Relationship between PTSD Symptoms, Social Support and Religiosity among Lebanese Firefighters

Teresa El Rahi*

Department of Arts and Science, Lebanese American University, Psychology Undergraduate

*Teresa.elrahi@lau.edu

Received: May 10, 2023

Abstract

Firefighters are constantly exposed to high-intensity and traumatic circumstances, putting them at risk for PTSD. Limited research has been conducted on this topic in the Arab world, specifically among Lebanese firefighters. The study focused on examining the association between Posttraumatic Stress Disorder (PTSD) symptoms, social support, and religiosity among Lebanese firefighters. A questionnaire was distributed to firefighters in different regions of Lebanon to collect data. The sample included 131 firefighters from 8 governorates in Lebanon, who completed the following self-report questionnaires: The Posttraumatic Stress Disorder Checklist (PCL-5 Multidimensional Scale of perceived social support (Arabic-MSPSS); and Centrality of Religiosity Scale (CRS-5). Results indicated a significant relationship between PTSD symptoms, social support, and religiosity variables. The findings suggest that interventions that include religious and spiritual practices, as well as the enhancement of social support networks, could be beneficial to the contribution of increased well-being and lower PTSD symptoms in Lebanese Firefighters.

Keywords: Social Support, Religiosity, Posttraumatic Stress Disorder, firefighters

1. Introduction

Firefighters are exposed daily to high-intensity situations such as suppressing fires, providing medical care, directing rescue efforts, engaging in crowd control, recovering bodies, and many more. As first responders, their tasks are presented with a high level of skills requirements and exposure to physical and psychological stressors. An average firefighter is at a high risk of Post-Traumatic Stress Disorder (PTSD) as they experience several stressful situations and possible traumatic events over the course of their career (Corneil, 1999).

The third edition of the Diagnostic and Statistical Manual of Mental Disorders was the first to define PTSD as a diagnosis (American Psychiatric Association, 1980). Currently, the indicators of PTSD are divided into three categories: re-experiencing (such as nightmares and flashbacks), avoiding triggers (such as conversations and places), and hyperarousal (e.g., feeling jumpy, and irritable). An event or events including real or threatened death, major injury, or a threat to one's own or others' physical integrity must have been experienced, witnessed, or confronted for a person to be diagnosed with PTSD (Criterion A1). Additionally, there must have been a reaction to the incident that involves terror, helplessness, or dread (Criterion A2; American Psychiatric Association, 2000). Firefighters undoubtedly encounter many horrific incidents during their employment, increasing their likelihood of acquiring PTSD symptoms and PTSD since people are

more prone to suffer traumatic events when placed in high-risk situations (Del Ben et al., 2006). The prevalence of PTSD among firefighters ranged from 6.4% to 57 % (Naim Mat Salleh et al., 2020) whereas that of the general population ranges from 1% to 8% (Hauffa et al., 2011; Kessler et al., 1995; as cited in Lee et al., 2014).

PTSD is not necessarily developed by everyone who experiences a traumatic event. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000) definition of traumatic stressors includes “experiencing, witnessing, or confronting events that involve actual or threatened death or serious injury, or a threat to the physical integrity of self or others” (p. 467). Following exposure to trauma, some people experience PTSD that severely impairs their capacity to function in daily life, while others quickly recover from the effects of the trauma and are thus shielded from facing PTSD (Lee, 2019). A key predictor of individual variation in posttraumatic adjustment may be resilience factors. For instance, a prior study indicated that firefighters with high levels of resilience were shielded from both the direct and indirect effects of trauma exposure on PTSD via perceived stress, in contrast to those with low levels of resilience, under the same amount of trauma experience.

As Fergus and Zimmerman (2005) indicated, there is increasing evidence that social support is an important resilient factor in PTSD. There are various facets of social support elements that overlap but each one of them reflects a different aspect of this construct. These aspects consist of structural social support (i.e., the breadth and depth of a person's social network, as well as the regularity of social encounters); emotional social support is behavior that fosters feelings of comfort, leading the person to believe that he or she is loved, respected, and/or cared for by others; functional social support is the perception that social interactions have been beneficial in terms of meeting emotional or instrumental needs; informational/cognitive social support is the providing of advice or direction aimed at assisting people in coping with present challenges.; and instrumental/material social support is the provision of goods and services that assist in solving practical problems. These factors of social support can be sustained and eased by different systems, including family, community, and international systems. Even though social support is a major correlate of psychological resilience, each individual may vary on the type of support needed for it to be effective, which may change over time (Southwick et al., 2016).

Another factor that could be related to PTSD symptoms in first responders is religiosity. Religion has been explained by academics in two ways (Pargament, 1997). One approach, socalled the substantive tradition, holds that religion primarily concerns God, supreme beings, supernatural entities, or any other entity considered a mystical higher power. The functional tradition is the

alternative approach. According to this viewpoint, religion is primarily concerned with how individuals deal with life's fundamental difficulties (Batson, Schoenrade, & Ventis, 1993, p.8). Both perspectives contend that religion consists of ideas, practices, symbols, and experiences. Religion is thus a multidimensional construct. Nonetheless, the two theories vary in their point of reference. Even though the substantive tradition is concerned with the notion of the holy, the functional perspective defines religion as a method of coping with one's ultimate problems in life - tragedy, injustice, significance, and death (Pargament, 1997, as cited in Berzengi, A., 2015). Religious coping, as religion, is a complex concept that includes a wide range of spiritually and religiously oriented cognitive, emotional, behavioral, and interpersonal responses (Thune-Boyle, Stygall, Keshtgar, & Newman, 2006; Tix & Fraser, 1998). As a consequence, religious coping mechanisms include forgiveness, spiritual assistance, prayer, confession, conversion, and religious assessments (Pargament, 1997). According to Janoff Bulman (1992), PTSD develops when a tragic event shatters people's underlying assumptions and beliefs, leaving the survivor seeking new meaning. Religion might operate as a source of meaning in such conditions (Baumeister, 2005; Park, 2005). Furthermore, McIntosh (1995) published a literature analysis and advocated considering religion as a cognitive schema that informs one's views about self, others, and the world (as cited in Berzengi, A., 2015).

1.1. Post-Traumatic Stress Disorder (PTSD) In Firefighters

This section reviews the literature related to PTSD in firefighters. There is a significant number of studies that recognize the relationship between traumatic events and PTSD in firefighters. With a fatality rate close to those of police officers, The U.S. Department of Labor, Bureau of Labor Statistics (2012) acknowledged that firefighting is one of the most hazardous civilian occupations in the United States (Klimley et al., 2018). F. Katsavouni et al. (2022) put emphasis on the impact of traumatic experiences on rescuers' mental health, which can lead to PTSD. They supported these findings by showing how previous research reported a 22% rate of symptoms of PTSD in American firefighters, 17% in Canadian firefighters, and an estimated 18% in German firefighters (Katsavouni et al., 2022). With repeated exposure to traumatic incidents, the physical health of firefighters is linked with higher rates of cardiovascular, musculoskeletal, neurological, and respiratory disorders (Angleman, 2010; Beaton & Murphy, 1995; MacFarlane, Atchison, Rafalowicz, & Papay, 1994; as cited in Klimley et al., 2018). However, Angleman (2010); MacFarlane et al. (1994) argue that there is evidence that these physical symptoms are

related to the onset of PTSD rather than trauma exposure, suggesting that the condition has a greater influence over the incident (Klimley et al., 2018).

A large number of existing studies in the broader literature have examined PTSD symptoms in firefighters and it has been reported that some of those symptoms are depression, acute stress disorder, social and interpersonal difficulties, substance abuse, and physical health (Fullerton et al., 2004; Wagner et al., 1998). Suicide has also been explored in prior studies as an important consideration in firefighters. There exists a considerable body of literature that provides evidence that a fire department is three times more at risk to experience a suicide than a line-of-duty death (Gist, Taylor, & Raak, 2011; Henderson, Van Hasselt, LeDuc, & Couwels, 2016; National Fallen Firefighters Foundation, 2014; Savia, 2008, as cited in Klimely et al., 2018). For instance, the following studies that were conducted by the Firefighter Behavioral Health Alliance revealed a rate of 370 completed suicides among firefighters between 2012 and 2015 and this number may be underestimated due to circumstances (such as the stigma associated with mental illness in the fire service and adverse work consequences) (Sivak, 2016; as cited in Klimely, 2018).

1.2. Risk Factors

Studies reveal that volunteer firefighters are more vulnerable to developing PTSD symptoms than professional firefighters. Dyregrov, Kristoffersen, and Gjestad (1996) found that one year after a catastrophic bus accident, volunteers had much greater PTSD symptoms than professionals. In part to less training and debriefing of difficult missions, some scholars believe that less professional experience contributes to volunteers' heightened psychological susceptibility (Ersland et al., 1989; Morren, Yzermans, Van Nispen, & Wevers, 2005; Thormar et al., 2010). In addition, factors such as low self-efficacy and a sense of loss of control in firefighters were related to higher levels of depression and PTSD symptoms (Regehr, Hill, & Glancy, 2000). Firefighters, as well, as low self-efficacy and a sense of loss of control after stressful occurrences, had greater levels of depression and post-traumatic stress symptoms (Regehr, Hill, & Glancy, 2000). Nevertheless, volunteer firefighters lack professional psychological assistance. According to Stanley et al. (2017), structural impediments to professional psychological support and aftercare are linked to mental health problems in volunteer firefighters.

1.3. Protective Factors:

North et al. (2002) discovered a 22.7% PTSD prevalence among male main victims who suffered a catastrophe, compared to a 13.6% PTSD rate among male firefighters who encountered

the same disaster. Several research has found that firemen experience fewer psychopathological symptoms following disasters than general population survivors (e.g., Dyregrov et al., 1996; North et al., 2002). This begs the issue of what distinguishes the two groups, and which protective variables are helpful for first responders.

1.3.a. Religion and PTSD

Religion could be one of the most powerful weapons a person may use to adjust or cope with a stressful situation. Byrne and Price (1979) believed that religion contributes to carrying the "peak load" of human emotional needs. Engagement in religious institution activities and religious belief can be an effective coping technique for first responders and individuals since it provides prospective hope, inner strength, spiritual direction, and better familial bonds (Officer of General Training, 1987; as cited in T. Sigler, 1999). A body of literature reported a negative correlation between religiosity and PTSD symptoms. implying that greater rates of religiosity were related to decreased levels of PTSD symptoms. T. Sigler (1999) revealed that the associations between religiosity scales and job satisfaction were maintained for firemen and police officers, while the correlations with work stressors and work stress faded for firefighters. Holzer, K. (2011) showed in his study that religious coping was related to lower levels of PTSD symptoms among veterans. The examined research suggests a possible link between religiosity and PTSD symptoms.

1.3.b. Social Support and PTSD

Social support is a key indicator of the development of PTSD. A series of recent studies have indicated that social support can buffer the psychological damage caused by a traumatic event whereas low social support will raise the chance for firefighters to develop PTSD symptoms (Salleh et al., 2020). Lee et al. (2019) emphasized that perceived social support is a strong predictor of PTSD symptoms in firefighters exposed to various stressful experiences. Regehr et al. (2009) mention that social support was a major predictor of symptoms when taken into account. However, it is troubling that this study discovered that veteran firefighters had lower levels of social support than new recruits did, both within the personal networks of the firefighters and social support received within the organization. Consequently, when firemen continued to face serious occupational risks, the availability of social support as a buffer was diminished. With the intent to support their claim, Regebr et al. (2009) explain that the underlying cause that could explain the decrease in social support in professional firefighters could be the result of the decrease in time spent outside the workplace that could lead to their exclusion from core social groups. Moreover,

spending a long time away from family could lead to the erosion of family relationships as a career progress (Regbr et al., 2009). Pennington et al. (2018) reported, for instance, that firefighters' depression increased over time after regulating for social support, however, PTSD levels were unaffected. Nonetheless, Debeer et al. (2014) examined the correlation between PTSD, suicide ideation, and social support. They concluded that indeed social support moderates the relationship between PTSD symptoms and suicidal ideation among returning veterans. Carpenter et al. (2015) add to the literature by providing evidence that an elevated level of social support was found to be protective against suicidality when high work stress was present. While, when social support levels were low and stress levels were elevated, suicidal ideation was high. Moreover, Bernabe et al. (2015) support the claim with data that confirms the importance of social support in firefighters' resilience by means of energy and identification processes. The outcome was that firefighters were motivated to go to work and be part of the organization. On the other hand, a lack of social support influenced resilience too by putting firefighters at greater risk (Lee et al., 2014; Strümpfer, 2003; as cited in Bernabe et al., 2015).

1.4. The Present Study

The present study aims to investigate the relationship between PTSD symptoms, social support, and religiosity among Lebanese firefighters. Literature on this topic has been mostly conducted in Western cultural backgrounds. There are limited data that examines the current subject in the Arab world. This paper raises the question as to whether social support and religiosity would affect the development of PTSD in Lebanese firefighters, which is so far lacking in the scientific literature. We hypothesize that high levels of social support and religiosity will protect firefighters from developing PTSD symptoms. This is the first study to study social support, religiosity, and PTSD in Lebanese firefighters.

2. Methods

2.1. Ethics Approval and Consent to Participate

The current study has been approved by the Institutional Review Board at the Lebanese American University; LAU.SAS.SO7.7/Mar/2023. Written informed consent was obtained from all participants.

2.2. Participants and Procedure

A total of 131 firefighters from 8 governorates in Lebanon (Akkar, Baalbeck-Hermel, Beirut, Bekaa, Mount Lebanon, North Lebanon, Nabatiyeh, and South Lebanon) participated in the present study. Firefighters that were included and excluded in the final analysis had a low difference rate in age, total duration of employment, gender, education, and type of duty. An official request was sent to the fire stations at the beginning of the study to get approval and proceed with the study. The firefighters that were willing to participate filled out the consent form and were asked to fill out a series of questionnaires including the Centrality of Religiosity Scale (CRS-5), the Posttraumatic Stress Disorder Checklist (PCL-5), and Multidimensional Scale of Perceived Social Support Arabic version (Arabic-MDSPSS). The survey was shared online via WhatsApp to reach the targeted population. All data were assigned numeric identifiers to ensure the confidentiality of participants and stored accordingly. Participants received no financial incentive.

2.3. Assessments

Demographic information such as gender, age, level of education, and marital status was obtained using an Arabic self-report questionnaire.

The Posttraumatic Stress Disorder Checklist (PCL-5): This self-reported questionnaire assesses symptoms of posttraumatic stress disorder according to the DSM-5 criteria. The PCL-5 contains twenty items rated on a five-point Likert-type scale, with scores ranging from "Not at all" (0) to "Extremely" (4), resulting in a symptom severity score between 0 and 80. An example of the items in the test is rating over the past month experiencing "Repeated, disturbing dreams of the stressful experience". The scale was validated for the Arab population by Ibrahim et al. (2018). The internal consistency of the PCL-5 was high in this study (alpha = 0.944) and the instrument showed adequate convergent validity. The national center for PTSD specified a cut-point score of 31-33 suggesting that higher scores might benefit from professional help.

Multidimensional Scale of perceived social support (Arabic-MSPSS): The MSPSS is a 12-item brief self-report scale designed by Zimet et al. to subjectively assess "the adequacy of received emotional social support" from three different sources (family, friends, and the significant other). The Arabic MSPSS was validated by Fekih-Romdhane et al. (2022). An example of the items present in the test is "I can talk about my problems with my family". The scale had a high internal consistency in this study which values of 0.983. Convergent validity was supported by showing that all three MSPSS sub-scores and total scores correlated significantly and positively with resilience and posttraumatic growth scores (Fekih-Romdhane et al., 2022). A score in this test

of 3 to 5 could be considered moderate; a score from 5.1 to 7 could be considered high support (Zimet, 2016).

The Centrality of Religiosity Scale (CRS-5): CRS-5 is a 5- item brief self-reported scale designed by Stefan Huber (2003, 2004, 2009) with items rated on a five-point Likert-type scale. Scores range from 1=Never to 5= very much. The scale recognized the key relevance of religiosity in an individual's psychological construction and behavior. The internal consistency of the CRS5 was high in this study (alpha = 0.917). An example of the items included in the test is a rating on "How much do you believe in the existence of God or the existence of something divine".

2.4. Translation procedure

The back-and-forth translation method was used on the scales. The scales used in the study were validated by Arabic versions of the scales. Following that, a Lebanese psychologist with professional working knowledge in English translated the Arabic version back into English. To eradicate discrepancies, the original and the translated English versions were compared.

2.5. Statistical Analysis

SPSS software version 29 was used for statistical analysis. Cronbach's alpha values were calculated for each scale. There was no missing data due to the necessity to fill up all the questions on Google Forms. To examine the relationships between variables, a bivariate correlation analysis was performed. Pearson's correlation coefficients were calculated to determine the associations between PTSD symptoms, social support, and religiosity. The multiple regression analysis was used to explore the contributions of social support and religiosity in explaining the variance in PTSD symptoms. We used PTSD symptoms as the dependent variables and social support and religiosity as independent variables.

3. Results

3.1. Study Sample Characteristics

A total of 131 firefighters participated in this study. The table below illustrates the mean age of participants as it was 28.69 (±7.590) with 38.2 % females and 61.8% males. 73.3% of participants were single and 26% were married. Other characteristics are summarized in Table 1.

Table 1. Sociodemographic characteristic of participants (N=131)

Variable	N (%)
Sex	50 (38.2%)
Female	81 (61.8%)
Male	
Social Status Divorced	
	1 (.8%)
Married	34 (26.0%)
Single	96 (73.3%)
Place of Residency Akkar	
	4 (3.1%)
Baalbek/Hermel	1 (.8%)
Beirut	26 (19.8%)
Bekaa	9 (6.9%)
Mount Lebanon	73 (55.7%)
Nabatiyeh	2 (1.5%)
North	12 (9.2%)
South	4 (3.1%)
Religion Alawites	
	3 (2.3%)
Atheist	2 (1.5%)
Christian	78 (59.5%)
Druze	3 (2.3%)
Muslim	45 (34.4%)
	Mean ± Sd
Age (Years)	28.69 (± 7.590)

3.2. Bivariate Analysis

Table 3 reveals the results of a bivariate correlation analysis among three variables: the PCL-5 score (PTSD symptoms), MSPSS score (social support), and CRS-5 score (religiosity). We observe in Table 3 a substantial negative correlation between PTSD symptoms and social support ($r = -0.332$, $p < 0.001$), implying that firefighters who experience higher levels of PTSD symptoms tend to report lower levels of social support. Similarly, there is a significant positive association between social support and religiosity ($r = 0.744$, $p < 0.001$), indicating that firefighters who report higher levels of social support tend to report higher levels of religiosity. Additionally, there is a significant positive correlation between PTSD symptoms and religiosity ($r = 0.283$, $p < 0.001$),

suggesting that firefighters who experience higher levels of PTSD symptoms also tend to report higher levels of religiosity.

Table 2.

	Mean	Std. Deviation	N
PCL-5 Score	25.23	14.444	131
MSPSS Score	4.174	1.937	131
CRS-5 Score	16.69	5.449	131

Table 3. Bivariate analysis of the variables associated with the PTSD scores

		PCL-5 Score	**MSPSS Score**	**CRS-5 Score**
Pearson Correlation	PCL-5 Score	1.000	-.332	.283
	MSPSS Score	-.332	1.000	.744
	CRS-5 Score	.283	.744	1.000
Sig. (1-tailed)	PCL-5 Score	.	<.001	<.001
	MSPSS Score	.000	0	.000
	CRS-5 Score	.001	.000	.
N	PCL-5 Score	131	131	131
	MSPSS Score	131	131	131
	CRS-5 Score	131	131	131

4. Discussion

The point of focus of this study was to explore the association between PTSD symptoms, social support, and religiosity among Lebanese fire personnel. The outcomes shed light on the interaction of these factors and the implications for understanding the well-being and coping mechanisms of this group.

Our findings supported prior studies (T. Sigler and Thweatt,1997; Lee, J. 2019), demonstrating strong relationships between PTSD symptoms, social support, and religion. These findings offer insight into the complex processes that influence firefighters' mental health and coping techniques.

The findings of this study showed a statistically significant negative relationship between PTSD symptoms and social support. This suggests that firefighters who are suffering from more severe PTSD symptoms receive less social support from those around them. The data reported here appear to support the stress-buffering hypothesis (Cohen & Wills, 1985), which implies that social support protects against psychological distress. The evidence from this study suggests that interventions aiming at increasing social support networks and interpersonal connections may be especially effective in lowering the impact of PTSD symptoms among firefighters.

Moreover, the results of the experiment found significant support for a substantial favorable link between PTSD symptoms and religion. This suggests that those with more severe PTSD symptoms depend more on religious beliefs and practices as a coping technique. A similar pattern of results was obtained in previous research that has highlighted the significance of religion as a coping resource in the face of traumatic situations (Pargament, 1997). Understanding the association between PTSD symptoms and religion gives useful insights into firefighters' coping methods and implies that introducing religious or spiritual support into therapeutic programs may be beneficial for this demographic.

Additionally, the present findings confirm a substantial positive relationship between social support and religion. This research implies that those who experience higher amounts of social support also estimate higher centrality of religiosity. This displays the complementary nature of these two elements in mitigating the impacts of stress and improving overall well-being. This positive relationship supports the idea that social and religious factors are inextricably linked and play important roles in firefighters' coping methods.

4.1. Study Strengths and Limitations

This study contributes to the limited number of research that focuses on firemen in Lebanon. Firefighters encounter particular job obstacles and pressures, and understanding their experiences and coping processes in the context of Lebanon is critical for designing targeted interventions and support systems. The study presents insights relevant to the experiences of Lebanese firemen by studying the links between PTSD symptoms, social support, and religion in this specific demographic, stressing the need for targeted therapies and support programs. Furthermore, the literature adds to our understanding of the relationship between PTSD symptoms, social support, and religion. Previously, these factors were studied individually; however, this study evaluates their interactions concurrently, offering a more thorough knowledge of their connection within the firefighter community. The significant relationships discovered between PTSD

symptoms, social support, and religiosity show that these variables are intertwined. These findings add to the expanding body of literature highlighting the interdependence of social support and religion as coping strategies in the face of trauma and stress. In addition, through the focus on Lebanese firefighters, the study highlights the possible effect of cultural variables on coping mechanisms and social support networks. This contextual awareness is essential for establishing culturally sensitive treatments and support systems that successfully meet the specific needs of Lebanon's civil defense volunteers.

On the other hand, the study has limitations to be pointed out for future research. (1) The sample size showed a selection bias with the majority of the responses being men and from the region of Mount Lebanon. The sample might not fully represent the general population of Lebanese firefighters. (2) The study used self-reported tests which might have led to response bias or social desirability. (3) The cross-sectional design results in a single point in time result which limits the ability to determine causal relationships between variables or observe changes over time. Future studies are needed to examine the progressive nature of the relationships and provide a more thorough comprehension of the correlations identified.

5. Conclusion

In conclusion, the findings of this study add to the body of knowledge by highlighting the unique experiences and coping mechanisms of firefighters in Lebanon, as well as by investigating the relationship between PTSD symptoms, social support, and religiosity. Results revealed that social support and religiosity were found to be important predictors of PTSD symptoms among firefighters. The literature will help in developing interventions that improve social support networks, such as peer support programs or counseling services to establish the necessary support systems for firefighters. Moreover, intervention strategies could incorporate religious and spiritual practices to improve the first responder’s well-being and resilience. Future research might concentrate on designing and assessing customized treatments that successfully incorporate these resources.

References

Agaibi, C. E., & Wilson, J. P. (2005). TRAUMA, PTSD, AND RESILIENCE: A review of the literature. Trauma, Violence & Abuse, 6(3), 195-216. https://doi.org/10.1177/1524838005277438

American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: Author.

Bernabé M, Botia JM. Resilience as a mediator in emotional social support's relationship with occupational psychology health in firefighters. Journal of Health Psychology. 2016;21(8):1778-1786. doi:10.1177/1359105314566258

Berzengi, A. (2015). Investigating the relationship between religious coping, appraisals, social support, and symptoms of Posttraumatic Stress Disorder (PTSD): A correlational study using an Islamic community sample (Doctoral dissertation, University of East Anglia).

Bizri, M., Ibrahim, N., Beyrouthy, C., Yamout, D., Tamim, H., Abiad, J., & Ghazeeri, G. (2022). Psychometric properties of the Arabic version of Connor-Davidson Resilience Scale in a sample of Lebanese women. *Plos one*, *17*(6), e0269700.

Carpenter, G. S. J., Carpenter, T. P., Kimbrel, N. A., Flynn, E. J., Pennington, M. L., Cammarata, C., Zimering, R. T., Kamholz, B. W., & Gulliver, S. B. (2015). Social support, stress, and suicidal ideation in professional firefighters. American Journal of Health Behavior, 39(2), 191-196. https://doi.org/10.5993/AJHB.39.2.5

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. Psychological Bulletin, 98(2), 310-357. https://doi.org/10.1037/0033-2909.98.2.310

Connell, M. A., Omole, O., Subramaney, U., & Olorunju, S. (2013). Post traumatic stress disorder and resilience in veterans who served in the South African border war. African Journal of Psychiatry, 16, 8–10. doi:10.4314/ajpsy.v16i6.55

Corneil W, Beaton R, Murphy S, Johnson C, Pike K. Exposure to traumatic incidents and prevalence of posttraumatic stress symptomatology in urban firefighters in two countries. J Occup Health Psychol. 1999 Apr;4(2):131-41. doi: 10.1037//1076-8998.4.2.131. PMID: 10212865.

Debeer BB, Kimbrel NA, Meyer EC, et al. Combined PTSD and depressive symptoms interact with post-deployment social support to predict suicidal ideation in Operation Enduring Freedom and Operation Iraqi Freedom veterans. Psychiatry Res. 2014;216(3):357-362.

Del Ben, K. S., Scotti, J. R., Chen, Y., & Fortson, B. L. (2006). Prevalence of posttraumatic stress disorder symptoms in firefighters. Work and Stress, 20(1), 37-48. https://doi.org/10.1080/02678370600679512

Fekih-Romdhane, F., Fawaz, M., Hallit, R., Sawma, T., Obeid, S., & Hallit, S. (2022). Psychometric Properties of an Arabic Translation of the Multidimensional Social Support Scale (MSPSS) in a community sample of Lebanese Adults.

Fergus S, Zimmerman MA. Adolescent resilience: A framework for understanding healthy development in the face of risk. Annu Rev Public Health. 2005; 26:399–419. https://doi.org/10.1146/annurev. publhealth.26.021304.144357 PMID: 15760295

Fullerton, C. S., Ursano, R. J., & Wang, L. (2004). Acute stress disorder, posttraumatic stress disorder, and depression in disaster or rescue workers. American Journal of Psychiatry, 161(8), 1370–1376

Gray MJ, Litz BT, Hsu JL, Lombardo TW. Psychometric properties of the life events checklist. Assessment. 2004 Dec;11(4):330-41. doi: 10.1177/1073191104269954. PMID: 15486169. Holzer, K. (2011). Spiritual well-being and anxiety: The relationship and underlying constructs.

Ibrahim H, Ertl V, Catani C, Ismail AA, Neuner F. The validity of Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) as screening instrument with Kurdish and Arab displaced populations living in the Kurdistan region of Iraq. BMC Psychiatry. 2018 Aug 16;18(1):259. doi: 10.1186/s12888-018-1839-z. PMID: 30115040; PMCID: PMC6097219.

Johansen, V. A., Wahl, A. K., Eilertsen, D. E., & Weisaeth, L. (2007). Prevalence and predictors of post-traumatic stress disorder (PTSD) in physically injured victims of non-domestic violence - A longitudinal study. Social Psychiatry and Psychiatric Epidemiology, 42(7), 583-593. https://doi.org/10.1007/s00127-007-0205-0

Katsavouni, F., Bebetsos, E., Malliou, P., & Beneka, A. (2016). The relationship between burnout, PTSD symptoms and injuries in firefighters. Occupational Medicine (Oxford), 66(1), 32-37. https://doi.org/10.1093/occmed/kqv144

Klimley, K. E., Van Hasselt, V. B., & Stripling, A. M. (2018). Posttraumatic stress disorder in police, firefighters, and emergency dispatchers. Aggression and Violent Behavior, 43, 33-44. https://doi.org/10.1016/j.avb.2018.08.005

Lee, J. (2019). Perceived social support functions as a resilience in buffering the impact of trauma exposure on PTSD symptoms via intrusive rumination and entrapment in firefighters. PloS One, 14(8), e0220454-e0220454. https://doi.org/10.1371/journal.pone.0220454

Lee, J., Ahn, Y., Jeong, K., Chae, J., & Choi, K. (2014). Resilience buffers the impact of traumatic events on the development of PTSD symptoms in firefighters. Journal of Affective Disorders, 162, 128-133. https://doi.org/10.1016/j.jad.2014.02.031

Onyedire, N. G., Ekoh, A. T., Chukwuorji, J. C., & Ifeagwazi, C. M. (2017). Posttraumatic stress disorder (PTSD) symptoms among firefighters: Roles of resilience and locus of control. Journal of Workplace Behavioral Health, 32(4), 227-248. https://doi.org/10.1080/15555240.2017.1369885

Pargament, K. I. (1997). The psychology of religion and coping: Theory, research, practice. Guilford Publications.

Pennington, M. L., Carpenter, T. P., Synett, S. J., Torres, V. A., Teague, J., Morissette, S. B., ... Gulliver, S. B. (2018). The influence of exposure to natural disasters on depression and PTSD symptoms among firefighters. Prehospital and Disaster Medicine, 33(1), 102–108.

Regehr, C. (2009). Social support as a mediator of psychological distress in firefighters. *The Irish Journal of Psychology, 30*(1), 87-98. https://www.proquest.com/scholarly-journals/socialsupport-as-mediator-psychological-distress/docview/325080547/se-2

Schnell, T., Suhr, F., & Weierstall-Pust, R. (2020). Post-traumatic stress disorder in volunteer firefighters: Influence of specific risk and protective factors. European Journal of Psychotraumatology, 11(1), 1764722-1764722. https://doi.org/10.1080/20008198.2020.1764722

Sigler, R. T., & Thweatt, D. R. (1997). Religiosity and stress for police officers. Journal of Police and Criminal Psychology, 12(1), 13-24. https://doi.org/10.1007/BF02813807

Southwick, S. M., Sippel, L., Krystal, J., Charney, D., Mayes, L., & Pietrzak, R. H. (2016). Why are some individuals more resilient than others: The role of social support. World Psychiatry, 15(1), 77-79. https://doi.org/10.1002/wps.20282

Streb, M., Häller, P., & Michael, T. (2014). PTSD in Paramedics: Resilience and Sense of Coherence. Behavioural and Cognitive Psychotherapy, 42(4), 452-463. doi:10.1017/S1352465813000337

Wagner, D., Heinrichs, M., & Ehlert, U. (1998). Prevalence of symptoms of posttraumatic stress disorder in German professional firefighters. American Journal of Psychiatry, 155(12), 1727–1732.

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. Journal of Personality Assessment, 52(1), 30-41. https://doi.org/10.1207/s15327752jpa5201_2

LAU
الجامعة اللبنانية الأميركية
Lebanese American University

Institutional Review Board (IRB)
لجنة الأخلاقيات

NOTICE OF IRB EXEMPTION DETERMINATION

To: Ms. Teresa El Rahi Dr. Sahar Obeid
Assistant Professor
School of Arts & Sciences

NOTICE ISSUED: 7 March 2023

EXPIRATION DATE: 7 March 2025

REVIEW TYPE: EXEMPT CATEGORY B

Date: March 7, 2023
RE: ***IRB #:*** LAU.SAS.SO7.7/*Mar/2023*
Protocol Title: *Relationship between PTSD Symptoms, Social Support and Religiosity among Lebanese Firefighters*

Your application for the above referenced research project has been reviewed by the Lebanese American University, Institutional Review Board (LAU IRB). This research project qualifies as exempt under the category noted in the Review Type.

This notice is limited to the activities described in the Protocol Exempt Application and all submitted documents listed on page 2 of this letter. **Final reviewed consent documents or recruitment materials and data collection tools released with this notice are part of this determination and must be used in this research project.**

APPROVAL CONDITIONS FOR ALL LAU APPROVED HUMAN RESEARCH PROTOCOLS - EXEMPT

LAU RESEARCH POLICIES & PROCEDURES: *All individuals engaged in the research project must adhere to the approved protocol and all applicable LAU IRB Research Policies & Procedures. PARTICIPANTS must NOT be involved in any research related activity prior to IRB approval date or after the expiration date.*

EXEMPT CATEGORIES: *Activities that are exempt from IRB review are not exempt from IRB ethical review and the necessity for ethical conduct.*

BEIRUT CAMPUS
P.O. Box 13-5053 Chouran Tel: +961 1 786 464
Beirut 1102 2801 +961 1 786 456
Lebanon Fax: +961 1 867 098

BYBLOS CAMPUS
P.O. Box 36 Tel: +961 9 547 254
Byblos +961 9 547 262
Lebanon Fax: +961 9 546 262

NEW YORK HEADQUARTERS & ACADEMIC CENTER
211 East 46th Street Tel: +1 212 203 4333
New York, NY 10017-2935 Fax: +1 212 784 6597
United States

lau.edu.lb

Protocol Expiration: *The LAU IRB approval expiry date for studies that fall under Exemption is 2 years after this approval as noted above. If the study will continue beyond this date, a request for an extension must be submitted at least 2 weeks prior to Expiry date.*

Modifications and Amendments: *Certain changes may change the review criteria and disqualify the research from exemption status; therefore, any proposed changes to the previously approved exempt study must be reviewed and approved by the IRB before implementation.*

Notification of Project Completion: *A notification of research project closure and a summary of findings must be sent to the IRB office upon completion. Study files must be retained for a period of 3 years from the date of notification of project completion.*

In the event of Non-Compliance with above conditions, the Principal Investigator should meet with the IRB Administrators in order to resolve such conditions. IRB Approval cannot be granted until non-compliant issues have been resolved

---

If you have any questions concerning this information, please contact the IRB office by email at irb@lau.edu.lb

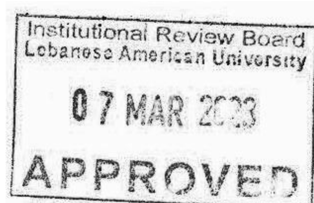
The IRB operates in compliance with the national regulations pertaining to research under the Lebanese Minister of Public Health's Decision No.141 dated 27/1/2016 under LAU IRB Authorization reference 2016/3708, the international guidelines for Good Clinical Practice, the US Office of Human Research Protection (45CFR46) and the Food and Drug Administration (21CFR56). LAU IRB U.S. Identifier as an international institution: FWA00014723 and IRB Registration # IRB00006954 LAUIRB#1

Dr. Joseph Stephan

Chair, Institutional Review Board

DOCUMENTS SUBMITTED:

LAU IRB Exempt Protocol Application	Received 24 February 2023
Research Protocol	Received 24 February 2023
Informed Consent	Received 24 February 2023, amended 27 February 2023
Questionnaire	Received 24 February 2023
Link to online survey	Received 24 February 2023, amended 2 March 2023
IRB Comments sent: 27 February 2023 28 February 2023	**PI response to IRB's comments dated:** 27 February 2023 2 March 2023
CITI Training – Sahar Obeid	Cert.# 52158343 Dated (17 October 2022)
CITI Training - Teresa El Rahi	Cert.# 52921451 Dated (26 November 2022)



BEIRUT CAMPUS
P.O. Box 13-5053 Chouran Tel: +961 1 786 464
Beirut 1102 2801 +961 1 786 456
Lebanon Fax: +961 1 867 098

BYBLOS CAMPUS
P.O. Box 36 Tel: +961 9 547 254
Byblos +961 9 547 262
Lebanon Fax: +961 9 546 262

NEW YORK HEADQUARTERS & ACADEMIC CENTER
211 East 46th Street Tel: +1 212 203 4333
New York, NY 10017-2935 Fax: +1 212 784 6597
United States

lau.edu.lb