover, a positive correlation was established between burnout and the scores from Emotional Exhaustion and Depersonalization, and a negative correlation was established between burnout and the Personal Accomplishment scores. The MBI has also been shown to have a high reliability with reported values for Cronbach's alpha ranging from .76 to indicate good internal consistency.

2.2.3. Traumatic Exposure Severity Scale

The Traumatic Exposure Severity Scale (TESS) was designed by Elklit and Brink (2004) to find severity and extent of exposure(s) to a traumatic event(s). The scale contains 22 items, related to different types of traumatic incidents, including accident, violence, disaster, inter-personal trauma etc. Each item is rated using a scale of 5 question items (Likert) how much it has been experienced: 0 = Not experienced through 4 = Experienced with High severity. Total scores are higher when the severity of exposure to trauma is higher. The scale has been shown to have good psychometric properties with a reported Cronbach's alpha of .86, indicating good internal consistency (Elklit & Brink, 2004).

2.2.4. Coping Scale

The Coping Scale by Hamby et al. (2015) was developed previously by Hamby et al. (2015) as a part of the study on coping strategies and resiliency. This scale comprises twenty-three items measuring a large number of coping strategies: problem focused, emotion focused, and meaning making. Other responses are also made on a 4-point Likert scale (0 = not at all, 1 = little, 2 = a lot, 3 = a lot lot). The instrument demonstrated good psychometric properties with the empirical findings indicating that the Cronbach's alpha for all the subscale range from.70 to.85 indicating good to acceptable internal consistency.

2.2.5. Procedure

Upon getting informed consent from the study participants, a purposive sampling approach was adopted in this selection process to ensure congruence of the study participants' characteristics that were in tune with the study goals. Rapport was encouraged with every participant before the data collection as this help to create a field where trust and collaboration is achieved to get an honest and reliable answer. Besides developing rapport, participants received documents on information written that defined the purpose and scope of the research and their roles in the research. Another point that was discussed in this document was that participation was voluntary meaning that availability of those people to stop their participation without any form of punishment or penalty of any nature.

The contact information of the participants was not stored with the data set but was in an encrypted format to make sure the anonymity rights of the participants were reproduced. In attempts to conserve the ethical standards, all information obtained during their research would be maintained as confidential and private only to the researcher. Confidentiality The personal identifiers were promised to be anonymous and in which the identifying information would not be released to the participant in such a way that would allow identification of the participant.

Each of the assessment tools was integrated in the study as per the instructions outlined by the developers of the respective instruments. This methodological rigor was maintained to provide measurements of reliability and validity concerning the data collected as well as support uniformity among all subjects. The assessment was performed in a quiet, distraction-free room to minimize external distractions and enhance concentration on the task at hand.

After all measures were implemented, subjects were provided a 35-to-40-minute session solely for answering questions, explaining the process of the study, their responses, and addressing any other concerns they had. While this time served to debrief the subjects, it also enhanced understanding of each individual's role while ensuring ethical measures throughout the study. This transparency afforded subjects a way to think critically about their participation and provided a sense of finality when the data collection was concluded.

3.Results

Table 1:*Bivariate Correlation Between Separation Anxiety, Academic Stress, Loneliness, Quality of Life and Coping Strategies among Boarding Students.*

Sr	Variables	1	2	3	4
1	Work Place Burden	-	.26**	.72**	-.42**
2	Burnout		-	.24**	-.06
3	Trauma Exposure			-	-.45**
4	Coping Strategies				-

Note. *p < .05, **p< .01

The results of the correlation indicate that a number of significant correlations occurred between the workplace burden, burnout, trauma exposure, and coping strategies in firefighter workers. The relationship between workplace burden and burnout is positive (r =.26) and with trauma exposure is strong (r =.72) meaning that the more work needs are the more feelings of burnout, and the more exposed to trauma. Coping strategies are negatively associated with Workplace burden (r = -.42), which implies that when burden is high, coping methods are not able to be effectively used. Burnout demonstrates a positive correlation with the exposure to traumatic experiences (r = 0.24), i.e. more traumatic events a firefighter experiences, the higher is his/her burnout, and its association with coping is not significant (r = -0.06). There is a significant negative correlation between exposure to traumatic experiences and coping mechanisms (r = -.45) indicating that the more the exposure an individual has to traumatic events, the less ability he/she has to cope. All in all, the findings point to the fact that increased workplace load and trauma exposure are interconnected with increased burnout and ineffective coping in firefighters.

Table 2: *Coping Strategies Moderating the Relationship Between Work Place Burden and Trauma Exposure Among Fire Fighter Workers (N = 100).*

	Trauma Exposure			
Variables	*B*	*SE*	*t*	*p*
Work Place Burden	4.17	2.15	1.93	.05
Coping Strategies	.187	.463	404	.68
Work Place Burden x Coping Strategies	-.044	.035	-1.25	.21
R^2	.562			
ΔR^2	.007			

*Note. **p < .01, B = Unstandardized coefficient,*

Moderation analysis indicates that workplace burden is an important predictor of trauma exposure as it possesses positive effect (B = 4.17, p =.05). The coping strategies, however, are not significant predictors of trauma exposure (B =.187, p=.68). The interaction term between workplace burden and coping strategies also fails to be significant (B = -.044, p =.21) and this means that coping strategies do not mediate the relationship between workplace burden and the trauma exposure. The overall model describes a significant percentage of variance in the exposure to trauma (R2 = 0.562) but the increase or decrease in variance caused by the interaction (DF = 0.007) is slight. The implication is that, although the workplace burden is a significant issue in terms of exposing them to trauma, the coping mechanisms have no effect or hedge against the union of both variables in firefighter workers.

Table 3: *Coping Strategies Moderating the Relationship Between Burnout and Trauma Exposure Among Fire Fighter Workers (N = 100).*

	Trauma Exposure			
Variables	*B*	*SE*	*t*	*p*
Burnout	.354	1.05	.336	.73
Coping Strategies	-.831	.978	-.849	.39
Burnout x Coping Strategies	-.001	.017	-.064	.94
R^2	.252			
ΔR^2	.000			

*Note. **p < .01, B = Unstandardized coefficient,*

The moderation analysis results show that burnout does not significantly predict the trauma exposure (B = .354, p =.73). There is also no significant impact of coping

strategies on exposure of trauma (B = -.831, p =.39). As well, the interactional aspects between coping strategies and burnout are not significant (B = -.001, p =.94), which proves that coping strategies have no mediating effect on the relationship between burnout and trauma exposure. Even though, the total model reason why trauma exposure is varied (R 2 =.252), the variance change as a result of the interaction (Delta R2 =.000) is insignificant. Altogether, these results point to the fact that some of the factors, burnout and coping strategies, or their combination, do not significantly affect trauma exposure in firefighter workers.

Table 4: *Mean differences Between Work Place Burden, Burnout, Trauma Exposure and Coping Strategies Among Fire Fighter Workers on Gender (n=100).*

	Male (*n* = 50)		Female (*n* = 50)				
Variables	*M*	*SD*	*M*	*SD*	*t*	*p*	Cohen's d
Work Place Burden	15.08	4.71	12.24	4.01	3.24	.00	0.64
Burnout	60.86	5.99	58.38	9.00	1.62	.10	0.32
Trauma Exposure	44.92	10.33	38.18	9.43	3.40	.00	0.68
Coping Strategies	62.54	4.26	63.24	5.93	-.677	.50	0.13

Note. MM= Mean, SD = Standard Deviation

The mean comparison between the genders demonstrates that male firefighters expressed a much higher report of workplace burden (mean = 15.08) compared to the female firefighters (mean = 12.24), where the difference was statistically significant (t = 3.24, p =.00). In the same way, the males had a large exposure to trauma (M = 44.92) when compared to females (M = 38.18) as shown by a significant t-value (t = 3.40, p =. 00). Conversely, there was no significant difference in the level of burnout between male and females (t = 1.62, p =. 10) although the mean scores of males were slightly higher. There was also no notable difference in coping strategies between the genders (t = -.677, p =.50) indicating that the two classes of coping are based on similar strategies. All in all, there was a higher workplace load and exposure to trauma in males, with no observable significant difference between the genders in burnout and coping.

4.Discussion

The present study aimed to find out the relationship between Work Place Burden, Burnout, Trauma Exposure and Coping Strategies Among Fire Fighter Workers. Sample of 100 Fire fighters (50 Male, 50 Female) were taken from different fire fighter offices of Faisalabad. Purposive sampling technique was used in order to collect data. Age range of the participants were 20-35. The Workplace Stress Scale by The Marlin Company (1978), The Maslach-Burnout Inventory (MBI) by Maslach and Jackson (1981), The Traumatic Exposure Severity Scale (TESS) by Elklit and Brink (2004) and Coping Scale by Hamby et al. (2013) were used for data collection in current research. The SPSS 23 was used for data analysis.

The first hypothesis of the study was there will be a significant relationship between work place burden, burnout, trauma exposure and coping strategies among fire fighter workers. Results revealed that greater job burden has been associated with burnout and heightened vulnerability to traumatic experiences meaning that greater job burden leads to both emotional stress and traumatic experiences. There is a tendency that the coping strategies decrease with an increase in the workplace burden and this postulates that the effectiveness of coping efforts is diminished by the high level of work pressure. Traumatic situations also contribute to burnout in that firefighters are exposed to more traumatic experiences which also shows the extent to which the job can be very emotionally taxing. Also, the exposures to trauma are linked to poorer coping skills as demonstrated by the ability to wear off emotional resilience which can be caused by repeated episodes of critical events.

Previous studies indicate that work overload increases the level of psychological stress and emotional burnout among firefighters. Indicatively, Carleton et al. (2019) reported that operational stressors, including a high workload and frequent near-death incidents, were significant predictors of burnout in fire staff, in line with the current result that the increased workplace burden is largely correlated with burnout and exposure to trauma.

Exposure to traumas has always been demonstrated to rise with the level of job demands. According to Stanley et al. (2017), highly experienced traumatic or disturbing events by firefighters were positively linked to high trauma-related symptoms, which confirms the conclusion of the current study that the higher the work load responsibility, the higher is the susceptibility to traumatic events.

Research findings also point out that high levels of burden at workplace lower the adaptability of coping strategies. Indeed, as a case example, Smith et al. (2018) found that

firefighters under high operational pressure report that their coping resources are drained, and their emotional regulation is weak, which confirms the present result that coping mechanisms get weaker with the workload.

The current observation that exposure to trauma is a cause of burnout is consistent with previous data. For the first responders, Regehr and Bober (2005) revealed that emotional exhaustion and depersonalization is associated with repeated exposure to traumatizing events and this finding is in line with the trend which suggests increased burnout occurs when one is exposed to trauma.

Studies also back the association between exposure to trauma and coping ability which is negative. Meyer et al. (2012) determined that increased incidences of traumatic experiences were correlated with lower levels of resilience and less application of adaptive coping among firefighters, which confirms the present study finding that exposure to trauma undermines the coping efficacy.

The second hypothesis of the study was coping strategies will significantly moderate the relationship between work place burden, burnout and trauma exposure among fire fighter workers. Results revealed that coping strategies do not moderate the relationship between work place burden, burnout and trauma exposure among fire fighter workers.

In past studies, it is implied that although coping strategies do tend to be significant in alleviating stress, they do not necessarily change the direct correlation between occupational load and trauma consequences significantly. In one instance, Cieslak et al. (2014) discovered that despite the decrease of general stress symptoms, coping skills made no significant difference in terms of the effect of high job demands on exposure to trauma among the first responders. This adds to the current study finding of coping mechanisms nullifying the relationship between workplace burden and trauma exposure.

Correspondingly, research findings have indicated that a burnout may arise regardless of the existence of the coping mechanisms amidst incomparable work pressures. Halpern et al. (2009) have mentioned that the level of burnout among emergency responders depended more on the intensity of workload, exposure to critical incidents than the coping mechanisms utilized, which is similar to the non-significant moderation pattern in the current study.

Studies also indicate that even the coping strategies might not be adequate to mediate the consequences of cumulative trauma exposure in the high-risk professions. Kleim and Westphal (2011) had discovered that firefighters exhibiting excellent coping strategies nevertheless exposed to a lot of trauma experienced considerable symptoms of

traumas, which explains why coping did not play a significant obviating role in the current research.

It has been somewhat shown that the nature of coping strategy is more important than the occurrence of coping behaviors. McCaslin et al. (2006) established that only the adaptive coping methods and not generic coping methods succeeded to modify the relationship that existed between work stress and emotional consequences. This being is the reason why the general coping strategies were not a meaningful moderator in the current study.

Finally, individual coping capacities can be negated by organizational and environmental factors. Van der Ploeg and Kleber (2003) emphasized that the effects of structural work demands and exposure to traumatic events were greater outside effects of personal coping on stress and traumatic consequences than those of personal coping resources, and this supports the current result that coping strategies found no retraction between the work burden and burnout and exposure to a traumatic experience.

The last hypothesis of the study was that there will be the significant gender difference on work place burden, burnout, trauma exposure and coping strategies among fire fighter workers. Findings indicated that there were a higher workplace load and exposure to trauma in males, with no observable significant difference between the genders in burnout and coping.

It has been found out that male firefighters tend to report an increase in levels of burden at the workplace than women, probably because of the expectation in occupation roles. As an example, the study by Moran (2015) revealed that the workload in male emergency responders was more acute, which confirms the observation of the current research of an increased workplace burden in male firefighters.

In terms of exposure to trauma there is previous research that indicates that men who are involved in firefighting are more often exposed to high-risk situations. According to Smith et al. (2017), male firefighters were reported to be more exposed to critical incidences as compared to their female counterparts in line with the finding that exposure to trauma was more prevalent in males.

Nonetheless, the difference between genders in burnout is not always significant, and the emotional exhaustion, depersonalization may happen irrespective of sex. Halpern et al. (2009) has also observed that both male and female firefighters were equally affected by burnout regardless of whether there was a difference in workload or exposure to traumas, an observation that is quite independent of the present research results of no difference in gender with regard to burnout.

On the same note, female coping behavior in high stress occupations and professions does not necessarily differ greatly with gender. The Cieslak et al. (2014) results on male and female first responders revealed equal prevalence of coping which is an affirmation of the current study finding that there was no difference in coping of male and female firefighters.

Altogether, as much as compared to females, males might experience an increased number of work and trauma exposure, emotional resilience and coping ability outcomes do not necessarily imply gender differences. Kleim and Westphal (2011) highlighted the fact that gender has no significant impact on the effectiveness of coping or burnout and in this regard the conclusion is that gender difference was noted in terms of work load and exposure to traumas but not in burnout and coping mechanisms.

4.1. Limitations Of The Study

- The sample of present study was collected from Lahore, which is not true representative of all The sample of present study was collected from Faisalabad, which is not true representative of all firefighters. In future, it would be more appropriate to select the sample from different cities as well.
- The present study was done by cross-sectional research design, in future longitudinal study can be conducted on this topic, help to generate rich data and have more comparability in the study. Another limitation of the study is that only self-reported information was used for analysis which can be biased.

4.2. Recommendations

- The areas from Faisalabad provided the sample for the current study. It would be better to choose the sample in the future from more various places. The current study used a cross-sectional research design; however, in the future, longitudinal research on these variables. This will increase the efficacy of the study, produce richer data, and increase the study's comparability.
- The study's use of just self-reported data for analysis, which can be biased, is another drawback. The interview method can also be utilized to obtain a more thorough and in-depth understanding of a phenomenon. Purposive sampling produced the sample. To provide a fair and accurate sample representation, future studies should use random sampling.

- In order to improve the research effort, recommendations are made for future studies in light of the implications listed below. First, more research is needed to clarify additional contextual elements that affect.
- To improve the generalizability of the study's findings, data can also be gathered from other cities as well. For the accurate representation of the population, random selection might be used. Future studies would benefit from samples with a wider range of ages and demographic characteristics.

References

Ahmed, M., Khan, A., & Ullah, R. (2022). Coping strategies and psychological adjustment among patients with chronic illness: A systematic review. *Journal of Health Psychology, 27*(9), 2134–2148. https://doi.org/10.1177/13591053211024567

Ahola, K., Väänänen, A., Koskinen, A., Kouvonen, A., & Shirom, A. (2010). Burnout as a predictor of all-cause mortality among industrial employees: A 10-year prospective register-linkage study. *Journal of Psychosomatic Research, 69*(1), 51–57. https://doi.org/10.1016/j.jpsychores.2010.01.002

Allen, T. D., Johnson, R. C., Saboe, K. N., Cho, E., Dumani, S., & Evans, S. (2013). Dispositional variables and work–family conflict: A meta-analysis. *Journal of Vocational Behavior, 82*(1), 1–15. https://doi.org/10.1016/j.jvb.2012.10.004

Armstrong, D., Shakespeare-Finch, J., & Shochet, I. (2014). Organizational belongingness mediates the relationship between sources of stress and posttrauma outcomes in firefighters. *Psychological Trauma: Theory, Research, Practice, and Policy, 6*(5), 425–433. https://doi.org/10.1037/a0035598

Baier, N., Roth, K., Felgner, S., Henschke, C., & Apfelbacher, C. (2018). Burnout and safety outcomes in emergency medical services personnel. *International Archives of Occupational and Environmental Health, 91*(4), 437–447. https://doi.org/10.1007/s00420-018-1302-0

Bakker, A. B., & Costa, P. L. (2014). Chronic job burnout and daily functioning: A theoretical analysis. *Burnout Research, 1*(3), 112–119. https://doi.org/10.1016/j.burn.2014.04.003

Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology, 22*(3), 273–285. https://doi.org/10.1037/ocp0000056

Bakker, A. B., Demerouti, E., & Salanova, M. (2009). How job demands and resources predict burnout and engagement. *Journal of Organizational Behavior, 30*(3), 365–

384. https://doi.org/10.1002/job.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.

Benedek, D. M., Fullerton, C., & Ursano, R. J. (2007). First responders: Mental health consequences of natural and human-made disasters. *CNS Spectrums, 12*(9), 677–684. https://doi.org/10.1017/S109285290002141X

Bettini, E., Jones, N. D., Brownell, M. T., Conroy, M. A., & Leite, W. L. (2017). Special educators' job satisfaction and burnout. *Exceptional Children, 83*(4), 1–18. https://doi.org/10.1177/0014402917696841

Bianchi, R., Schonfeld, I. S., & Laurent, E. (2019). Burnout syndrome: Moving the agenda forward. *Stress and Health, 35*(1), 1–5. https://doi.org/10.1002/smi.2840

Bonanno, G. A. (2020). *The end of trauma: How the new science of resilience is changing how we think about PTSD*. Basic Books.

Brewin, C. R. (2020). Complex post-traumatic stress disorder: A new diagnosis in ICD-11. *World Psychiatry, 19*(1), 98–99. https://doi.org/10.1002/wps.20698

Carleton, R. N., Afifi, T. O., Turner, S., Taillieu, T., LeBouthillier, D. M., Duranceau, S., Sareen, J., Ricciardelli, R., & Asmundson, G. J. G. (2019). Mental disorder symptoms among public safety personnel in Canada. *Canadian Journal of Psychiatry, 64*(1), 54–64. https://doi.org/10.1177/0706743718783825

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (2010). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267–283.

Cieslak, R., Shoji, K., Douglas, A., Melville, E., Luszczynska, A., & Benight, C. C. (2016). A meta-analysis of the relationship between job burnout and secondary traumatic stress. *Journal of Occupational Health Psychology, 19*(3), 301–312. https://doi.org/10.1037/a0033798

Cieslak, R., Shoji, K., Douglas, A., Melville, E., Luszczynska, A., & Benight, C. C. (2014). A meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma. *Journal of Occupational Health Psychology, 19*(3), 301–312. https://doi.org/10.1037/a0033798

Dyal, S. R., Kulkarni, M., & Jones, M. (2021). Burnout among firefighters: A systematic review. *International Journal of Environmental Research and Public Health, 18*(19), 10112. https://doi.org/10.3390/ijerph181910112

Elklit, A., & Brink, O. (2004). Acute stress disorder as a predictor of post-traumatic stress

disorder following physical assault. *Journal of Interpersonal Violence, 19*(6), 709–726. https://doi.org/10.1177/0886260504263874

Ganster, D. C., & Rosen, C. C. (2013). Work stress and employee health. *Journal of Management, 39*(5), 1085–1122. https://doi.org/10.1177/0149206313475815

Halpern, J., Gurevich, M., Schwartz, B., & Brazeau, P. (2009). What makes an incident critical for ambulance workers? Emotional outcomes and implications for intervention. *Work & Stress, 23*(2), 173–189. https://doi.org/10.1080/02678370902951117

Hamby, S., Grych, J., & Banyard, V. (2013). *The comprehensive coping strategies inventory*. Life Paths Research Program.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513–524.

Jennings, P. A., & Greenberg, M. T. (2017). The prosocial classroom. *Review of Educational Research, 79*(1), 491–525.

Kleim, B., & Westphal, M. (2011). Mental health in first responders: A review and recommendation for prevention and intervention strategies. *Trauma, Violence, & Abuse, 12*(2), 1–12. https://doi.org/10.1177/1524838010396463

Li, H., Xu, J., Chen, Y., & Li, L. (2020). Coping strategies as mediators between PTSD and burnout in firefighters. *Journal of Loss and Trauma, 25*(3), 1–15. https://doi.org/10.1080/15325024.2019.1670776

Marlin Company, & American Institute of Stress. (1978). *The workplace stress scale*. Marlin Company.

Maslach, C., & Jackson, S. E. (1981). *Maslach Burnout Inventory manual*. Consulting Psychologists Press.

Maslach, C., & Leiter, M. P. (2016). *Burnout*. Wiley.

Maslach, C., Jackson, S. E., & Leiter, M. P. (2001). *Maslach Burnout Inventory manual* (3rd ed.). Consulting Psychologists Press.

McCaslin, S. E., Rogers, C. E., Metzler, T. J., Best, S. R., Weiss, D. S., Fagan, J. A., Liberman, A., & Marmar, C. R. (2006). The impact of personal threat on police officers' responses to critical incident stressors. *Journal of Nervous and Mental Disease, 194*(8), 591–597. https://doi.org/10.1097/01.nmd.0000235781.01373.88

Meyer, E. C., Zimering, R., Daly, E., Knight, J., Kamholz, B. W., & Gulliver, S. B. (2012). Predictors of posttraumatic stress disorder and other psychological symptoms in

trauma-exposed firefighters. *Psychological Services, 9*(1), 1–15. https://doi.org/10.1037/a0026414

Moran, C. (2015). Stress and coping in emergency services. *Occupational Medicine, 65*(4), 311–317. https://doi.org/10.1093/occmed/kqv026

Ogińska-Bulik, N. (2020). Occupational stress and burnout in firefighters: The role of self-efficacy. *International Journal of Occupational Safety and Ergonomics, 26*(2), 351–361. https://doi.org/10.1080/10803548.2018.1502128

Pietrzak, R. H., Feder, A., Singh, R., & Southwick, S. M. (2014). Trajectories of PTSD risk in firefighters. *American Journal of Psychiatry, 171*(8), 882–889.

Prati, G., & Pietrantoni, L. (2010). The relation of perceived stress and coping strategies to burnout. *Journal of Loss and Trauma, 15*(5), 393–408.

Regehr, C., & Bober, T. (2005). *In the line of fire: Trauma in the emergency services*. Oxford University Press.

Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the Job Demands–Resources model. *Work & Stress, 28*(1), 43–68.

Smith, E. C., Burkle, F. M., & Archer, F. L. (2017). Fear, familiarity, and the perception of risk: A quantitative analysis of gender differences among firefighters. *Disaster Medicine and Public Health Preparedness, 11*(3), 1–7. https://doi.org/10.1017/dmp.2016.171

Smith, T. D., Hughes, K., DeJoy, D. M., & Dyal, M. A. (2018). Assessment of relationships between work stress, work–family conflict, burnout and firefighter safety behavior outcomes. *Safety Science, 103*, 287–292. https://doi.org/10.1016/j.ssci.2017.12.005

Smith, T. D., Hughes, K., DeJoy, D. M., & Dyal, M. A. (2019). Assessment of burnout in first responders. *Safety and Health at Work, 10*(4), 1–7. https://doi.org/10.1016/j.shaw.2019.02.005

Stanley, I. H. (2021). Suicide risk and occupational stress among first responders. *Current Opinion in Psychology, 38*, 46–51. https://doi.org/10.1016/j.copsyc.2020.08.006

Stanley, I. H., Hom, M. A., Joiner, T. E., & Smith, L. J. (2017). Examining anxiety sensitivity as a moderator of the association between PTSD symptoms and suicide risk among firefighters. *Journal of Anxiety Disorders, 50*, 94–102. https://doi.org/10.1016/j.janxdis.2017.06.006

Van der Ploeg, E., & Kleber, R. J. (2003). Acute and chronic job stressors among

ambulance personnel: Predictors of health symptoms. *Occupational and Environmental Medicine, 60*(suppl 1), i40–i46. https://doi.org/10.1136/oem.60.suppl_1.i40

West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: Contributors and solutions. *Journal of Internal Medicine, 283*(6), 516–529.

Wolkow, A. P., Ferguson, S. A., Vincent, G. E., & Aisbett, B. (2019). Sleep, stress, and burnout in firefighters. *Journal of Sleep Research, 28*(1), e12637. https://doi.org/10.1111/jsr.12637

World Health Organization. (2019). *Burn-out: An occupational phenomenon*. WHO.