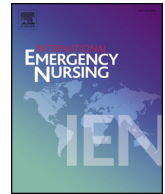




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The design and psychometric evaluation of the emergency medical services resilience scale (EMSRS)

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ABSTRACT

Introduction: The nature of pre-hospital emergency medical care can expose healthcare workers to significant stresses that might lead to psychological problems such as job burnout and impaired resilience. A valid and reliable tool is, therefore, needed to investigate resilience in emergency medical services (EMS) personnel. This study was conducted to design a tool for assessing the resilience of emergency medical personnel in Iran and to examine the psychometric properties of the designed tool.

Methods: This methodological study was conducted in two phases: A qualitative stage with individual interviews and a review of literature to generate items, and a quantitative stage of psychometric evaluations that assessed the face, content, and construct validity of the tool. The reliability of the tool was also assessed using the internal consistency and test-retest methods.

Results: Exploratory factor analysis was used to design a 31-item scale with a six-factor structure. These six factors, i.e. job motivation, communication challenges, social support, remaining calm, self-management, and consequences of stress, explained 51.8% of the variance. The scale's Cronbach's alpha coefficient and intraclass correlation coefficient were calculated as 0.91 and 0.85, respectively.

Conclusion: The scale developed on the resilience of EMS personnel can be used as a valid and reliable tool for assessing resilience in EMS personnel. It can also assist emergency service managers to plan courses to improve their staff's resilience.

1. Introduction

Emergency medical service (EMS) personnel provide pre-hospital medical services and often have to deal with highly challenging cases in complicated and traumatic settings [1]. Due to the unique nature of their job, EMS personnel are more at risk for developing mental health disorders than the general population [2].

Studies have shown that 80% of EMS personnel in the United States experience moderate to high levels of stress [3]. Moderate levels of stress were reported by 74.8% of EMS personnel in Iran [4].

Stress affects not only EMS personnel's health, but also their ability to provide effective patient care [5]. According to previous research, different sources, including care-related stress, inadequate rest time, lack of facilities, lack of a tool for work pattern assessment, shortage of personnel, contact with contaminants, and type of employment, can cause stress among EMS personnel [6]. These individuals are thus at risk of post-traumatic stress disorder (PTSD) [7]. Many studies have indicated that nearly 22% of emergency medical technicians suffer from

symptoms of PTSD and about 8.6% are at risk of occupational burnout [8,9]. Maintaining and enhancing the mental and emotional health status of EMS personnel is not critical for both the personnel themselves and the wider community receiving their services [10].

1.1. Resilience in EMS personnel

Resilience enables EMS personnel to adapt to their work-related challenges [11]. It refers to a class of phenomena, mainly characterized by positive adaptation to problems and disadvantages, which moderates the negative effects of stress [12]. In other words, resilience is a way of interaction between the stressors and an individual's background and characteristics [13] which can help paramedics maintain their mental balance in stressful work environments [14].

Various factors may enhance the level of resilience in EMS personnel and ultimately promote the quality of pre-hospital medical services [15]. Individual differences and personality traits affect how people respond to situations and stressors [16]. Resilience is one of the

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factors that plays a protective role and helps prevent occupational burnout [17].

Resilience is a dynamic personal, cultural, and context-dependent phenomenon [18] which can improve the quality of clinical services by reducing occupational stress [19]. It is, therefore, advisable to employ individuals with higher levels of resilience as EMS personnel.

The lack of proper instruments to measure resilience in EMS personnel and the fact that assessment tools should be compatible with the culture, values, and health care legislations of the target society highlight the need for designing a valid and reliable resilience assessment tool for the Iranian population. Health care personnel should note that cultural differences may affect the results of all, even standardized tools [20]. Designing and validating a resilience assessment tool for EMS personnel is a new subject in research that analyzes the mental health status of this group of health care workers.

The present study aimed to design and examine the psychometric properties of a special tool for assessing resilience in EMS personnel. This new scale (Appendix 1) is easy to perform and interpret and can be used by EMS managers to assess their personnel's resilience and help them properly cope with their work conditions.

2. Methods

2.1. Design and setting

This methodological research is part of a larger exploratory mixed-method study conducted between May 2016 and August 2017. The present study consisted of an inductive phase followed by a deductive phase. A qualitative content analysis and item generation were performed in the first phase. The second phase involved a psychometric evaluation of the tool and the assessment of its validity and reliability.

This project was conducted in pre-hospital emergency centers affiliated to Mashhad University of Medical Sciences (MUMS), Mashhad, Iran. Mashhad is the second most populous city in Iran and there are more than 950 emergency technicians working in its EMS centers. The participants were employed in 57 single-ambulance stations (five staff members in each station), one ambulance bus (15 individuals), an air support base (five individuals), and three motorcycle ambulances (two individuals in each station).

2.2. Designing the emergency medical services resilience scale (EMSRS)

In the first phase, a content analysis was carried out to explain the concept of resilience to EMS personnel. The participants were selected using purposive sampling. Two of the researchers (E.A and F.R) conducted a total of 28 interviews with the selected EMS personnel. Sampling was performed with maximum variation in terms of age, education, work experience, and organizational role. Semi-structured interviews were then held to explore the participants' resilience experiences.

Sampling continued until data saturation was reached. On average, each interview lasted between 40 and 60 min. All interviews were held in Persian and by the same interviewer. The interviews were then transcribed verbatim and translated into English.

Data were analyzed using the procedure proposed by Graneheim and Lundman. Each interview was first examined several times. The meaning units relevant to the research question were then selected and the initial codes were extracted accordingly. The codes were then classified as categories and subcategories based on their similarities and differences [21].

2.2.1. Trustworthiness

To increase the study credibility, the researchers engaged in close interaction with the EMS personnel and sought to select the participants from a diverse background, choose the best meaning units, categories, and themes and draw on the most helpful quotations from the

transcribed interviews. To increase dependability, the extracted codes were revised through a member check and external check or by auditing. To increase confirmability, the researchers kept all the documentation pertaining to all the stages of the study and provided detailed reports. To increase transferability, the participants were selected from as diverse a background as possible [22].

2.2.2. Item generation

The initial item pool was generated in this phase based on the results of the qualitative study and the review of available literature. The literature review was carried out until saturation was reached for the items of the EMSRS. The databases in which the search was conducted included Ovid, PubMed, Science Direct, and ProQuest. The keywords searched included "psychometric assessment", "resilience", "tool", "post-traumatic stress disorder (PTSD)", and "emergency medical services personnel".

2.3. Psychometric evaluation

This phase assessed the psychometric properties, i.e. reliability and face, content, and construct validity, of the EMSRS.

2.3.1. The face validity

The face validity of the EMSRS was evaluated both qualitatively and quantitatively. To evaluate the qualitative face validity, 10 EMS personnel working in pre-hospital emergency centers were invited to comment on the difficulty, relevance, and clarity of each of the items. To assess the quantitative face validity, 10 EMS personnel were asked to rate the importance of the items on a five-point Likert scale (1: not important, 2: relatively important, 3: moderately important, 4: fairly important, and 5: completely important). To calculate the item impact score, the relative frequency of the EMS personnel who scored that item as 4 or 5 was multiplied by the mean importance score of that item. An impact score greater than 1.5 was considered appropriate [23].

2.3.2. The content validity

The content validity ratio (CVR) and content validity index (CVI) were also calculated during this step. To calculate the CVR, 10 experts in EMS, instrument development, and psychology were asked to score each item on a three-point scale ('necessary', 'useful but not necessary', and 'unnecessary'). Then, based on the Lawshe Table, items with CVR values of 0.62 or higher were selected [24].

To calculate the CVI, 10 experts were invited to rate the relevance of each item. To calculate the item-level content validity index (I-CVI), the number of experts who scored a particular item as 3 or 4 was divided by the total number of experts. A CVI value of 0.78 or higher was considered satisfactory [25].

To calculate the scale-level content validity index (S-CVI), the S-CVI average (S-CVI/Ave) technique was used and an S-CVI/Ave value greater than 0.90 indicated a very good content validity [25].

2.3.3. Construct validity

Exploratory Factor Analysis: Factor analysis is a multivariate technique traditionally used in psychometrics to construct measures of psychology characteristics. This process is as follows: through number of variables is reduced to a smaller number of factors. This is based on similarities between the items,

2.3.4. Sample size

The sample size was considered as 5–10 individuals per item in the scale [26,27] or at least 150–300 cases. The research sample consisted of all the EMS personnel in Mashhad who were willing to participate in the study. Convenience sampling was used to choose the participants from the pre-hospital emergency centers affiliated to MUMS.

The inclusion criteria were lack of serious physical and mental health problems and having more than three years of work experience

in medical emergency. The EMS personnel who returned incomplete questionnaires were excluded.

The participants were asked to complete the EMSRS and a demographic questionnaire. The demographic questionnaire consisted of items on age, marital status, education level, and work experience in pre-hospital medical emergencies (in years).

2.3.5. Reliability

The reliability of the scale was examined by measuring its internal consistency and stability [28]. Cronbach's alpha and theta coefficients were used to examine the internal consistency of the scale [29]. The stability of the scale was examined using the test-retest method. To measure its stability using the intraclass correlation coefficient (ICC), a small sample of emergency medical personnel ($n = 30$) completed the EMSRS twice with a two-week interval. This interval was fixed to help prevent recall bias and sample changes.

2.4. Statistical analysis

2.4.1. Check assumptions

After calculating the standard sample size, the obtained data should be examined for the assumptions of multivariate statistical techniques such as Kaiser-Meyer-Olkin test of sampling adequacy. Bartlett's Test of Sphericity corroborates linear correlations by showing the statistical difference of a correlation matrix from a singular matrix.

2.4.2. Methods of initial extraction and determine the number of factors to retain

The Maximum Likelihood Estimation (ML) used for factor extraction and varimax rotation was used to assess construct validity. A minimum factor loading of 0.40 was used to keep the items in the extracted factors. A scree plot with eigenvalues greater than 1 was used to measure the number of EMSRS factors [30]. Data analysis was performed using SPSS 16.0 (SPSS Inc., Chicago, IL, USA).

2.5. Ethical considerations

This study was approved and confirmed by the Ethics Committee of MUMS in May 2016 (code: IR.MUMS.REC.1395.159). Before beginning the study, the participants were briefed on the study objectives and ensured of their right to withdraw at any time without any consequences. Informed consents were then obtained from them in line with the Declaration of Helsinki.

3. Results

A total of 311 questionnaires were collected. However, 58 questionnaires were excluded as 36 questionnaires were incomplete (11.57%) and 22 participants withdrew (7.07%). Ultimately, 253 questionnaires were entered into the design and psychometric assessment phase (response rate 81.35%). The mean age and work experience of the participants was 31.06 ± 5.6 and 7.56 ± 4.17 years, respectively. While 64% of the participants had studied EMS, the rest were nursing staff working as EMS personnel (Table 1).

At the end of the first phase of the study, a pool of 128 items was created. The initial item pool was read and revised several times and 49 items were excluded due to their overlap with other items. Finally, 79 items entered the psychometric assessment stage.

In the face validity assessment, 21 items were omitted due to their low impact factor score or similarity to other items of the EMSRS. In the CVR assessment, 13 items were omitted ($P < 0.63$) and the SCVI/Ave

Table 1
Participant characteristics.

Variables	Status	Frequency (Percentage)
Age (year)	20–29	123 (48.6%)
	30–39	101 (39.9%)
	40–49	29 (11.5%)
Gender	Single	81 (32%)
	Married	172 (68%)
Work classification	Emergency Medical Service	162 (64%)
	Nursing	90 (36)
Educational Degree	Bachelor's	160 (63.2%)
	Master's or higher	93 (36.8%)
Work experience in EMS (year)	3–6	125 (49.4%)
	7–10	72 (28.5%)
	> 10	56 (22.1%)

was 0.96. In the CVI assessment, four items were omitted. The factor analysis with varimax rotation was used (Table 2) and 10 items were eliminated due to their lack of compatibility with the desired factor. The final number of items remaining in the scale was 31 (Fig. 1).

The ICC of the EMSRS was 0.851 and the ICC of its dimensions ranged from 0.72 to 0.87, confirming the stability of the scale [31]. The KMO test yielded a score of 0.868, which indicated that the sample was appropriate for the factor analysis. In addition, Bartlett's sphericity test yielded the value of 4053.753, which was deemed significant ($P < 0.001$) and indicated the scale's ability to categorize the items and form factors.

The analysis of the main factors with varimax rotation showed that six factors had values higher than one. This six-factor structure accounted for 51.82% of the total variance. The factors were labeled in accordance with their items and content. Table 2 shows the EMSRS factor structure and the factor loadings on the items. Factor 1 contained 13 items related to work motivation. Factor 2 contained five items related to self-management. Factor 3 contained five items related to remaining calm at the scene of an accident. Factor 4 contained three items related to communication challenges. Factor 5 contained two items related to social support. Factor 6 contained three items related to the consequences of stress.

The internal consistency of the scale was calculated with a Cronbach's alpha coefficient of 0.91 and a theta coefficient of 0.97. Because only values above 0.7 are considered acceptable for a new tool, the values obtained in the present study suggested the good homogeneity of the EMSRS items. Moreover, the test-retest ICC was 0.851, which indicated the good stability of the EMSRS. Finally, the standard error of the mean (SEM) of the EMSRS was 2.28 (Table 3).

4. Discussion

This study was conducted to design the EMSRS and evaluate its psychometric properties in pre-hospital emergency centers. Our findings highlighted the desirable psychometric properties of this 31-item questionnaire and confirmed its applicability as an instrument to assess factors affecting the resilience of emergency medical personnel. This study used the CVR to examine the necessity of the items and the CVI to assess their simplicity and clarity. As a result, 38 items were omitted or combined with each other. Polit and Beck reported a CVI of 0.79 or higher as acceptable [25]. According to the review of available literature, there are currently no tools to investigate resilience in emergency medical personnel. The EMSRS is, therefore, the first special tool to

Table 2
Results of exploratory factor analysis using rotated component matrix.

Factors and themes	Rotated component matrix					
	1	2	3	4	5	6
<i>Job motivation</i>						
1. I participate in missions without motivation	0.579					
2. I am biased towards my career	0.64					
3. I stay in the organization because I have no other choice.	0.55					
4. I try to get the injured person quickly to a Medical center	0.408					
5. I do my best all along the mission to survive the injured person	0.457					
11. In every situation, I will volunteer to save lives	0.45					
12. In case of close proximity to the accident site, I am immediately notified to the unit of deployment	0.417					
13. I volunteer to provide clinical services in crises	0.421					
14. Rescuing the injured person motivates me	0.445					
15. The satisfaction of the injured person motivates me	0.467					
16. I am get motivated by participating in decision making	0.595					
17. After hard and difficult missions I use humor to smooth the situation.	0.582					
18. I am sympathetic to my colleagues	0.582					
<i>Self management</i>						
6. I trust in my judgments and decisions on the scene of the incident		0.694				
7. I am responsible for what will happen to the injured person		0.61				
8. I control the challenges in the scene of the incident		0.565				
9. I can properly resolve the problems caused by missions		0.665				
29. Having past experiences has made me cope with the scene of incidents		0.482				
<i>Remaining calm</i>						
10. At the scene of the incident, I want everyone to keep peace			0.48			
23. I enter into the scene of incident with faith in God			0.656			
24. In the face of accidents, I will pray			0.564			
30. Before arriving at the scene I will make a mental image of the scene of the incident				0.477		
33. I will evaluate the safety and security of the scene before entering the scene				0.534		
<i>Communication challenges</i>						
20. At the scene of the incident, the behavior of the injured person and his companions is not understandable to me				0.659		
21. At the scene of the incident with I will cooperate with my colleagues, firefighting personnel and police in a professional manner.				0.459		
22. I am nervous and hurried at the time of delivery of the injured person to the hospital emergency staff				0.749		
<i>Social support</i>						
25. My colleagues support me					0.67	
26. My colleagues advise me on solving the problems arise from missions					0.701	
<i>Consequence of stress</i>						
36. I see the nightmare of my missions						0.757
37. I have trouble sleeping						0.679
38. I use medication to control my stress						0.407

measure resilience in emergency medical personnel.

The high KMO value obtained in this study confirmed the high quality of the factor analysis and the construct validity of the questionnaire. The ICC also showed a good value, i.e. 0.4 [32]. The scale's Cronbach's alpha was calculated as 0.91, which is consistent with the validity assessment results reported in another study by Connor and Davidson, who reported the Cronbach's alpha coefficient of the general scale of resiliency as 0.89 [33] and its reliability coefficient as 0.87 using the test–retest method at a four-week interval.

Given the lack of other questionnaires on the factors affecting resilience in emergency medical personnel, this section of the study discusses only tools that investigate a similar concept.

The first factor was work motivation, which contained 13 items.

Personnel's work motivation can improve their performance to the highest possible level [34,35]. These results are consistent with the findings of another study indicating that health care personnel who project an emotional response to their tasks and organization tend to perform their tasks with a higher quality [36].

Creating work motivation is important and essential in order to

achieve the dynamism and achievement of the pre-determined goals of the EMS, i.e. to provide service as quickly as possible and to stabilize the patient's situation in the golden hour [37]. EMS personnel are individuals who need to have not only specific clinical and personal skills, but also enough motivation to do their job well. Quick decision-making, unpredictable and dangerous situations, limited organizational framework, and encountering badly injured people are among the conditions that can lead to increased mistakes and reduced quality of clinical services if sufficient motivation is absent [38]. The personnel that have work motivation have a more positive attitude in the work environment and express a high commitment to the organization and their colleagues. This increases their resilience in dealing with problems.

The second factor in the scale was self-management, which contained five items.

Self-management is a category that plays an important role in improving an individual's ability to manage their behaviors and performance at the individual and organizational levels and thus enhancing their productivity [39]. Therefore, having management and leadership skills is especially important for the health care personnel [40].

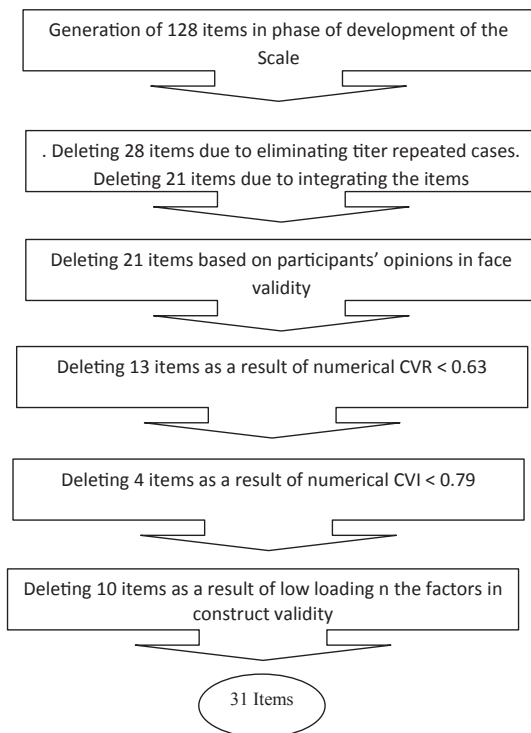


Fig. 1. A Summary of the Instrument Development and Psychometric Evaluation.

These results are consistent with the findings of another study which identified intellectual independence, creativity, and problem-solving skills as the characteristics of resilient people [41].

Clinical judgment and decision-making are essential components of working in an ambulatory care environment [42]. Moreover, emergency personnel have to deal with complex professional issues requiring training. Hence, EMS personnel need sufficient skills in order to be able to make good clinical decisions because their clinical decision-making skills affect the quality of the care they provide more than any other factor [43].

The third factor was remaining calm which contained five items. Previous studies also reported this variable related to resilience, spirituality, and religion [44].

One of the concepts of spirituality is peace, i.e. success in adapting to stress [45]. Believing in God and asking for his help during hard times and crises reduce emotional stress and create calmness for the personnel. Religious help seeking deeply affects the lives of EMS personnel and refines the situation in a way that stress is reduced. Similarly, previous studies identified spirituality and religion as one of the variables related to resilience [44].

In addition, a focus on spirituality, faith, belief, and trust in God has been proposed as a very effective strategy for dealing with the stress of facing the scene of an accident [15].

The fourth factor in the scale was communication challenges which contained three items.

Communication is plays a key role in health care personnel and leads to the achievement of mental and psychological support, improvement of physical, mental, and behavioral outcomes, and provision of comfort [46–48]. However, it has always been one of the most challenging issues in the profession [49].

One of the variables associated with resilience is a strong connection with one's community. This connection allows resilient people to talk about their concerns and challenges and consult with others, attract others' empathy and companionship, discover new solutions, and generally feel psychologically strong and relaxed [50].

The fifth factor in the scale was social support which contained three items. Social support is an essential element of resilience [51] that has a positive impact on individual and organizational outcomes and mental health of the personnel [52,53]. Park also concluded that social support had a positive correlation with the mental state of the hospital staff [54] and proposed the support of colleagues as a factor that can increase self-esteem, reduce feelings of isolation, and promote personal development and self-reflection [55,56].

The sixth factor in this scale was the consequences of stress which contained three items.

Many job-related stress factors within the individual, interpersonal, management, and environmental and occupational supporting areas related to the patient affect EMS personnel in emergency operations and subject them to psychological trauma and its complications. Factors such as high workload, lack of considering personal characteristics of the personnel at the time of recruitment, and lack of social and organizational support can be considered as factors influencing stress aggravation in the EMS personnel [57]. These results are consistent with the findings of another study which reported stressors and their complications to pose a threat to the mental and physical health of people and emphasized the physical consequences of PTSD, such as sleep disorders, nightmares and insomnia [58]. In another study, Golparvar

Table 3
Intraclass Correlation coefficient, Cronbach's alpha values, means, and standard deviations of six factors.

Standard Error of Measurement (SEM)	p-Value	CI (95%)		ICC	Coefficient Θ	Cronbach's α	Mean (SD)	Number of items	Factors
		Upper	Lower						
1.15	< 0.001	0.714	0.935	0.864	0.82	0.85	50.53 (13.3)	13	Job motivation
0.90	< 0.001	0.503	0.887	0.763	0.86	0.68	21.76 (1.92)	5	Self management
1.03	< 0.001	0.417	0.868	0.722	0.83	0.71	21.79 (1.96)	5	Remaining calm
0.54	< 0.001	0.736	0.940	0.874	0.83	0.68	8.46 (1.53)	3	Communication challenges
0.57	< 0.001	0.512	0.889	0.768	0.90	0.75	8.1 (1.20)	2	Social support
1.10	< 0.001	0.487	0.884	0.756	0.97	0.67	5.03 (2.26)	3	Consequence of stress
2.28	< 0.001	0.688	0.929	0.851	0.97	0.91	115.67 (7.42)	31	Total

emphasized the need to pay attention to the stress perceived by emergency medical personnel as an essential measure for avoiding reduced motivation to continue serving in the field [59].

4.1. Strengths and limitations

The available scales on resilience are general tools targeting the public. The greatest strength of this study is that it developed a specific tool for assessing resilience in pre-hospital emergency centers. Moreover, the tool was generated through both deductive and inductive methods. Deductive-inductive concept analysis is the right approach for assessing resilience and developing resilience assessment tools.

One of our limitation is that, this tool was developed in an eastern culture and needs to undergo a psychometric assessment and a re-design if it is to be used in other cultures. Also, confirmatory factor analysis and determination of cut-off points were not implemented, that are planned for future studies.

5. Conclusion

Although the EMSRS is a new instrument, it seems to be a useful measure for assessing resilience in EMS personnel. The EMSRS was developed with a concept analysis based on the sociocultural context of Iran. It has an acceptable reliability and face, content, and construct validity with a six-factor structure. The EMSRS is a simple self-report

Appendix

See Appendix 1.

Appendix 1

Emergency medical services resilience scale.

	Always	Often	Sometime	Rarely	Never
1. I participate in missions without motivation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am biased towards my career.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I stay in the organization because I have no other choice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I try to get the injured person quickly to a Medical center.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I do my best all along the mission to survive the injured person.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I trust in my judgments and decisions on the scene of the incident.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I am responsible for what will happen to the injured person.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I control the challenges in the scene of the incident.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I can properly resolve the problems caused by missions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. At the scene of the incident, I want everyone to keep peace.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. In every situation, I will volunteer to save lives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. In case of close proximity to the accident site, I am immediately notified to the unit of deployment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I volunteer to provide clinical services in crises.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Rescuing the injured person motivates me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. The satisfaction of the injured person motivates me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I am get motivated by participating in decision making.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. After hard and difficult missions I use humor to smooth the situation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I am sympathetic to my colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. At the scene of the incident, the behavior of the injured person and his companions is not understandable to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. At the scene of the incident with I will cooperate with my colleagues, firefighting personnel and police in a professional manner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I am nervous and hurried at the time of delivery of the injured person to the hospital emergency staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I enter into the scene of incident with faith in God.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. In the face of accidents, I will pray.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. My colleagues support me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. My colleagues advise me on solving the problems arise from missions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Having past experiences has made me cope with the scene of incidents.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Before arriving at the scene I will make a mental image of the scene of the incident.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I will evaluate the safety and security of the scene before entering the scene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. I see the nightmare of my missions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I have trouble sleeping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. I use medication to control my stress.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

scale that can be easily implemented by researchers, managers, and EMS personnel.

6. Conflict of interest

The authors declare that there is no conflict of interest.

7. Ethical statement

This study was approved and affirmed by the Ethics Committee of the Mashhad University of Medical Sciences in May 2016 (code: IR.MUMS.REC.1395.159).

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