Research

Compassion satisfaction and compassion fatigue among emergency medical technicians in Iran

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Abstract

Introduction

Emergency medical technicians who provide emergency care for patients in a critical condition often experience compassion satisfaction through assisting these patients. However, helping ill and injured patients can also lead to compassion fatigue. Identifying the link between compassion satisfaction and compassion fatigue is important to enhance patient care.

Methods

This is a descriptive correlation study. A total of 248 pre-hospital emergency personnel from pre-hospital emergency centres in East Azarbaijan, Iran, were selected by cluster sampling. Professional quality of life tools, including compassion satisfaction and compassion fatigue (occupational burnout, secondary traumatic stress) were employed. Data was modeled on Stata Statistical Software: Release 14, and the correlation between factors was investigated through Pearson and Canonical correlation analyses.

Results

The average scores of compassion satisfaction and compassion fatigue were moderate. Reverse relationship and mean negative correlation ($r=-0.40$) were obtained between the two areas. In the 'compassion fatigue' category, the secondary traumatic stress sub-scale had a higher focal load (0.96) in comparison to burnout (0.32). Education, workplace and workload were significantly correlated with compassion fatigue, as were marital status and workplace with compassion satisfaction.

Conclusion

The model indicated that compassion satisfaction correlates inversely with compassion fatigue. Workplace, workload reduction, marital status and educational promotion reduce compassion fatigue therefore to enhance pre-hospital care these factors should be taken into consideration.

Keywords:

compassion satisfaction; compassion fatigue; pre-hospital emergency; burnout; post-traumatic stress disorder

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Introduction

Healthcare workers face difficult conditions, due to their care of ill and injured patients (1). As frontline healthcare workers, emergency medical technicians (EMTs) deal with injury, trauma and death on a regular basis (2). Studies show they suffer from occupational burnout (3), cardiovascular disease (4) and mental health disorders (5). Despite numerous challenges in the pre-hospital emergency environment (6), emergency healthcare workers also experience empathy and compassion towards their patients (7).

The word 'compassion' entered the literature in the 14th century and is translated as 'to suffer together' (8). In pre-hospital emergencies, many patients experience pain, and EMTs empathise with and care for patients with compassion (9). In compassion-based caring, patients can freely express their concerns, which improves the quality of caring and increases patient satisfaction (10). Lown et al state that compassionate health care, such as spending time and talking with the patient, is a satisfying task. On the other hand, it can also put at risk the physical and mental health of the caregiver, resulting in compassion fatigue (11,12).

Compassion fatigue was first described by Joinson in 1992 (13) who states regular exposure to patients experiencing illness or trauma can lead to physical and mental exhaustion, which diminishes the caregiver's ability to empathise with the patient. Its effects in the military healthcare area was further explored by Owen (14). If this fatigue is not treated it can disrupt the caregiver's ability to function and cause mental stress; trigger feelings of inadequacy (15); make it difficult to empathise with patients (16); and directly affect job satisfaction resulting in burnout and post-traumatic stress (17).

Wang stated that the concept of burnout was initially identified by Freudenberg in the 1970s who describes it as a product of long-term stress in the workplace (18). In burnout, employees become emotionally exhausted, and these employees can develop a negative attitude toward their job. This has a negative effect on patient care and reduces the ability of employees to perform their duties (19). EMTs frequently experience stressful situations (20) and chronic exposure to job stress is the strongest factor contributing to burnout in the profession (21).

Secondary traumatic stress (STS) is a symptom of compassion fatigue; most commonly seen among doctors and paramedics (22). Symptoms may include nervousness and anxiety, tantrums, difficulty with concentration, self-isolation, as well as physical symptoms such as headaches and dizziness (23). The theory of STS by Dutton and Robesteen (24) was chosen as the basic theory for this study. In essence, this theory involves the psychological response of social workers to the caring of trauma victims. This model was modified for use in EMTs as they also work in stressful and demanding situations and are at risk of compassion fatigue, which in turn may result

in occupational burnout and STS disorders (25). Similarly, personal-social characteristics such as age, marital status, work experience, workplace, education and field of study may impact compassion satisfaction and compassion fatigue. Hence, in order to assess the conceptual model of the study and the relationship between the variables, we investigated the correlation between compassion satisfaction and compassion fatigue and their relationship with the demographic characteristics of EMTs to see if these factors influence the quality of patient care.

Methods

Study design

This is a descriptive correlational study conducted in urban and on-road pre-hospital emergency centres in East Azarbaijan, Iran in 2017.

Population

There are 98 pre-hospital emergency centres in the province (61 urban centres and 37 road centres). The target cohort includes personnel at the Center for Medical Accident and Emergency Management. Inclusion criteria was working in pre-hospital emergency services, having at least 1 year of clinical work experience, and willingness to participate in the research. Exclusion criteria was people with physical and psychological problems, people with a second job, and part-time employees in pre-hospital emergency services.

Sample size

The sample size was calculated using G*power software with $\alpha=0.05$, power of 80% and $r=0.4$ based on the study by Hinderer et al (22) and taking into account an attrition rate of 10%. A total of 310 participants was needed. Sampling was done using a randomised cluster method in two steps: using a cluster sampling method to select centres as clusters in proportion to their size; and using the available sampling the personnel qualified to participate were selected.

Instrument

Professional Quality of Life (ProQOL R-IV, 2009) was employed as the tool for doing this research. The first part included the socio-demographic profile, and the second part included satisfaction of compassion (10 questions) and fatigue of compassion with two sub-scales (burnout with 10 questions and STS with 10 questions). The participants scored every item on a 5-point Likert scale (1 = never, and 5 = frequently). The highest score was 50 and the lowest score was 10. Based on this tool, the overall score of 22 or less means a low score, between 23 and 41 points means an average score, and 42 or more represents a higher level of scoring. Validity of the questionnaire was confirmed by 12 faculty members and content validity index was obtained (87%). Reliability of the questionnaire was calculated equal to 85% via Cronbach's alpha co-efficient after studying 16 emergency medical personnel.

Data collection

The researchers identified individuals who met the criteria according to the personnel list. To collect data in the city of Tabriz, the researchers referred to the emergency centres and after receiving the assistance of the emergency personnel, they distributed questionnaires to participants. To collect data from cities and road emergency centres, the researchers distributed questionnaires to emergency centres with the help of the authorities. Each EMT's questionnaire was enclosed in an envelope, and after completing the questionnaire, the EMT returned it to the head of the emergency centre.

Data analysis

Descriptive statistics (mean, standard deviation, frequency distribution table) were used for statistical analysis. In the inferential statistics, using Pearson and canonical correlation, the relationship between domains and sub-scales was studied first. Then, structural equation modeling (SEM) was applied to model the impact of individual factors and stressful conditions on compassion satisfaction and compassion fatigue. The compassion fatigue consisted of occupational burnout and STS. SEM is a class of statistical methods that allows the researcher to test the hypothesis of the relationship between variables. This type of modeling uses a combination of path analysis and confirmatory factor analysis. Using SEM, it is possible to consider measurement errors of observed variables (questionnaire variables) and structural errors of the model (the relationship between hidden variables) in the model. SEM is closer to reality than methods such as regression analysis (26). Goodness of fit indices that demonstrate the compatibility between the quality of the structural model and the measured data model, including non-normed fit index (NNFI), comparative fit index (CFI), and root mean squared error of approximation (RMSEA) (27). The data were categorised using Stata version 14 (Stata Corp., College Station, TX, USA) and the significance level was considered at 0.05.

Ethics

Sampling was started after obtaining permission from the Research Deputy and University Ethics Committee (IR.TBZMED.REC.1396.681) and approval from the authorities of the Center for Medical Accident and Emergency Management.

Results

Out of 310 distributed questionnaires, 248 (80%) were returned. Demographic characteristics of the participants indicated that all were male (100%), the majority were married (77.5%), and 71.4% were EMTs. The mean age of the participants was 35.7 (± 7.63) years and the mean work experience was 9.5 (± 6.4) years. The average number of missions per person in the 24-hour shift was 5.1 (± 3.37) (Table 1).

The results of this study demonstrate that the mean scores of EMTs in all three areas of compassion satisfaction (40.7 ± 6.2), occupational burnout (27 ± 4.03) and secondary traumatic stress disorder (22.9 ± 7.47) were moderate.

The assessment of the connection between demographic characteristics and compassion satisfaction revealed that marital status and workplace have significant influence on compassion satisfaction. However, factors including age, work experience, field of study and education level did not display a noticeable effect on compassion satisfaction (Figure 1).

Investigation of the effect that demographic characteristics have on compassion fatigue showed that education level, workplace and working hours per week directly and significantly affected compassion. Moreover, compassion fatigue centers on both of its sub-scales – occupational burnout and secondary traumatic stress – in a way that secondary traumatic stress's focal load has a higher impact on compassion fatigue compared to occupational burnout.

The findings indicated that the higher the work hours (>72 hours per week) and the greater the number of emergency missions, the higher the fatigue is compared to satisfaction. Additionally, urban emergency staff experience higher compassion fatigue compared to on-road emergency personnel, and so do the individuals with nursing and anaesthesia degrees compared to the those with an associate degree in medical emergency.

The normality of burnout, compassion satisfaction and STS was confirmed by the D'Agostino Skewness-kurtosis test. Before using SEM, the relationship between the domains of the questionnaire was evaluated via canonical correlation analysis. We obtained a moderate negative correlation ($r=-0.30$) between the two domains of compassion satisfaction and compassion fatigue with two sub-scales of burnout and STS. On the other hand, this analysis showed that in compassion fatigue, the sub-scale of STS has a canonical load of 0.96, which is more than burnout with 0.32 points. Moreover, 15.6% of the compassion fatigue can be explained based on compassion satisfaction. However, only 7.1% of the variance of compassion satisfaction can be predicted by compassion fatigue (Table 2).

There is a weak negative and significant relationship of compassion satisfaction with burnout and STS, while there is a moderate meaningful relationship between burnout and STS. The conceptual model of the research was drawn up according to SEM, and the hypothesis tested. In cases where only one model is investigated, reporting the values of NNFI CFI, and RMSEA is preferable to other indicators. The goodness fit indicators follow as: chi-square of 23.309, $df=9$, $RMSEA=0.041$, $SRMR=0.026$, $NNFI=0.945$ (acceptable range), and $CFI=0.915$, all of which indicate the appropriateness of conceptual model fitting.

Table 1. Demographic characteristics of participants

Factor	Mean	N (%)
Age	35.7 (± 7.63)	
Gender		
Male		248 (100%)
Work experience	9.5 (± 6.4)	
Education		
High school diploma		10 (4.1%)
Associate degree		127 (51.8%)
Bachelor degree		105 (42.9%)
Master degree		3 (1.2%)
Major of study		
Associate degree in medical emergency		180 (71.4%)
Bachelor of Nursing		33 (13.6%)
Associate degree in anaesthesia		21 (8.6%)
Associate degree in surgery		9 (3.7)
Work centre		
Urban		136 (57.1%)
Road		102 (42.9%)
Average mission time per week		
Total	5.1 (± 3.37)	
Urban	6/6 (± 3.10)	
Road	2/6 (± 2.07)	
Working hours per week		
48 hours		20 (8.4%)
72 hours		141 (59%)
96 hours		74 (31%)

Figure 1. Estimation of standardised effects in the conceptual model. Statistically significant paths are in bold. All paths are statistically significant at $p < 0.05$

Table 2. Correlation summary between compassion satisfaction, burnout and STS

		Compassion satisfaction	Burnout	Secondary traumatic stress
CS	Pearson correlation	1	-.124	-.377*
	Sig. (two-tailed)		.048	0.000
	N	245	245	245
BO	Pearson Correlation	-.124	1	0.579*
	Sig. (two-tailed)	.048		0.000
	N	245	245	245
STS	Pearson Correlation	-.377*	.579*	1
	Sig. (two-tailed)	.000	.000	
	N	245	245	245

* Correlation is significant at p-value <0.01 (two-tailed)

Discussion

This research is among the first of its type in Iran (and one of only a few at an international level) to present a model between compassion satisfaction and compassion fatigue among pre-hospital emergency staff.

While investigating the structural model and the connection between compassion satisfaction and compassion fatigue (with burnout and STS sub-scales), it was revealed that a significant, median, inverse correlation exists between these two factors in a way that with the increase of one, the other decreased. A study by Cicognani et al that was conducted on pre-hospital emergency staff also indicated that compassion satisfaction has a negligible negative correlation with occupational burnout (28). In addition, in a study on nurses, it was shown that individuals with high compassion satisfaction experienced less post-traumatic stress (22), the findings of which confirms those of this study.

Among other findings in this study was the moderate to high levels of compassion satisfaction among pre-hospital emergency staff, which supports the results of the study by Zaidi et al that focussed on paramedics and indicated moderate levels of compassion satisfaction (29). Moreover, the study by Dasan et al (30) and Cicognani et al (28) confirm the results of our study. What is significant is the level of compassion satisfaction reached to indicate an acceptable level, which in turn indicates the EMT's compassion satisfaction in service provision to patients.

The findings also demonstrated that there is a significant relationship between marital status and compassion satisfaction, and a study by Jarrad et al demonstrated that married nurses experience higher levels of compassion fatigue compared to unmarried nurses (31), which is in full congruence with this study's results indicating that married individuals have less compassion satisfaction compared to unmarried people, and experienced higher compassion fatigue.

Another area of this study is compassion fatigue, which was elucidated with two sub-scales of occupational burnout and STS, and had a significant correlation with workload, workplace and education level. In this study, the average occupational burnout score of 27 out of 50 was consistent with the study by Cicognani, which reported occupational burnout to be average to low among emergency staff (28). The results of other studies on nurses showed that occupational burnout in trauma nurses was moderate at 26 out of 50 (22) and also in emergency hospital nurses at 23.66 out of 50 (1) which is consistent with this study. Moreover, the qualitative study on pre-hospital emergency nurses by Franco et al indicated that organisational, personal and workplace-related factors were the main causes of occupational burnout (32). Thus, considering the nature of work in medical emergencies, it seems that by eliminating burnout factors and increasing compassion satisfaction, the prevalence of this problem may be reduced.

The other compassion fatigue sub-scale is secondary traumatic stress. The findings of this study showed that the post-traumatic stress disorder score was moderate at 22.9 out of 50. Moreover, high workload was found to correlate with compassion fatigue, which itself was associated with post-traumatic stress disorder, which is consistent with the findings of a study in Sweden (33). Hence, modulating the physical load of EMTs can be effective in reducing post-traumatic stress.

In this study, a significant correlation was found between workload and compassion fatigue in that individuals working more shifts during a week, and thus a higher workload, experienced higher compassion fatigue than other personnel. A study of trauma nurses indicated that people with high workload went through considerable occupational burnout and secondary traumatic stress (22), which fully supports our findings.

Another finding was the significant relationship between workplace and compassion fatigue, with individuals who work in urban centres suffering more from compassion fatigue

compared to those working in road centres. These results are consistent with those of a study by Dasan et al on emergency medical staff (31). Therefore, more attention should be given to the high workload in urban centres as it is a factor that leads to more compassion fatigue among urban personnel.

The results also revealed a significant relationship between education level and compassion fatigue: the higher the education level, the less the compassion fatigue, which subsequently means higher compassion satisfaction. A study by Sacco et al showed that nurses with a Bachelor Degree in Emergency Medical Care had higher compassion satisfaction when compared to those with associate degrees, which is consistent with our findings (34). A study in Australia also demonstrated that staff with an education level higher than a Bachelor degree to have higher compassion satisfaction (35). Thus, encouraging staff to pursue education and improve their academic status can be effective in compassion fatigue reduction.

Limitations

There are a few potential limitations in our study that suggest caution in the interpretation of the findings. This study is limited by the location studied, one province in the northwest of Iran. Secondly, respondents in the study are male EMTs only. Therefore, the overall findings should be interpreted with caution as they may not be generalisable to all pre-hospital personnel in Iran or other countries. Based on the findings and limitations of the study, future studies could explore attitudes and perceptions of female EMTs about compassion satisfaction and compassion fatigue in the pre-hospital setting.

Conclusion

The communication model indicated that compassion satisfaction correlates inversely with compassion fatigue, and high compassion satisfaction leads to compassion fatigue reduction. Variables including marital status, centre location, workload reduction and education promotion will result in increased compassion satisfaction. Taking these elements into consideration could decrease compassion fatigue and improve patient care.

Competing interests

The authors have no competing interests. Each author of this paper has completed the ICMJE conflict of interest statement.

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