

# PTSD Among Refugee Rescue Workers: Effects of Compassion Satisfaction and Fatigue on Burnout

Duygu Kocer, Núria Farriols, Ignacio Cifre, Mercè Nomen, Marga Lalande & Alma Calvelo

**To cite this article:** Duygu Kocer, Núria Farriols, Ignacio Cifre, Mercè Nomen, Marga Lalande & Alma Calvelo (18 Dec 2023): PTSD Among Refugee Rescue Workers: Effects of Compassion Satisfaction and Fatigue on Burnout, Journal of Loss and Trauma, DOI: [10.1080/15325024.2023.2289989](https://doi.org/10.1080/15325024.2023.2289989)

**To link to this article:** <https://doi.org/10.1080/15325024.2023.2289989>



Published online: 18 Dec 2023.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

---



# PTSD Among Refugee Rescue Workers: Effects of Compassion Satisfaction and Fatigue on Burnout

Duygu Kocer<sup>a</sup> , Núria Farriols<sup>a,b</sup> , Ignacio Cifre<sup>a</sup> , Mercè Nomen<sup>c</sup>, Marga Lalande<sup>c</sup>, and Alma Calvelo<sup>c</sup>

<sup>a</sup>Universitat Ramon Llull, FPCEE Blanquerna, Barcelona, Spain; <sup>b</sup>Consorci Sanitari del Maresme-Hospital of Mataró, Mataró, Spain; <sup>c</sup>Open Arms Psychologists, Barcelona, Spain

## ABSTRACT

Exposure to traumatic life events can affect workers' prevalence to post-traumatic stress disorder (PTSD) and quality of life. A cross-sectional study was conducted among 126 volunteers and 33 professional rescue workers in the Open Arms rescue ship operating in the Aegean Sea to analyze the effects of stress exposure on the professional quality of life. Volunteers presented more compassion satisfaction and less burnout than professionals. In terms of gender, women showed more secondary traumatic stress and intrusion than men. Finally, burnout can be explained by age, compassion satisfaction, and secondary traumatic-stress. These results show the necessity of tailored interventions for the people who work in trauma contexts.

## ARTICLE HISTORY

Received 12 April 2023  
Accepted 10 November 2023

## KEYWORDS

PTSD; burnout; rescue; secondary traumatic stress; compassion satisfaction

## Introduction

Since the beginning of 2015, hundreds of thousands of refugees have left their countries to find safer places to live for reasons of race, religion, political conflicts, or war. In 2017, more than 180,000 refugees and in 2018, more than 141,000 refugees arrived at Mediterranean coasts (Italy, Cyprus, Malta, Greece, and Spain) from the sea and land (UNHCR, 2019). Considering the large number of people needing help, many rescue foundations provide help through rescue workers in this area. Rescue workers are professional or volunteer individuals such as firefighters, police forces, nurses, social workers, and search-and-rescue teams to provide help to sufferers in emergency situations (Setti & Argentero, 2016).

Open Arms is a Spanish non-governmental, nonprofit organization operating in the Aegean and Central Mediterranean Sea to protect people who try to reach Europe fleeing from war, persecution, or poverty. The Open Arms ship is operating to rescue refugees who are escaping from

**CONTACT** Duygu Kocer  [psikologduygukocer@gmail.com](mailto:psikologduygukocer@gmail.com)  Universitat Ramon Llull, Faculty of Psychology, Education and Sport Sciences Blanquerna (FPCEE), C/Císter, 34. 08022 Barcelona, Spain.

© 2023 Taylor & Francis Group, LLC

life-threatening circumstances for the above-mentioned reasons. The ship on duty consists of professional and volunteer workers to rescue and help refugees and to accompany them to reach a safer zone. Given the nature of their duties, individuals in rescue work are exposed to various physical and psychological stressors and traumatic events (Marmar et al., 1996; Norris et al., 2002), such as seeing severely wounded or dying people, people screaming to get help, impatience, and mourning or despair of people whose loved ones' lives are under threat or danger (Ozen & Sir, 2004).

Constant exposure to traumatic experiences increases the risk for the mental and physical well-being of rescue workers. Research shows that potentially traumatic events have major negative psychological effects on rescue workers; such as anxiety, depressive symptoms, and post-traumatic stress disorder (PTSD), which may lead to burnout, vicarious traumatization (Setti & Argentero, 2016), and compassion fatigue (CF) (Ray et al., 2013). Particular professions which have direct contact with victims, especially in graphic content, such as emergency, health-care, and community service workers, have an elevated risk of developing compassion fatigue, depression, and anxiety (Drury et al., 2014), and even PTSD (Figley, 2002).

Rescue workers' quality of life is often characterized by PTSD symptoms, compassion fatigue, and burnout syndrome (Alexander & Klein, 2001; Heinrichs et al., 2005; Benedek et al., 2007), while PTSD is also a major concern (McManus et al., 2002). The present study has been designed by taking into account all the concepts mentioned above.

### **Post-traumatic stress disorder in rescue workers**

According to the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition revised (DSM-5) (APA, 2013), PTSD is defined by having severe stress, intrusion symptoms, persistent avoidance, negative mood, alterations in cognition, and hyperarousal due to directly or indirectly being exposed to a traumatic event. The duty of rescue workers is to provide emergency aid to critically injured people and save victims of catastrophic events in all situations that can be defined as "traumatic." Because the risk of developing PTSD increases with the number of traumatic events experienced, rescuers can be considered as a high-risk group for PTSD (Setti & Argentero, 2016).

A study conducted by Chatzea et al. (2018) assessed the prevalence and the factors associated with self-assessed PTSD, perceived well-being, and burnout among rescue workers operating at Lesvos during the European refugee crisis. Two-hundred seventeen rescue workers took part in this study. The prevalence of perceived burnout syndrome and self-assessed PTSD was 17.1% and 57%, respectively. Moreover, low levels of perceived well-being were reported by 72.8% of the rescue workers. Self-assessed

PTSD was positively correlated with perceived burnout and negatively correlated with perceived well-being. Perceived burnout was also negatively correlated with perceived well-being. Age, family status, duration of shifts, and collection of dead bodies were significant predictors for self-assessed PTSD.

Research shows that the prevalence of PTSD is higher in rescue workers compared to the general population (Perrin et al., 2007; Kessler et al., 2005; De Vries & Olf, 2009). A meta-analysis and systematic review done by Berger et al. (2012) calculated the current worldwide prevalence of PTSD among different types of rescue workers as 10%. Hagh-Shenas et al. (2005) examined the difference in showing PTSD symptoms in professional and nonprofessional rescuers. Results showed significantly higher scores in PTSD symptoms for nonprofessional rescuers. A study was conducted by Sifaki-Pistolla et al. (2017) to assess the prevalence of PTSD in different groups of rescuers. Two-hundred seventeen rescue workers were categorized into three different groups as Greek professional rescuers, international professional rescuers, and volunteer rescuers. The overall probable prevalence for PTSD was 17.1%. The PTSD prevalence rates per different groups were significant.

### ***Effects of compassion satisfaction and compassion fatigue***

Showing compassion and empathy to patients or victims in emergency, health-care, and community services can cause psychological and mental burdens to professionals, as well as to their families and employing organizations. Compassion satisfaction has been defined as the positive outcome of working in caregiving or helping professions and classified as a possible element that prevents the risks of compassion fatigue (Stamm, 2002). A study conducted by Zaidi et al. (2017) to discover the relationship between burnout, compassion satisfaction and secondary traumatic stress with the participation of 185 emergency service workers showed a significant positive relationship between compassion satisfaction and secondary traumatic stress and a significant negative relationship between compassion satisfaction and burnout among rescuers. On the other hand, compassion fatigue has been defined as the negative emotional consequences of working with many traumatized people in combination with a strong, personal, and empathic context. The stress resulting from helping a traumatized or suffering person may result in CF, which develops as a self-protection measure (Figley, 1995). In the previous literature, it has been shown that compassion fatigue may occur as a result of the existence of burnout and secondary traumatic stress and the lack of compassion satisfaction (Middleton, 2015).

## **Burnout**

Burnout has been defined by Pines and Aronson (1988, p. 9) as “a state of physical, emotional, and mental exhaustion caused by long-term involvement in emotionally demanding situations.” Exposure to a traumatic experience is not necessary to experience burnout; it may arise from being exposed to any type of chronic stress. Burnout is the result of emotional exhaustion and it emerges gradually. Furthermore, both compassion fatigue and burnout were found to be associated with psychological problems (Adams et al., 2006).

Previous research on burnout among different occupational groups shows that employees in health and rescue jobs, such as ambulance, police, rescue workers, state emergency services (Kyron et al., 2022), fire-fighters (Ângelo & Chambel, 2013; Katsavouni et al., 2016), relief workers (Setou et al., 2018), and nurses (Ruiz-Fernández et al., 2020) tend to get exposed to more stressful situations and have the symptoms of burnout.

## **Secondary traumatic stress**

Secondary traumatic stress (STS) has been defined by Figley (1995, p.7) as “the natural, consequent behaviors and emotions resulting from knowing about a traumatizing event experienced by a significant other—the stress resulting from helping or wanting to help a traumatized or suffering person.” Secondary traumatic stress symptoms are similar to some PTSD symptoms, such as hyperarousal, avoidance, and reexperiencing, but they emerge after secondary or indirect exposure to a traumatic event (Bride & Figley, 2009). Rescue workers may experience secondary traumatic stress due to repeated exposure to traumatic refugee experiences.

## **Age and gender**

In the literature, age and gender are extensively studied in the context of burnout prevalence. Exposed disaster workers who were younger were at greater risk of acute stress disorder (Fullerton et al., 2004). A study conducted by Norris (1992) revealed that age was the strongest predictor; older persons showed consistently lower rates of PTSD. When considering instances of exposure, it was found that older individuals experienced more positive outcomes, particularly in relation to meeting the criteria for PTSD (Norris, 1992). This suggests that their lower rates of PTSD despite exposure may contradict the notion that they only reported their most significant life events. This age-related effect aligns with previous findings indicating that

people can develop resilience to stress as they age (Norris & Murrell, 1987, 1988).

Most previous efforts to understand gender differences in PTSD have focused on factors that distinguish male and female trauma survivors (Lilly et al., 2009; Tolin & Foa, 2006). These studies have found that men either equal or exceed women in frequency of exposure to most types of trauma (Kindermann et al., 2020, Breslau et al., 1999; Stein et al., 1997). After controlling for categories of trauma to which women are more highly exposed (e.g., sexual assault and domestic violence), women still show higher rates of PTSD (Breslau et al., 1999; Fullerton et al., 2001; Stein et al., 2000) and secondary traumatic stress (Baum, 2016).

In the literature, the effect of compassion satisfaction and compassion fatigue (both components of quality of life) has not been studied extensively in rescue workers operating during crisis periods, including the recent European refugee crisis. Bearing in mind the important objective to prevent burnout in rescue workers, there are few studies that research this component of quality of life and its relation with other components, the negative one (secondary traumatic stress) and the positive (compassion satisfaction), and with PTSD symptoms.

The three aims of the current study are: (a) to assess these variables and PTSD symptoms and quality of life among the rescue workers operating in the Open Arms rescue ship during the European refugee crisis, (b) to explore the potential differences in PTSD and quality-of-life prevalence between the different categories of rescue workers (higher in professionals vs. volunteer rescuers) and between gender (higher in female vs. male participants; and (c) given the importance of burnout in rescue workers populations, to explain burnout from different relevant variables such as age, compassion satisfaction, secondary traumatic stress, and PTSD components (intrusion, avoidance, and hyperarousal).

## **Materials and methods**

### **Participants**

One-hundred twenty-six volunteers (93 male, age  $M = 35.74$ ,  $SD = 10.87$ ) and 33 professionals (27 male, age  $M = 20.65$ ,  $SD = 8.24$ ) working in the Open Arms organization rescue ship operating in Aegean Sea for three years (2017–2019). The difference between professional and volunteer rescue workers is that professionals are employed by Open Arms under the same conditions as any other worker, while volunteers receive no financial compensation. Professionals were selected and hired by the organization based on the needs of the position to be filled. Volunteers contact the organization and offer to go on a mission, and Open Arms evaluates the

applications and makes the corresponding selection for the positions to be filled.

The duration of the missions was usually 15 days for volunteers and between 15 and 30 days for professionals (they could do two consecutive missions). Professionals who were part of the ship's crew usually worked 30 days (captain, machine operator, officers, etc.)

Briefings were held prior to starting the mission with volunteers and with new professionals who have not previously worked. In these briefings, all necessary information for the mission was provided at the operational, safety, and communication levels. Both professionals and volunteers have the possibility of participating in group psychological debriefings at the end of the mission. When specific individual interventions or follow-ups have been needed, they have also been carried out.

Participants work in several ship tasks: kitchen ( $n=12$ ), press ( $n=14$ ), lifeguard ( $n=56$ ), multi-missioned ( $n=21$ ), health ( $n=30$ ), captain ( $n=17$ ), and crew ( $n=16$ ), which will not be compared to each other in this text due to small subgroups sizes. The full sample duration of the participation (in months) is mean = 18.83 ( $SD=17.68$ ) (see Table 1).

The following inclusion criteria were adopted:

- a. being a professional or volunteer in Open Arms organization, and
- b. recent participation in one of their missions (usually, for 15 days)

At the end of the missions, professionals and volunteers were sent the link of the questionnaires.

## Ethics

The participants' rights were protected by following the ethical guidelines of the Declaration of Helsinki (World Medical Association 2013). The

**Table 1.** Participants demographics.

	Mean	<i>SD</i>	Minimum	Maximum	Cutoff score
Duration (months)	18.83	17.68	6	180	–
Age	36.69	10.46	19	66	–
Intrusion IES-R	5.37	4.27	0	26	–
Avoidance IES-R	2.56	3.13	0	13	–
Hyperarousal IES-R	1.91	2.19	0	9	–
Total IES-R	9.84	7.92	0	39	33
CS ProQOL	41.60	5.97	17	50	40
BO ProQOL	16.48	5.26	3	29	57
STS ProQOL	6.15	4.08	0	22	57

*Note.* IES-R: The Impact of the Stressful Event Scale; CS: compassion satisfaction, ProQOL: The Professional Quality of Life Scale- IV; BO: burnout; STS: secondary traumatic stress. Note that cutoff scores are shown as a reference of the sample values compared to healthy population validation (Weiss & Marmar, 1997, Morante-Benadero et al., 2006).

following ethical considerations were explicitly stated to the participants during the survey by Openarms: (a) participation in the study is voluntary, (b) there are no questions asking for personal information and answers are anonymous. Therefore participants cannot be identified, and (c) personal information will be protected and only used for research purposes

Participants were provided with:

- Briefings before missions,
- Individual accompaniment by the psychologist team during missions,
- Debriefings and
- Individual post-mission attention from the psychologist team if they were in need.

## ***Instruments***

### ***Demographic questionnaire***

Participants filled a self-designed questionnaire form of demographic information, including age, gender, number of work/volunteering days, and mission type.

### ***PTSD symptoms***

The Impact Scale of the Stressful Event (IES-R) (Horowitz et al., 1979) was implemented to assess PTSD symptoms of participants. It is a self-report measure of emotional distress due to a stressful life event and PTSD. IES-R has three subscales to assess intrusions, avoidance, and hyperarousal. It consists of 22 symptoms that are likely to be experienced by people after being exposed to negative events. Participants are asked to rate how frequently they experienced these symptoms during the past 7 days. The rating is made using a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). The total score of IES-R indicates the severity of PTSD symptoms (range 0–88). Also, subscale scores for intrusion, avoidance, and hyperarousal can be calculated. The Spanish version of IES-R has been translated and validated by Báguena et al. (2001)). The Spanish version of IES-R has a reliability score of  $r = .95$ .

### ***Professional quality of life***

The Professional Quality of Life Scale-IV (ProQOL-IV) (Stamm, 2010) was used to assess the compassion satisfaction and compassion fatigue of participants. It is a 30-item self-report measure to assess the positive (compassion satisfaction) and negative (compassion fatigue) effects of helping others and is targeted at people working in helping and caring professions (Stamm,



2010). The compassion fatigue aspect consists of burnout and secondary stress. ProQOL-IV has three subscales, which are compassion satisfaction, secondary traumatic stress, and burnout. Compassion satisfaction assesses gratification acquired from being an effective caregiver. A higher score on the compassion satisfaction subscale represents greater compassion satisfaction and better self-efficacy in caregiving work. The secondary traumatic stress component assesses work-related secondary exposure to extremely or traumatically stressful events. Higher scores are related to being exposed to frightening experiences at work. The burnout component in the scale relates to difficulties in dealing with work and feelings of hopelessness. Higher scores indicate a higher risk for burnout. The Spanish version of ProQOL-IV has been translated by Morante-Benadero et al. (2006). The reliability score of the Spanish version of the scale is  $r = .80$ .

### **Data analysis**

Descriptive and inferential statistics required to assess the objectives were performed using SPSS software (IBM Corp. Released 2019. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp). To perform group comparisons (volunteers vs professionals and gender comparison), due to group size differences, Welch two sample  $t$ -tests were used. Multiple regression analysis (stepwise method) was performed, taking burnout as the outcome variable.

## **Results**

### **Full sample results**

#### **Comparison volunteers vs professionals**

To compare the variables tested between the group of volunteers ( $n = 120$ ) and professionals ( $n = 33$ ), a mean comparison Welch two-sample  $t$ -test was performed (due to unequal variances and sample sizes). Results can be found in Table 2.

#### **Female vs. male volunteers**

To compare the variables tested between the group of males ( $n = 93$ ) and females ( $n = 33$ ), a mean comparison Welch two-sample  $t$ -test was performed (due to unequal variances and sample sizes). Results can be found in Table 3.

#### **Burnout regressors**

Multiple linear regression was calculated taking burnout as the dependent variable, using intrusion, avoidance, hyperarousal, compassion satisfaction,

**Table 2.** Comparison of volunteers and professional workers.

Variable	Volunteers		Professionals		<i>t</i>	<i>p</i>	Hedges' <i>g</i>	CI	
	Mean	<i>SD</i>	Mean	<i>SD</i>				Lower	Upper
Duration (months)	16.70	15.83	<b>23.96</b>	15.15	−2.26	<b>0.03</b>	−0.46	−0.88	−0.04
Age	35.74	10.87	<b>40.65</b>	8.24	−2.80	<b>0.007</b>	−0.50	−0.90	−0.10
Intrusion IES-R	5.61	4.46	4.93	3.73	0.88	0.38	0.16	−0.22	0.54
Avoidance IES-R	2.44	3.05	3.33	3.49	−1.33	0.18	−0.26	−0.65	0.11
Hyperarousal IES-R	1.80	2.08	2.42	2.67	−1.24	0.22	−0.25	−0.64	0.13
Total IES-R	9.85	7.81	10.69	8.78	−0.50	0.62	−0.10	−0.48	0.28
CS ProQOL	<b>42.54</b>	4.98	<b>37.90</b>	7.91	3.19	<b>0.003</b>	0.69	0.28	1.10
BO ProQOL	<b>16.01</b>	5.18	<b>19.06</b>	4.89	−3.14	<b>0.003</b>	−0.60	−0.99	−0.19
STS ProQOL	5.87	3.80	7.27	4.94	−1.51	0.13	−0.31	−0.70	0.07

Note: Welch two sample *t*-test. Bold results show higher mean group and significant results. IES-R: The Impact of the Stressful Event Scale; CS: compassion satisfaction; ProQOL: The Professional Quality of Life Scale- IV; BO: burnout; STS: secondary traumatic stress.

**Table 3.** Comparison between gender.

Variable	Female		Male		<i>t</i>	<i>p</i>	Hedges' <i>g</i>	CI	
	Mean	<i>SD</i>	Mean	<i>SD</i>				Lower	Upper
Duration (months)	<b>15.16</b>	5.19	<b>20.03</b>	20.05	−2.37	<b>0.019</b>	−0.33	−0.70	0.04
Age	34.39	9.18	37.17	10.61	−1.56	0.12	−0.27	−0.64	0.08
Intrusion IES-R	<b>7.57</b>	5.59	<b>4.69</b>	3.59	2.99	<b>0.004</b>	0.61	0.22	0.99
Avoidance IES-R	2.60	3.09	2.56	3.19	0.07	0.93	0.01	−0.34	0.37
Hyperarousal IES-R	2.10	2.06	1.84	2.24	0.65	0.51	0.11	−0.24	0.48
Total IES-R	12.28	9.32	9.10	7.41	1.92	0.05	0.37	0.004	0.74
CS ProQOL	41.89	5.50	41.44	6.08	0.43	0.66	0.07	−0.28	0.44
BO ProQOL	17.23	5.03	16.20	5.36	1.09	0.27	0.19	−0.16	0.56
STS ProQOL	<b>7.42</b>	4.64	<b>5.72</b>	3.84	2.04	<b>0.046</b>	0.39	0.02	0.76

Note: Welch two sample *t*-test. Bold results show higher mean group and significant results. IES-R: The Impact of the Stressful Event Scale; CS: compassion satisfaction, ProQOL: The Professional Quality of Life Scale- IV; BO: burnout; STS: secondary traumatic stress.

secondary stress, and age as regressors ( $R^2 = 0.34$ ;  $\text{Adj-}R^2 = 0.33$ ;  $F(3,163) = 28.01$ ;  $p < 0.001$ ). Results showed that secondary stress ( $b_{sd} = 0.46$ ), compassion satisfaction ( $b_{sd} = -0.21$ ), and age ( $b_{sd} = 0.16$ ) (all  $p < 0.001$ ) as significant regressors of burnout in all participants. Intrusion, avoidance, and hyperarousal did not significantly explain burnout (all  $p > 0.05$ ) (see Table 4). Bootstrapping ( $n = 5,000$ ) was also performed to avoid sample bias, revealed the same results.

To avoid a volunteer/professional effect on the multiple regression results (and due to the sample size impossibility of introducing this variable as a predictor), the same multiple regression analysis was performed only for the volunteers. A significant regression equation was found for compassion satisfaction, secondary stress, age, and hyperarousal ( $R^2 = 0.394$ ;  $\text{Adj-}R^2 = 0.37$ ;  $F(4,124) = 19.49$ ;  $p < 0.001$ ). Results showed that compassion satisfaction ( $b_{sd} = -0.25$ ,  $p = 0.001$ ), secondary stress ( $b_{sd} = 0.36$ ,  $p < 0.001$ ), age ( $b_{sd} = 0.21$ ,  $p = 0.003$ ), and hyperarousal ( $b_{sd} = 0.17$ ,  $p = 0.03$ ) were significant regressors for volunteers' burnout. Intrusion and avoidance did not predict burnout for volunteers (all  $p > 0.05$ ) (see Table 5). *Bootstrapping ( $n = 5,000$ ) was conducted to mitigate sample bias, and it yielded same findings.*

**Table 4.** Burnout (dependent) regressors (all participants).

	Beta unstandardized	Beta standardized	<i>t</i>	<i>p</i>	Beta CI Lower	Beta CI Upper
(Intercept)	18.04		5.91	$P < .001$	12.02	24.07
STS ProQOL	<b>0.59</b>	<b>0.46</b>	6.99	$P < .001$	0.42	0.76
CS ProQOL	<b>-0.19</b>	<b>-0.21</b>	-3.25	$P = .001$	-0.32	-0.07
Age	<b>0.08</b>	<b>0.16</b>	2.63	$P < .01$	0.02	0.14
Intrusion IES-R		0.05	0.71	0.476		
Avoidance IES-R		0.10	1.39	0.164		
Hyperarousal IES-R		0.14	1.95	0.053		

**Table 5.** Burnout (Dependent) regressors (volunteers).

	Beta unstandardized	Beta standardized	<i>t</i>	<i>p</i>	Beta CI Lower	Beta CI Upper
(Intercept)	20.08		16.11	$P < .001$	12.60	27.56
STS ProQOL	0.49	0.36	4.47	$P < .001$	0.27	0.71
CS ProQOL	-.26	-0.25	-3.42	<b>0.001</b>	-0.42	-0.11
Age	.10	0.21	3.00	<b>0.003</b>	0.03	0.17
Intrusion IES-R		-0.001	-0.007	0.99		
Avoidance IES-R		0.05	0.69	0.49		
Hyperarousal IES-R	.436	0.17	2.13	<b>0.035</b>	0.03	0.84

## Discussion

The larger part of the literature on the psychological effects of traumatic events is targeting victims, while a smaller part is targeting rescuers in the field. The present study managed to meet its objectives by assessing the effects of PTSD symptoms, burnout, and quality of life of this group of rescuers.

Results reveal that volunteer rescuers reported, compared to the professionals who were getting paid, having fewer mission hours, less stress impact, less avoidance and hyperarousal, and were younger in age. On the other hand, volunteer rescuers have significantly higher scores on intrusion on IES-R compared to professional rescuers. A similar study reveals higher intrusion scores in 434 volunteer rescuers compared to 154 soldiers in Turkey, after the 1999 Marmara Earthquake (Cetin et al., 2005).

Volunteers experience more life satisfaction, less burnout, and more secondary traumatic stress. In conjunction with the abovementioned higher intrusion scores, higher secondary traumatic stress scores on volunteer rescuers compared to professionals puts them at higher risk for PTSD prevalence. Compassion satisfaction is not correlated with the rest of the variables in professional rescuers, while it is correlated with volunteers.

In the literature, the associations between gender and PTSD-like symptoms among professionals with secondary exposure were unclear (Sprang et al., 2011). In our study, male participants, compared to females, have more mission hours and are older in age (minimum 3 years). Males compared to females have less secondary traumatic stress caused by traumatic events during the rescue work. This finding is in the same direction as the

results of the study of Sifaki-Pistolla et al. (2017) in terms of male rescue workers showing a significantly lower probability of PTSD development, and females had approximately two times higher chance for probable PTSD diagnosis during the rescue work in Lesvos. Another possible explanation for the variation in PTSD rates between genders is that women, as a collective, have consistently shown a tendency to express emotions more intensely compared to men (Brody, Brody, 1997; Fischer, 1993). Additionally, women are more prone to meeting the criteria for PTSD symptom A2, which involves experiencing intense distress during a traumatic event (Creamer et al., 2005). Scores on compassion satisfaction and burnout were similar between females and males. Our findings highlight the importance of paying more attention to women and volunteer rescuers and directing targeted interventions for PTSD.

In the present findings, 36.6% of the burnout is explained by secondary stress, compassion satisfaction, and age. This result aligns with an earlier meta-analysis conducted by Cieslak et al. (2014) from 41 original studies, which showed that the average association between secondary traumatic stress and burnout was positive and the effect size was large (weighted  $r = .69$ ). In the literature, older age is associated with less effect on burnout. In our study, results revealed an increase on burnout symptoms by age. In our study, the higher prevalence of burnout among older individuals may be a result of being a volunteer rather than solely attributed to age, since age as a regressor is more relevant when the analysis is focused on volunteers.

In all missions, the level of compassion satisfaction is high, but it is higher in multipurpose workers, lifeguards, and health workers. There is a low level of burnout in total participants, but it is higher in professionals who work in the press and in the kitchen. These findings are consistent with the study of Cook et al. (1993) that found an increased level of burnout associated with involvement in work, supervisor support, clarity about job expectations, physical comfort, and higher levels of work pressure. Press and kitchen staff, compared to the rest of the participants, could be less prepared for the stress level they were exposed to and this could have led to higher burnout scores. Despite the small sample size in every different mission group, we consider it important to focus on differences in PTSD prevalence among them. Future research can focus on the effects of burnout on specific occupational groups in larger sample sizes, providing service in rescue work.

At the level of evolution between the different missions, there are no significant results, but as the number of missions that participants performed increases, burnout, and secondary stress levels they experience also

increase. Participants in different missions showed a similar level of intrusion, avoidance, and hyperarousal.

It is of important relevance to create preventive and treatment programs for the psychological well-being of rescuers (before, during, and after the missions) to reduce burnout as the team of psychologists do in Open Arms and to include psychologists in this kind of mission. As a volunteer said to the psychologist team after the mission: “Thank you very much for the greatness with which you have treated us, always ready at any time to give that encouragement we need.”

## Limitations

This study has a cross-sectional design, in which the data on all variables are only collected at one time point due to the nature of the research field. This design made it difficult to derive a causal inference between predictors and burnout for this study.

In spite of the application of validated instruments to obtain reliable information in this study, selected questionnaires were self-report based. We could not conduct any clinical or diagnostic interviews during the operations for PTSD symptoms due to the limited time that participants had between operations. This may have caused some minor overestimations in results. The data of this study come from a specific disaster with a specific location (Open Arms ship operating in the Aegean Sea).

The difference in sample sizes of volunteers and professionals is another limitation of the study. Because of the characteristics of this kind of boat, the number of volunteers is higher than the number of professionals; this difference in the sample has been tried to control using specific statistics (like Welch’s two-samples comparison). We do not include gender in the regression analyses also because of the sample characteristics (which, due to there being only one Open Arms ship, and we have data from all the operations, these are also the population characteristics). There are only five females with a paid contract; this prevents us from regression using gender and status at the same time. For these reasons, the results of the study should be interpreted carefully for rescue workers in different settings.

## Conclusions

The present study aimed to explore factors that influence burnout among volunteer and professional rescue workers, including various occupational groups working on different tasks in the rescue ship. The major strength of this study is that it identified several factors that could predict burnout and quality of life of participants that could be helpful to create preventive

programs for the psychological well-being of rescuers. It is necessary to focus on burnout especially in professional workers providing aid and assistance, and secondary traumatic stress in volunteers and in female rescuers. The present study confirms that the professional and volunteer rescue workers operating in the Aegean Sea to help the refugees encounter a considerable level of these PTSD symptoms. There is an immediate requirement for targeted interventions to prevent rescue workers from these risk factors of PTSD. Additional research on the specific needs of rescue workers is necessary to determine tailored interventions.

## Acknowledgements

The authors would like to acknowledge the significant contribution of all participating rescuers and foundations in the current study, during the most crucial period of the European refugee crisis.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Notes on contributors

**Duygu Kocer**, MSc in clinical psychology. Doctoral student at the Faculty of Psychology, Education and Sport Sciences, Ramon Llull University. Member of the staff on the Research Group in Communication and Health.

**Núria Farriols**, PhD in psychology. Professor of cognitive-behavioral models at the Faculty of Psychology, Education and Sport Sciences, Ramon Llull University. Member of the staff on the Research Group in Communication and Health. Clinical psychologist at the Adult Mental Health Center of Mataró's Hospital, Consorci Sanitari del Maresme.

**Ignacio Cifre**, PhD in animal biology and methods and statistics professor at the Faculty of Psychology, Education and Sport Sciences, Ramon Llull University. Member of the staff on the Research Group in Communication and Health.

**Mercè Nomen**, Open Arms psychologist, La Fundació Galatea psychologist.

**Marga Lalande**, general health psychologist. Founder and coordinator of the psychological support team for maritime rescue members at Open Arms (2015–2020).

**Alma Calvelo** General health psychologist and master in forensic psychology. Psychological support team member in the Maritime Rescue Team at Open Arms until 2020.

## ORCID

Duygu Kocer  <http://orcid.org/0000-0001-5065-764X>

Núria Farriols  <http://orcid.org/0000-0001-8302-9420>

Ignacio Cifre  <http://orcid.org/0000-0003-0644-6022>

## Data availability statement

The data that support the findings of this study are available on request from authors.

## References

- Adams, R. E., Boscarino, J. A., & Figley, C. R. (2006). Compassion fatigue and psychological distress among social workers: a validation study. *The American Journal of Orthopsychiatry*, 76(1), 103–108. <https://doi.org/10.1037/0002-9432.76.1.103>
- Alexander, D. A., & Klein, S. (2001). Ambulance personnel and critical incidents: impact of accident and emergency work on mental health and emotional well-being. *The British Journal of Psychiatry: The Journal of Mental Science*, 178(1), 76–81. <https://doi.org/10.1192/bjp.178.1.76>
- Ângelo, R. P., & Chambel, M. J. (2013). An intervention with firefighters to promote psychological occupational health according to the Job Demands-Resources Model. *Revista de Psicología Social*, 28(2), 197–210. <https://doi.org/10.1174/021347413806196753>
- Báguena, M. J., Villarroya, E., Beleña, Á., Amelia, D., Roldán, C., & Reig, R. Propiedades psicométricas de la versión española de la Escala Revisada de Impacto del Estresor (EIE-R) [Psychometric properties of the Spanish version of the Impact of Event Scale-Revised (IES-R)]. *Análisis y Modificación De Conducta*, (2001).
- American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). <https://doi.org/10.1176/appi.books.9780890425787>
- Baum, N. (2016). Secondary traumatization in mental health professionals: A systematic review of gender findings. *Trauma, Violence & Abuse*, 17(2), 221–235. <https://doi.org/10.1177/1524838015584357>
- Benedek, D. M., Fullerton, C., & Ursano, R. J. (2007). First responders: mental health consequences of natural and human-made disasters for public health and public safety workers. *Annual Review of Public Health*, 28(1), 55–68. <https://doi.org/10.1146/annurev.publhealth.28.021406.144037>
- Berger, W., Coutinho, E. S. F., Figueira, I., Marques-Portella, C., Luz, M. P., Neylan, T. C., Marmar, C. R., & Mendlowicz, M. V. (2012). Rescuers at risk: a systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. *Social Psychiatry and Psychiatric Epidemiology*, 47(6), 1001–1011. <https://doi.org/10.1007/s00127-011-0408-2>
- Breslau, N., Chilcoat, H. D., Kessler, R. C., & Davis, G. C. (1999). Previous exposure to trauma and PTSD effects of subsequent trauma: results from the Detroit Area Survey of Trauma. *The American Journal of Psychiatry*, 156(6), 902–907. <https://doi.org/10.1176/ajp.156.6.902>
- Bride, B. E., & Figley, C. R. (2009). Secondary trauma and military veteran caregivers. *Smith College Studies in Social Work*, 79(3-4), 314–329. <https://doi.org/10.1080/00377310903130357>
- Brody, L. R. (1997). Gender and Emotion: Beyond Stereotypes. *Journal of Social Issues*, 53(2), 369–393. <https://doi.org/10.1111/j.1540-4560.1997.tb02448.x>
- Chatzea, V. E., Sifaki-Pistolla, D., Vlachaki, S. A., Melidoniotis, E., & Pistolla, G. (2018). PTSD, burnout and well-being among rescue workers: Seeking to understand the impact of the European refugee crisis on rescuers. *Psychiatry Research*, 262, 446–451. <https://doi.org/10.1016/j.psychres.2017.09.022>
- 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. *Psychological Services*, 11(1), 75–86. <https://doi.org/10.1037/a0033798>
- Cook, B. B., Banks, S. R., & Turner, R. J. (1993). The effects of work environment on burnout in the newsroom. *Newspaper Research Journal*, 14(3-4), 123–136. <https://doi.org/10.1177/073953299301400313>
- Creamer, M., McFarlane, A. C., & Burgess, P. (2005). Psychopathology following trauma: The role of subjective experience. *Journal of Affective Disorders*, 86(2-3), 175–182. <https://doi.org/10.1016/j.jad.2005.01.015>
- de Vries, G. J., & Olff, M. (2009). The lifetime prevalence of traumatic events and posttraumatic stress disorder in the Netherlands. *Journal of Traumatic Stress*, 22(4), 259–267. <https://doi.org/10.1002/jts.20429>
- Drury, V., Craigie, M., Francis, K., Aoun, S., & Hegney, D. G. (2014). Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: Phase 2 results. *Journal of Nursing Management*, 22(4), 519–531. <https://doi.org/10.1111/jonm.12168>
- Figley, C. R. (Ed.). (1995). *Compassion fatigue: Coping with secondary traumatic stress in those who treat the traumatized*. Brunner/Mazel, Publishers.
- Figley, C. R. (Ed.). (2002). *Treating compassion fatigue*. Brunner-Routledge.
- Fullerton, C. S., Ursano, R. J., Epstein, R. S., Crowley, B., Vance, K., Kao, T. C., Dougall, A., & Baum, A. (2001). Gender differences in posttraumatic stress disorder after motor vehicle accidents. *The American Journal of Psychiatry*, 158(9), 1486–1491. <https://doi.org/10.1176/appi.ajp.158.9.1486>
- Fullerton, C. S., Ursano, R. J., & Wang, L. (2004). Acute stress disorder, posttraumatic stress disorder, and depression in disaster or rescue workers. *The American Journal of Psychiatry*, 161(8), 1370–1376. <https://doi.org/10.1176/appi.ajp.161.8.1370>
- Hagh-Shenas, H., Goodarzi, M. A., Dehbozorgi, G., & Farashbandi, H. (2005). Psychological consequences of the Bam earthquake on professional and nonprofessional helpers. *Journal of Traumatic Stress*, 18(5), 477–483. <https://doi.org/10.1002/jts.20055>
- Heinrichs, M., Wagner, D., Schoch, W., Soravia, L. M., Hellhammer, D. H., & Ehlert, U. (2005). Predicting posttraumatic stress symptoms from pre traumatic risk factors: a 2-year prospective follow-up study in firefighters. *The American Journal of Psychiatry*, 162(12), 2276–2286. <https://doi.org/10.1176/appi.ajp.162.12.2276>
- Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, 41(3), 209–218. <https://doi.org/10.1097/00006842-197905000-00004>
- Katsavouni, F., Bebetos, E., Malliou, P., & Beneka, A. (2016). The relationship between burnout, PTSD symptoms and injuries in firefighters. *Occupational Medicine (Oxford, England)*, 66(1), 32–37. <https://doi.org/10.1093/occmed/kqv144>
- Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 617–627. <https://doi.org/10.1001/archpsyc.62.6.617>
- Kindermann, D., Sanzenbacher, M., Nagy, E., Greinacher, A., Cranz, A., Nikendei, A., Friederich, H.-C., & Nikendei, C. (2020). Prevalence and risk factors of secondary traumatic stress in emergency call-takers and dispatchers—a cross-sectional study. *European Journal of Psychotraumatology*, 11(1), 1799478. <https://doi.org/10.1080/20008198.2020.1799478>
- Kyron, M. J., Rikkers, W., LaMontagne, A., Bartlett, J., & Lawrence, D. (2022). Work-related and nonwork stressors, PTSD, and psychological distress: Prevalence and



- attributable burden among Australian police and emergency services employees. *Psychological Trauma: theory, Research, Practice and Policy*, 14(7), 1124–1133. <https://doi.org/10.1037/tra0000536>
- Lilly, M. M., Pole, N., Best, S. R., Metzler, T., & Marmar, C. R. (2009). Gender and PTSD: What can we learn from female police officers? *Journal of Anxiety Disorders*, 23(6), 767–774. <https://doi.org/10.1016/j.janxdis.2009.02.015>
- Marmar, C. R., Weiss, D. S., Metzler, T. J., Ronfeldt, H. M., & Foreman, C. (1996). Stress responses of emergency services personnel to the Loma Prieta earthquake Interstate 880 freeway collapse and control traumatic incidents. *Journal of Traumatic Stress*, 9(1), 63–85. <https://doi.org/10.1002/jts.2490090107>
- McManus, I. C., Winder, B. C., & Gordon, D. (2002). The causal links between stress and burnout in a longitudinal study of UK doctors. *Lancet (London, England)*, 359(9323), 2089–2090. [https://doi.org/10.1016/s0140-6736\(02\)08915-8](https://doi.org/10.1016/s0140-6736(02)08915-8)
- Middleton, J. (2015). Addressing secondary trauma and compassion fatigue in work with older veterans: An ethical imperative. *Journal of Ageing Life Care*, 5, 1–8.
- Morante-Benadero, M. E., Moreno-Jiménez, B., & Rodríguez-Muñoz, A. (2006). *Professional satisfaction and fatigue subscales—Version IV (ProQOL)*. Spanish Translation of the Instrument. Universidad Autónoma de Madrid.
- Norris, F. H. (1992). Epidemiology of trauma: frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology*, 60(3), 409–418. <https://doi.org/10.1037//0022-006x.60.3.4091619095>
- Norris, F. H., & Murrell, S. (1988). Prior experience as a moderator of disaster impact on anxiety symptoms in older adults. *American Journal of Community Psychology*, 16(5), 665–683. <https://doi.org/10.1007/BF00930020>
- Norris, F. H., Friedman, M. J., & Watson, P. J. (2002). 60,000 disaster victims speak: Part II. Summary and implications of the disaster mental health research. *Psychiatry*, 65(3), 240–260. <https://doi.org/10.1521/psyc.65.3.240.20169>
- Ozen, S., & Sir, A. (2004). Frequency of PTSD in a group of search and rescue workers two months after 2003 Bingöl (Turkey) earthquake. *The Journal of Nervous and Mental Disease*, 192(8), 573–575. <https://doi.org/10.1097/01.nmd.0000135573.47316.67>
- Perrin, M. A., DiGrande, L., Wheeler, K., Thorpe, L., Farfel, M., & Brackbill, R. (2007). Differences in PTSD prevalence and associated risk factors among World Trade Center disaster rescue and recovery workers. *The American Journal of Psychiatry*, 164(9), 1385–1394. <https://doi.org/10.1176/appi.ajp.2007.06101645>
- Pines, A., & Aronson, E. (1988). *Career burnout: Causes and cures*. Free Press.
- Ray, S. L., Wong, C., White, D., & Heaslip, K. (2013). Compassion satisfaction, compassion fatigue, work life conditions, and burnout among frontline mental health care professionals. *Traumatology*, 19(4), 255–267. <https://doi.org/10.1177/1534765612471144>
- Ruiz-Fernández, M. D., Ramos-Pichardo, J. D., Ibáñez-Masero, O., Cabrera-Troya, J., Carmona-Rega, M. I., & Ortega-Galán, Á. M. (2020). Compassion fatigue, burnout, compassion satisfaction and perceived stress in healthcare professionals during the COVID-19 health crisis in Spain. *Journal of Clinical Nursing*, 29(21–22), 4321–4330. <https://doi.org/10.1111/jocn.15469>
- Setou, N., Fukumori, T., Nakao, K., & Maeda, M. (2018). Factors related to the fatigue of relief workers in areas affected by the Great East Japan Earthquake: survey results 2.5 years after the disaster. *BioPsychoSocial Medicine*, 12(1), 14. <https://doi.org/10.1186/s13030-018-0133-0>

- Setti, I., & Argentero, P. (2016). Traumatization and PTSD in rescue workers: prevention, assessment, and interventions. In *Comprehensive Guide to Post-Traumatic Stress Disorders* (pp. 301–317). Springer International Publishing.
- Sifaki-Pistolla, D., Chatzea, V. E., Vlachaki, S. A., Melidoniotis, E., & Pistolla, G. (2017). Who is going to rescue the rescuers? Post-traumatic stress disorder among rescue workers operating in Greece during the European refugee crisis. *Social Psychiatry and Psychiatric Epidemiology*, 52(1), 45–54. <https://doi.org/10.1007/s00127-016-1302-8>
- Sprang, G., Craig, C., & Clark, J. (2011). Secondary traumatic stress and burnout in child welfare workers. *Child Welfare*, 90(6), 149–168.
- Stamm, B. H. (2002). Measuring compassion satisfaction as well as fatigue: Developmental history of the Compassion Satisfaction and Fatigue Test. In C. R. Figley (Ed.), *Treating compassion fatigue* (pp. 107–119) Brunner-Routledge.
- Stamm, B. H. (2010). *The Concise ProQOL Manual* (2nd ed.). ProQOL.org.
- Stein, M. B., Walker, J. R., Hazen, A. L., & Forde, D. R. (1997). Full and partial posttraumatic stress disorder: findings from a community survey. *The American Journal of Psychiatry*, 154(8), 1114–1119. <https://doi.org/10.1176/ajp.154.8.1114>
- Stein, M. B., Walker, J. R., & Forde, D. R. (2000). Gender differences in susceptibility to posttraumatic stress disorder. *Behaviour Research and Therapy*, 38(6), 619–628. [https://doi.org/10.1016/s0005-7967\(99\)00098-4](https://doi.org/10.1016/s0005-7967(99)00098-4)
- Tolin, D. F., & Foa, E. B. (2006). Sex differences in trauma and post traumatic stress disorder. *Psychological Bulletin*, 132(6), 959–992. <https://doi.org/10.1037/0033-2909.132.6.959>
- Weiss, D. S., & Marmar, C. R. (1997). The impact of event scale—revised. In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 399–411). The Guilford Press.
- World Medical Association. (2013). World medical association declaration of Helsinki: Ethical principles for medical research involving human subjects. *JAMA*, 310(20), 2,191–2,194.
- United Nations High Commissioner for Refugees (UNHCR). (2019). *Europe - Refugee and Migrant arrivals data as of 26 July 2019*. <https://data2.unhcr.org/en/situations/mediterranean?Id=83>
- Zaidi, S. M. I. H., Yaqoob, N., & Saeed, H. (2017). Compassion satisfaction, secondary traumatic stress and burnout among rescuers. *Journal of Postgraduate Medical Institute*, 31(3), 7,228.