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MEDIATING ROLE OF COMPASSION FATIGUE IN THE RELATIONSHIP BETWEEN TRAUMA AND QUALITY OF LIFE

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Due to the emotional and traumatic nature of disasters and other critical incidents, there is a high demand for effective disaster responders (Cicognani et al., 2009; Gonzalez et al., 2019). Professionals in this field are called upon to provide assistance and critical care to individuals who have experienced trauma directly. However, the psychological consequences of traumatic events tend to have a “ripple effect” which can also affect the professionals involved, as is the case of firefighters (Gonzalez et al., 2019). Even though firefighters do not experience trauma directly and are not directly affected by the impact of events themselves, their experience of trauma comes from helping suffering people, i.e., indirect exposure (Gonzalez et al., 2019). Therefore, as a result of their work with highly distressed individuals who have experienced trauma, firefighters are at risk of developing Compassion Fatigue (CF) (Figley, 1995b). CF is characterized by physical and emotional exhaustion and a pronounced reduction in the ability to feel empathy and compassion for others (Gonzalez et al., 2019; Stamm, 2002; Turgoose & Maddox, 2017). CF is positively correlated with, and predicted by, negative life events, lifetime traumatic events, or trauma history (Gonzalez et al., 2019; Thomas & Otis, 2010), namely suffering a negative life event in the past 12 months (Gonzalez et al., 2019).

These critical situations can cause both physical and mental impairment in firefighters as well as diminishing their Quality of life (QoL) (Oliveira et al., 2018) and being related to higher risk of mental health problems (Cicognani et al., 2009). It should be emphasized that QoL is a subjective, multidimensional concept and establishes relationships between different domains: physical, psychological, social, and environmental (The WHOQOL Group, 1998). Thus, firefighters' QoL should not be reduced to the absence of negative consequences, and the focus should also be on the positive effects of a caring profession (Cicognani et al., 2009). It is known that a good work ability is related to better perception of various domains of QoL (Oliveira et al., 2018). Even though firefighter workgroups may have harmonious relationships, throughout the profession emotional and psychological problems may arise and negatively affect good co-existence, as well as interfering with the individual's work and QoL (Oliveira et al., 2018; Santos & Almeida, 2016).

For this reason, study and understanding of the effect of trauma on firefighters' QoL is a subject of interest, with a view to seeking improvements in their working conditions and psychosocial environment, promoting health and developing each professional's competence in the work context. Although we also know that trauma is related to CF, it is unclear how much the meaning of trauma influences psychosocial outcomes such as QoL, through CF, among firefighters. Thus, we explored the association between trauma, CF, and QoL. Based on the emergent literature, we hypothesized that the relation between these variables is likely to be complex, that is, more trauma experienced in firefighters' lives may be associated with lower QoL through greater CF.

METHOD

Participants

The sample included 488 Portuguese firefighters, over the age of 18, without any cognitive or physical inability preventing them from independently replying to the self-report measures.

Material

All participants completed a sociodemographic questionnaire that collected information about age, sex, partnership status and level of education. The firefighters also completed a protocol questionnaire that included questions related to their category in the firefighter corporation and years of experience.

Impact of Event Scale-Revised (IES-R) (Matos et al., 2011): The IES-R assesses the subjective suffering from a specific life event. It contains 22 items distributed over three subscales: intrusion (8 items), avoidance (8 items), and hyperarousal (6 items). Each item is answered using a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The Cronbach alpha of the sample studied (0.97) and original (0.96) reveals excellent internal consistency.

Compassion Fatigue-Short Scale (Pt-CF-Short Scale) (Rodrigues et al., 2021): The Pt-CF-Short Scale is a scale to evaluate CF in situations of work as a firefighter. It includes 13 items distributed over two dimensions: secondary trauma (5 items) and job burnout (8 items). The respondent should indicate the number that best reflects their experiences using a rating scale ranging from 1 (never/rarely) to 10 (very frequently). The Cronbach alpha of our sample is 0.89, confirming a good internal consistency.

World Health Organization Quality of Life-BREF (WHOQOL-BREF) (Serra et al., 2006): The WHOQOL-BREF is an instrument that measures QoL. It is organized in four domains: physical, psychological, social relationships, and environment. This instrument comprises 26 items, answered on a 5-point Likert scale, in which 2 correspond to general perception of QoL and the remaining 24 correspond to the four domains. The Cronbach alpha confirms good internal consistency when considering the set of 26 items of full scale (0.84).

Procedures

This cross-sectional study included firefighters recruited from fire departments in Portugal. The study was approved by the Ethics and Deontology Council of the University of Aveiro. Those in charge of 41 Portuguese Fire Departments were initially contacted to obtain authorization to administer the questionnaires to firefighters at the beginning or end of an instruction/meeting or another time, or asked to disseminate the study.

The aims of the study were explained to the leaders and firefighters, emphasizing that their cooperation was voluntary, and confidentiality was ensured. Paper-and-pencil questionnaires were the preferential data-collection method adopted in this study. The entire protocol was also available via the online server of the University of Aveiro to increase the sample size since there is extensive evidence that the two forms of data collection are equivalent (Gwaltney et al., 2008).

Data analysis was performed with IBM SPSS software, version 26, and IBM Amos software, version 26. Pearson's correlations were used to evaluate the bivariate relations between trauma, CF, and psychosocial aspects. The correlations were classified as weak (0-0.3), moderate (0.3-0.7) and strong ($>0.7-1.0$) (Ratner, 2009). To test the mediating effect of CF, a path analysis was conducted using AMOS. Trauma was defined as an exogenous variable and psychological distress and QoL as endogenous variables. Bootstrap procedures using 5000 samples were used to obtain the confidence intervals and significance of the indirect effects (Hayes, 2009) The bias-corrected 95% bootstrap confidence intervals that do not include zero determined a significant mediation effect. To assess the overall model fit, the chi-square statistics (χ^2), comparative fit index (CFI), standardized root mean residual (SRMR), and root mean square error of approximation (RMSEA) were used. Non-significant χ^2 values and CFI equal to or greater than 0.95, SRMR value below 0.08, and RMSEA below 0.06 were required for a well-fitting model (Hu & Bentler, 1999).

RESULTS

Descriptive statistics

Participants had an average age of 35.58 years (standard deviation [SD]=11.40). Of the 488 respondents, 73.4% were men and 26.6% were women, of whom 48% were married or living in a cohabitation relationship, 46% were single and 8.4% were widowed, divorced/separated, and the majority of firefighters belonged to the Fire Department of the North (54.1%), followed by the Center (42.4%) and South (3.5%). Regarding the level of education, half the sample (50.4%) had secondary education, 29.1%

had basic education and 20.5% had higher education. More than half the participants were volunteer firefighters (54.1%) or employees of a fire association (34.4%). As for their category in the firefighter corporation, most of the firefighters recruited were 1st class firefighters (9.9%), 2nd class firefighters (22.6%), or 3rd class firefighters (39.7%). In decreasing order, the firefighter sample is divided into chief/sub-chief (11.1%), command team (7.4%), intern (6.2%), official (2.1%), and specialist driver (1.0%). The mean number of years of work experience was 13.79 ($SD=10.68$), ranging between zero and 47 years.

Relationship between trauma, compassion fatigue and quality of life

There was a moderate positive correlation between trauma and CF. CF was weak and negatively associated with all sub-scales of QoL – physical, psychological, social relationships, and environmental. Trauma was also negatively associated with all sub-scales of QoL. In turn, higher levels of trauma were associated with lower QoL (see Table 1).

Table 1

Pearson correlations between trauma, Compassion Fatigue and quality of life

Variables	Mean (SD)	1	2	3	4	5	6
1. Trauma	14.04 (17.61)	1					
2. Compassion Fatigue	36.25 (19.69)	.457*	1				
3. Physical	28.52 (4.00)	-.199*	-.289*	1			
4. Psychological	24.63 (3.92)	-.203*	-.259*	.532*	1		
5. Social relationships	12.01 (2.07)	-.197*	-.197*	.516*	.595*	1	
6. Environment	29.61 (4.27)	-.272*	-.279*	.608*	.543*	.620*	1

Path analysis: The role of Compassion Fatigue

A path model examining the indirect effect of trauma on QoL through CF is shown in Figure 1. Trauma and CF were represented by single indicators, while physical, psychological, social relationships, and environment were specified as indicators of a single latent variable (unobserved) designated

QoL. Direct paths were controlled, and dependent errors were correlated. The fit indexes indicated the good fit of the model [$\chi^2(8)=25.731$, $p<.001$; CFI=.981, SRMR=.0254, RMSEA=0.067].

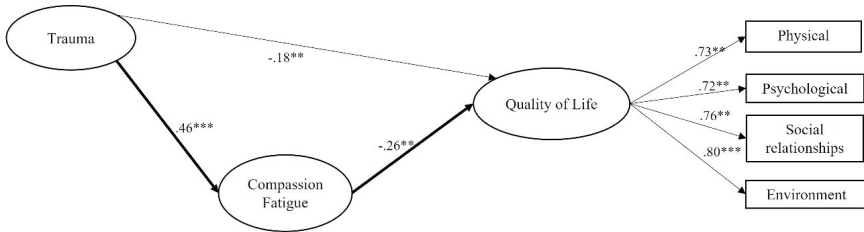


Figure 1. Path model examining the mediating role of Compassion Fatigue. *Note.* *** $p<0.001$; ** $p<0.01$; * $p<0.05$. Thick lines illustrate the mediation effect.

As hypothesized, the positive direct effect of trauma on QoL assessed through physical, psychological, social relationships, and environment (-0.457 BC 95% CI: 0.365 to 0.542, $p<0.01$) indicated that higher trauma levels were associated with worse QoL. Then there was the effect of trauma on QoL partially mediated by CF (-0.176 BC 95% CI: -0.174 to -0.067, $p<0.01$), that is, higher levels of trauma in firefighters were associated with increased CF, and consequently, they reported a poorer QoL.

DISCUSSION

Firefighters, who are exposed to traumatic events, may feel that they will be immune to the cumulative stress of trauma. It is known that firefighters are exposed to emergencies and critical situations, and to individuals who have directly experienced a traumatic event. However, this exposure can cause PTSD and lead to emotional exhaustion and work limitations (Gonzalez et al., 2019). Thus, in this study explored the association between trauma, CF, and QoL, and corroborating with literature, we known trauma are correlation positively with CF (Gonzalez et al., 2019; Thomas & Otis, 2010), and negatively with QoL (Oliveira et al., 2018), as well as CF are

negatively associated with QoL (Gonzalez et al., 2019; Thomas & Otis, 2010). By exposition to trauma that firefighters are subjected in their work, they are vulnerability to develop mental health problems (Cicognani et al., 2009).

CF is a useful and more general term to describe the emotional and physical fatigue experienced by professionals due to their chronic use of empathy in helping others in distress (Figley, 1995a; Stamm, 2002). CF refers therefore to psychological and emotional exhaustion, associated with feelings of hopelessness and difficulties in dealing with work or in doing one's job effectively, sometimes in the context of high workloads or a non-supportive work environment (Gonzalez et al., 2019; Stamm, 2002; Turgoose & Maddox, 2017). It is also associated with a reduced sense of professional accomplishment (Turgoose & Maddox, 2017). In this turn, we found an evidence that, beyond a positive direct effect of trauma on QoL CF plays a partially mediating role in relationship between trauma and QoL, which in other words means that greater levels of trauma in firefighters were associated with increased CF, and consequently, worse of QoL. The factors influencing the development of CF are numerous and the relationships between them complex. It is known that past traumas in professionals, empathy, and exposure to trauma, and the distress of others are factors commonly associated with higher CF (Turgoose & Maddox, 2017).

These critical events can have consequences such as post-traumatic stress, which directly jeopardizes health, as well as affecting the firefighter's QoL (Oliveira et al., 2018). The type of traumatic events, especially those most vividly remembered, are related to work limitations in firefighters, i.e., the more severe the traumatic event a firefighter has experienced, the greater the level of work-related stress. Previous trauma history is also related to higher CF (Gonzalez et al., 2019). It is also important to mention that the lack of leisure associated with a lack of health care, in addition to work environment problems and performance of other work activities, can compromise the firefighter's work ability and health (Rodrigues et al., 2018). Although professionals can have strategies to adopt in the case of trauma, it is important to note that problems can arise in the work environment, such as the appearance of occupational risks, problems in interpersonal relationships with colleagues, and stress. All these factors influence individuals' QoL and their work ability (Oliveira et al., 2018).

It can be assumed that the work-related trauma experience of firefighters alone may cause work limitations and reduced QoL (Kim et al., 2019). Good psychological preparation is of great importance for firefighters' work, since experiencing emergencies requires a high degree of commitment and swift action. Those with the capacity to adapt and maintain psychological and emotional balance, and good social support networks, who feel satisfied and competent in their work, tend to be less susceptible to the negative effects of indirect exposure to trauma (Gonzalez et al., 2019). Because professionals' trauma history is associated with CF, we suggest that firefighter organizations should provide services to help firefighters to process personal traumas and protect against CF. Other programs should include resiliency and mindfulness training strategies and programs that strengthen workers' effectiveness and well-being (Gonzalez et al., 2019).

The major contribution of this study is to show the psycho-social impact of trauma on the life of firefighters working with emergencies. This study provided better understanding of the psychological mechanisms involved in responding to the challenges in a firefighter's life, highlighting the mediating role of CF. Therefore, it is extremely important to allocate more psychologists to fire brigades, to support and equip firefighters with mechanisms and skills to deal with the challenges of their professional and personal lives, meaning that firefighters will provide better assistance in emergencies. These findings provide further evidence for greater understanding of firefighters' personal growth.

Our study has the following limitations. As this is a cross-sectional study, it is not easy to deduce causality. Additional follow-up studies are needed. In the future, longitudinal research on how trauma at work affects firefighters' QoL in the medium and long term is needed. Additionally, our research was limited by self-reported survey data from all our participants. Because these surveys asked participants to think back on potentially traumatic events occurring in the past 12 months, their recollection of these events may have been biased or incomplete. For future study, it could be interesting to explore how the severity of traumatic events and frequency of exposure may also be a factor affecting trauma, and consequently QoL, in firefighters.

REFERENCES

- Cicognani, E., Pietrantonio, L., Palestini, L., & Prati, G. (2009). Emergency workers' quality of life: The protective role of sense of community, efficacy beliefs and coping strategies. *Social Indicators Research*, *94*(3), 449-463. <https://doi.org/10.1007/s11205-009-9441-x>
- Figley, C. R. (1995a). *Compassion Fatigue/Satisfaction Self-Test (CFS)*. <http://nwdrugtaskforce.ie/wp-content/uploads/2013/01/Compassion-Fatigue-Handout-6.pdf>
- Figley, C. R. (1995b). Compassion fatigue as secondary traumatic stress disorder: An overview. In C. R. Figley (Ed.), *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized* (pp. 1-20). Brunner-Routledge.
- Gonzalez, T. C., Burnett, H. J., Helm, H., & Edwards, L. (2019). An examination of resilience, compassion fatigue, burnout, and compassion satisfaction between men and women among trauma responders. *North American Journal of Psychology*, *21*(1), 1-20.
- Gwaltney, C. J., Shields, A. L., & Shiffman, S. (2008). Equivalence of electronic and paper-and-pencil administration of patient-reported outcome measures: A meta-analytic review. *Value in Health*, *11*(2), 322-333. <https://doi.org/10.1111/j.1524-4733.2007.00231.x>
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, *76*(4), 408-420. <https://doi.org/10.1080/03637750903310360>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Kim, W., Bae, M., Chang, S.-J., Yoon, J.-H., Jeong, D. Y., Hyun, D.-S., Ryu, H.-Y., Park, K.-S., Kim, M.-J., & Kim, C. (2019). Effect of burnout on post-traumatic stress disorder symptoms among firefighters in Korea: Data from the Firefighter Research on Enhancement of Safety & Health (FRESH). *Journal of Preventive Medicine and Public Health*, *52*(6), 345-354. <https://doi.org/10.3961/jpmph.19.116>
- Matos, M., Pinto-Gouveia, J., & Martins, S. (2011). O impacto traumático de experiências de vergonha: Estudo das propriedades psicométricas da versão portuguesa da Impact of Event Scale – Revised. *Psicologica*, *54*, 413-438.
- Oliveira, B. G. de, Bonfím, E. S., Ribeiro, Í. J. S., Almeida, P. J. R. F., Boery, R. N. S. O., & Boery, E. N. (2018). Influence of work ability on the quality of life of military firefighters. *Cogitare Enfermagem*, *23*(4), 4-13. <https://doi.org/10.5380/ce.v23i4.55419>
- Ratner, B. (2009). The correlation coefficient: Its values range between +1/-1, or do they?. *Journal of Targeting Measurement and Analysis for Marketing*, *17*(2), 139-142. <https://doi.org/10.1057/jt.2009.5>

- Rodrigues, F., Bartolo, A., Pacheco, E., Pereira, A., Silva, C. F., & Oliveira, C. (2018). Psycho-Education for Anxiety Disorders in Adults: A Systematic Review of its Effectiveness. *Journal of Forensic Psychology*, 3(1). <https://doi.org/10.4172/2475-319X.1000142>
- Rodrigues, F., Bárto, A., Sabino, D., Santos, I. M., Pereira, A., Silva, C. F., & Boscarino, J. A. (2021). Validation of the Compassion Fatigue Short Scale among Portuguese firefighters. *American Journal of Emergency Medicine* (submitted).
- Santos, M., & Almeida, A. (2016). Principais riscos e fatores de risco ocupacionais associados aos bombeiros, eventuais doenças profissionais e medidas de proteção recomendadas. *Revista Portuguesa de Saúde Ocupacional*, 11, 1-17.
- Serra, A. V., Canavarro, M. C., Simões, M. R., Pereira, M., Gameiro, S., Quartilho, M. J., Rijo, D., Carona, C., & Paredes, T. (2006). Estudos psicométricos do instrumento de avaliação da qualidade de vida da Organização Mundial de Saúde (WHOQOL-Bref) para Português de Portugal. *Psiquiatria Clínica*, 27, 41-49.
- Stamm, B. H. (2002). Measuring compassion satisfaction as well as fatigue: Developmental history of the compassion fatigue and satisfaction test. In C. R. Figley (Ed.), *Treating compassion fatigue* (pp. 107-119). Brunner-Routledge.
- The WHOQOL Group. (1998). World Health Organization Quality of Life Assessment (WHOQOL): Development and general psychometric properties. *Social Science and Medicine*, 46(12), 1569-1585. [https://doi.org/10.1016/S0277-9536\(98\)00009-4](https://doi.org/10.1016/S0277-9536(98)00009-4)
- Thomas, J. T., & Otis, M. D. (2010). Intrapsychic correlates of professional quality of life: Mindfulness, empathy, and emotional separation. *Journal of the Society for Social Work and Research*, 1(2), 83-98. <https://doi.org/10.5243/jsswr.2010.7>
- Turgoose, D., & Maddox, L. (2017). Predictors of compassion fatigue in mental health professionals: A narrative review. *Traumatology*, 23(2), 172-185. <https://doi.org/10.1037/trm0000116>