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Moral Courage and Its Related Factors in Emergency Medical Technicians during the Covid-19 Pandemic in 2021: A Cross-sectional Study

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Abstract

Background: Emergency medical technicians (EMTs) at the forefront of the health system face Covid-19 cases. In such situation, they may have doubts about their abilities or priorities and may not make the right decisions. They need moral courage to survive this global crisis's stress and strengthen their decision-making power.

Aim: The present study aimed to investigate the moral courage and its related factors in EMTs during the Covid-19 pandemic.

Method: This cross-sectional study was performed in 2021 on 194 EMTs of Zanjan University of Medical Sciences. Sampling was done by the cluster random method. A demographic information questionnaire and standard moral courage questionnaire were used to collect data. Data were analyzed using independent t-test, ANOVA, Pearson correlation coefficient and Logistic regression. $P<0.05$ was considered statistically significant.

Results: The mean total score of moral courage was high in 88.1% of EMTs (433.31± 49.70 out of 510). The mean score of moral courage in the dimensions of moral self-actualization was 228.98±32.46, risk-taking was 159.04±15.68, and the ability to defend the right was 45.28±7.70. There was statistically significant relationship between the mean score of total moral courage and marital status, age, work experience, and number of working hours ($p<0.05$).

Implications for Practice: The findings of this study showed that EMTs had a high level of moral courage, so it is possible to maintain this important ethical virtue through reinforcements, planning, effective training, and organizational support, and consequently increase the quality of pre-hospital care.

Keywords: Covid-19, Emergency medical services, Emergency medical technicians, Moral courage

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Introduction

Nurses and other health care providers in health settings in crisis, especially the Covid-19 pandemic are increasingly faced with complex moral and spiritual problems due to their professional status and role (1,2). Emergency medical technicians (EMTs) are often faced with unpredictable and special situations that oblige them to make immediate decisions. They should act immediately to prevent death and permanent disability. These stressful situations usually impose them great psychological pressure and moral challenges (3). Since emergency medical services play a vital role in managing public health emergencies such as the Covid-19 pandemic, the unique challenges posed by such conditions often go beyond what typically occurs. EMTs are often at risk of infection due to limited information about their patients, working in uncontrolled conditions, accompanying and caring for patients in the ambulance (4). In this situation, moral courage will help EMTs to achieve the ultimate goal, and to observe the ethical principles, perform the correct action, which is not easy to do (5).

Moral courage is a virtue that creates the ability to perform ethical behavior and have a moral performance despite obstacles (6). In other words, moral courage means acting based on moral values despite there is difficulty and dangers simultaneously as ethical challenges and dilemmas. A person who has moral courage constantly, consciously, and voluntarily, despite all negative consequences, decides and acts confidently in the shadow of what is good for others. It can be said that moral courage is a virtue which is necessary for conscientious action in all health service providers (7). Acting based on moral courage helps the health system employees provide high-quality care, prevent frequent changes in workplace and leaving profession, and causes the sense of vitality and freshness (8). Employees with moral courage in situations such as patient privacy, giving bad news, caring for an infectious patient, etc., try to act based on the professional ethics principles and values. In contrast, lack of moral courage creates problems for health care providers, including EMTs. Some of these problems include fear of an adverse reaction from co-workers, the possibility of losing a job position, widespread emotional reactions, etc. In these circumstances, moral distress, depression, guilt, anger, feelings of worthlessness, and powerlessness will be inevitable (9). Some researchers have studied the phenomenon of moral courage in nurses and reported high average moral courage (6, 10). Ebadi et al. (2020) concluded in his study that increasing work experience, age and employment status will increase moral courage (9). In this regard, the individual's previous experiences and the acquisition of scientific and professional competencies play important role in forming courageous behavior (11), so that with increasing age and work experience, a person's experience of professional positions increases (12).

At the forefront of treatment and health system, EMTs are the first ones which encounter patients with Covid-19 disease and may experience severe physical, mental, and moral stress. In critical public health situations, EMTs, like others health care providers, may have doubts about their abilities or priorities. Sometimes they may be overwhelmed by the fear of getting sick and prefer individual interests to public interests and cannot make the correct decisions. They also need moral courage to remove the stress caused by Covid-19 and strengthen the decision-making power. Therefore, this study was performed aimed to investigate moral courage and its related factors in EMTs during the Covid-19 pandemic.

Methods

This cross-sectional study was performed on 194 EMTs working in 8 cities of Zanjan province, Zanjan, Iran from June 2021 to September 2021.

The study population included all emergency medical technicians working in Zanjan province. Inclusion criteria were: technicians working in one of the basic, intermediate, and senior categories of medical emergencies, and technicians working in the headquarters and communications center if employed in the pre-hospital emergency during the Covid-19 pandemic. During the study period, the total number of emergency medical technicians employed in Zanjan Province was 405 people. The sample size was calculated with $\alpha = 0.05$, $Z= 1.96$, power= 80, and $\beta= 0.2$. Accordingly, the sample size was calculated to be 194 technicians. We used the cluster random sampling method. For this purpose, we first inquired about the total number of urban and road emergency stations and the number of technicians in each station. Then, we received the name list of eligible technicians on each

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emergency station. In the next step, we calculated the share of each emergency station according to the number of personnel employed. Finally, sampling was completed among the eligible technicians based on the table of random numbers (Figure 1).

First, the necessary permits to collect study data was obtained from Zanjan University of Medical Sciences. The necessary arrangements were performed with the head of the Medical Emergency and Accident Management Center and the emergency officials of Zanjan province. Then the researchers went to emergency stations to do sampling. The selected technicians were given the necessary explanations about the purposes of the study. The questionnaire was then given to those who tended to participate in the research and were asked to complete the questionnaire. The researchers revisited the emergency stations two days later to collect the completed questionnaires.

In this study, the demographic information questionnaire and the nurses' moral courage questionnaire were used to collect data. Demographic Information Questionnaire included the participants' information, including age, work experience in the emergency ward, employment status, marital status, number of children, number of working hours per week, and urban or road emergency stations. The content validity of this questionnaire was reviewed and approved by ten faculty members of Zanjan University of Medical Sciences. Nurses Moral Courage Questionnaire was designed and validated by Sadooghiasl (2016) (13). The questionnaire consists of 20 items which is scored on a 5-point Likert scale from always (score 5) to never (score 1). This questionnaire measures the three dimensions of moral self-actualization (9 questions), risk-taking (8 questions), and ability to defend the right (3 questions). The score of each item is obtained from the likert score multiplied in the value of the item. The questionnaire minimum score was 102 and maximum score was 510. Obtaining the score of 102-238 in this questionnaire indicates a low level of moral courage, the score of 239- 374 indicates moderate moral courage, and the score of 375-510 is considered high moral courage. The questionnaire has an acceptable face and content validity (S-CVI=0.87). The reliability of the questionnaire and its dimensions ranged from 0.82 to 0.88 (13). In the present study, the internal consistency method was used to evaluate the reliability of this questionnaire and Cronbach's alpha coefficient was calculated as 0.91.

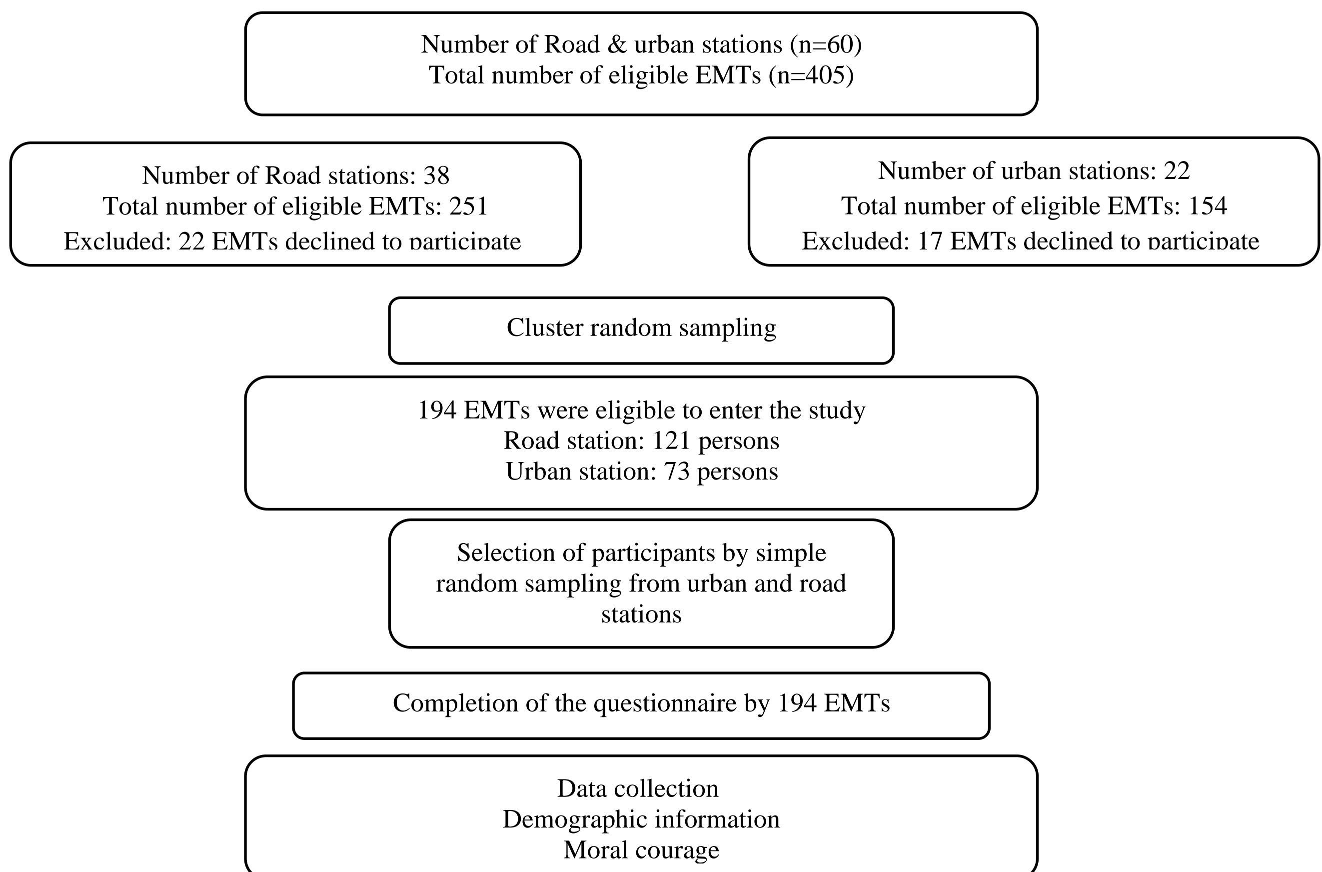

Figure 1. Flowchart of the study

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The collected data were analyzed by SPSS-24 statistical software. Descriptive and inferential statistical methods were used. First, the normality of data distribution was evaluated using the Kolmogorov-Smirnov test. Kolmogorov-Smirnov test showed that the normal distribution of the scores of self-actualization, risk-taking and ability to defend of right, and the distribution of the total score of moral courage. Therefore, parametric tests (independent t-test, one-way analysis of variance, and Pearson correlation test) were used to compare the mean of demographic variables with moral courage and its dimensions. Logistic regression model was used to investigate the factors related to ethical courage in EMTs. $P<0.05$ was considered statistically significant.

Before data collection, the objectives of the study were explained to the participants and they were assured that their information would be kept confidential. Written informed consent was obtained from all participants at in-person visit.

Results

The mean age of studied EMTs was 33.46±7.25 years. Investigation of demographic characteristics revealed that the majority of participants were married (72.20%), had temporary employment status (43.80%), worked in urban stations (62.40%) and had work experience of <10 years (8.49±5.33). Further information on the demographic data of participants was provided in Table 1.

The mean score of moral courage was 433.31±49.70 out of 510. The mean moral courage in the subscale of moral self-actualization was 228.98±32.46 out of 275; risk-taking was 159.04±15.68 out of 180; and the ability to defend of right was 45.28±7.70 out of 55. Moral courage was high in 88.10% of EMTs and moderate in 11.90% of them.

There was a statistically significant relationship between the mean total score of moral courage and marital status, age, work experience and number of working hours ($P<0.05$). Also, a statistically significant relationship was found between the mean score of moral self-actualization with the type of employment, marital status, age, work experience and the number of working hours ($P<0.05$). However, no statistically significant relationship was observed between the mean risk-taking score and demographic information ($P>0.05$). There was a statistically significant relationship between the mean score of the ability to defend of right and marriage, age and work experience ($P<0.05$). More information on the relationship between the mean total score of moral courage and its subscales with demographic characteristics was provided in Table 2.

Demographic characteristics were entered into the logistic regression model (low to moderate moral courage= 0, high moral courage= 1) that none of the variables were significant in the logistic model (Table 3).

Table1. Demographic characteristics of the study's participants

Qualitative variables		N	%
Employment status	Permanent	43	22.2
	Sub-permanent	22	11.4
	Contractual	35	18
	Mandatory	9	4.6
	Temporary	85	43.8
Marital status	Single	54	27.8
	Married	140	72.2
Field of study	Nursing	19	9.8
	Medical emergency	172	88.7
	Anesthesia nursing	3	1.5
Workplace	Road stations	121	62.4
	Urban station	73	37.6
Quantitative variables		Mean	SD
Age		33.46	7.25
Work experience		8.49	5.33
Number of Working hours per week		58.55	11.41

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Table 2. Comparison of mean and standard deviation of total moral courage score and its dimensions based on demographic characteristics

Variables		Moral self-actualization	Risk-taking	Ability to defend the right	Total
Employment status	Permanent	234.62±29.08	158.73±16.52	45.88±8.73	439.23±48.76
	Sub-permanent	238.09±33.55	162.32±12.05	47.13±7.25	447.54±46.15
	Contractual	236.92±34.23	161.22±17.51	46.94±6.61	445.08±51.16
	Mandatory	220.33±27.89	156.11±13.45	42.11±8.38	418.55±44.72
	Temporary	221.43±32.22	157.76±15.61	44.16±7.49	423.35±49.51
between groups comparison *		P=0.011 F=13.08	P=0.447 F=3.70	P=0.126 F=7.18	P=0.071 F=2.20
Marital status	Single	220.12±35.05	155.56±17.38	42.96±7.90	418.64±54.83
	Married	232.40±30.86	160.39±14.83	46.18±7.46	438.97±46.55
between groups comparison **		P=0.02 T= 2968.5	P=0.068 T=3141	P=0.008 T=2863.5	P=0.01 T=-2.59
Field of study	Nursing	240.42±30.74	159.10±19.19	47.74±9.01	447.26±55.19
	Medical emergency	228.09±26.51	159.35±15.08	45.08±7.44	432.52±48.69
	Anesthesia nursing	208±32.46	141±22.11	41±12.28	390±59.01
between groups comparison *		P=0.148 F=3.81	P=0.237 F=2.87	P=0.098 F=4.64	P=0.148 F=1.92
Workplace	Road stations	228.05±32.06	158.85±16.52	45.61±7.32	432.51±49.93
	Urban station	230.54±32.39	159.35±14.29	44.75±8.32	434.64±49.62
between groups comparison **		P=0.468 T=4142	P=0.837 T= 4338.5	P=0.519 T=4174	P=0.773 T= -0.289
Age ***		R=0.220 P=0.002	R=0.093 P=0.197	R=0.233 P=0.001	R=0.211 P=0.003
Work experience ***		R=0.2 P=0.005	R=0.044 P=0.538	R=0.191 P=0.008	R=0.176 P=0.014
Work hours per week ***		R=-0.160 P=0.026	R=-0.078 P=0.281	R=-0.123 P=0.089	R=-0.153 P=0.033

*ANOVA
**Independent t-test
*** Pearson correlation coefficient

Table 3. Logistic regression results on demographic variables

		B	Wald	p-value	OR	95% CI for OR	
						Lower	Upper
Age		0.103	1.689	0.194	1.109	0.949	1.295
Work experience		0.095	0.816	0.366	1.099	0.895	1.350
Marital status	Single	-0.518	0.780	0.377	0.596	0.189	1.881
	Married						
Field of study	Nursing	-2.546	1.916	0.166	0.078	0.002	2.884
	Medical emergency	0.771	0.333	0.564	2.162	0.158	29.676
	Anesthesia nursing						
Workplace	Road stations	0.143	0.073	0.787	1.154	0.408	3.265
	Urban station						
Employment status	Permanent	0.275	0.063	0.802	1.316	0.155	11.192
	Sub-permanent	1.067	0.930	0.335	2.906	0.332	25.403
	Contractual	-0.194	0.043	0.835	0.823	0.132	5.129
	Mandatory	1.447	1.530	0.216	4.250	0.429	42.098
	Temporary						

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Discussion

This study was performed aimed to investigate the moral courage and its related factors in EMTs in Zanjan University of Medical Sciences. The main results of the study in response to the research question showed that moral courage in EMTs is at a high level. The factors related to the total score of moral courage included age, work hours per week, work experience and marital status.

Low average age and work experience <10 years in most participants indicated that the EMTs are young and dynamic. The young age of the emergency workforce makes it possible to respond to medical emergencies or injured patients as quickly as possible. In this regard, the results of the present study were consistent with the results of two other studies conducted in Iran (14, 15). In terms of gender, considering that all EMTs in this study were male, it is consistent with the above two studies. The results of the present study were consistent with the study by Weaver et al. (2015) in the United States that 53% aged <35 years, and 49% had work experience <10 years (16). However, the results of the study by Saberinia et al. (2019) were inconsistent with the results of the present research in terms of gender and work experience (17).

According to the results of the present study, most of the EMTs had a high level of moral courage and high scores in self-actualization, risk-taking, and the ability to defend the right. In recent decades, the expectation of society from health care providers to provide proper and ethical performance has increased. In this regard, moral atmosphere and moral people are necessary for moral decision-making, commitment, and productivity (6). Therefore, health care providers, especially EMTs, are expected to have moral courage as a valued virtue to fulfill their professional commitment and meet the patient's care needs. On the other hand, moral courage has been introduced as a fundamental virtue for human beings. All human beings have a characteristic that appears in some circumstances and situations (13).

The study by Ebadi et al. in (2020) examined the moral courage of nurses and related factors in teaching hospitals in Tehran; the results showed that most nurses had high moral courage. They also reported high mean scores of self-actualization, risk-taking, and the ability to defend the right (9). The similar results were reported in the study in Iran which was performed in the Infectious wards (10). Also, in the study by Kleemoia et al. (2017) in Finland, nurses also reported high moral courage in care settings (18). The results of the above studies are consistent with the results of the present study.

Although in line with our findings, some studies demonstrate high levels of moral courage among health care providers, others showed controversial results. In the study of Aminizadeh and colleagues (2017), the moral courage of nurses in Iranian intensive care units has been reported at a moderate level (19). Hoseini et al. (2017) also stated that the moral courage of the nurses of selected military hospitals in Mashhad was at a moderate level (5). This difference may be due to the differences in the tools used in the studies. The Persian translation of Sekerka's tool of professional moral courage has been used in the mentioned studies. In the present study, the Sadooghiasl Nurses' Moral Courage Questionnaire (13) was used which is specially designed for Iranian society. Another reason for this difference can be the relationship between ethical climate, organizational culture, managerial support, fear of social isolation, rejection, and group thinking (1). These mentioned factors need to be confirmed in future studies.

In the present study, there was a relationship between the mean score of moral courage and marital status, age, work experience and number of working hours. Married people had a higher moral courage score. Moral courage scores increased with age and work experience. As the number of working hours increased, the score of moral courage decreased. Ebadi and colleagues (2020) showed a significant relationship between moral courage and age, work experience and employment status, so that moral courage increases with increasing age and work experience (9). Khodaveisi et al. (2020) also reported the similar results (10). The results of the above studies are consistent with the results of the present study. Khajevandi et al. (2019) investigated moral courage and its predictive factors in nurses who worked in Tehran's one big teaching hospital. They showed that age, work experience, shift work, job position, number of working hours, gender, and marital status do not predict nurses' moral courage (6), which is inconsistent with the results of the present study. This discrepancy can be due to the differences in research environments. In the study by Sadooghiasl et al. (2018), participants stated that their work environment significantly impacts their ethical performance (11).

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In the present study, all technicians were men. Some researchers have found that gender differences affect people's awareness of moral principles. Cultural norms and social patterns play an essential role in men's assertive behavior compared to women. So that women are expected to be obedient, introverted, and careful (1). Murray (2010) and Gallagher (2011) concluded that as the age and work experience of nurses increases, their moral courage also increases by observing the courageous behaviors of other colleagues and facing challenging situations and obtaining experiences from these situations (20,21). Also, the individual's previous experiences, the acquisition of scientific and professional competencies play important role in the formation of courageous behavior, and the individual's rationale from the circumstances of the profession increase with increasing age and work experience (9).

Findings showed that married employees with higher experience had higher moral self-actualization than single and young colleagues. In the study of Ebadi et al. (2020), the score of the subscale of moral self-actualization increased with increasing age and work experience (9), which is consistent with the present study's results. In the study by Moosavi and Izadi (2017), there was no significant relationship between age and work experience with the moral factor dimension in nurses (22), which is inconsistent with the results of the present study. Self-actualization is an excellent human trait obtained by achieving a satisfactory level in each of the individual talents. When self-actualization occurs in the moral dimension, it is interpreted as moral self-actualization. In other words, it is the attainment of the highest level of morality through which one attains moral satisfaction. Self-actualization is an individual desire to be better and better than before. It is a developmental process through which dependence on others, underemployment, and shyness are eliminated, and reasonable evaluations, courage, and realization of talents and abilities are formed (9). The nursing profession leads to the development of unique features. These characteristics are resulted from the nurse's professional experience and the nurses encounter with specific situations at patient care. Also, the human nature of nursing is effective in the development of self-actualization and moral actualization. The moral factor had the highest score in nurses of the study by Moosavi and colleagues (23). Since this dimension shows the readiness and desire of the heart to deal with and face, and solve moral issues and consequently, the desire to do ethical behavior, it can be similar to the dimension of moral self-actualization (9).

The findings of the present study showed no statistically significant relationship between the mean risk-taking score and EMTs' demographic variables. However, the previous study in Iran demonstrated that the mean risk-taking score significantly increases with increased work experience (9). In contrast, in the study by Moosavi and Izadi’s (2017), the mean score of threat tolerance was lower and had no significant relationship with age and work experience (22). The danger is an integral part of human life, and progress will not be achieved without it. Although the first image of danger formed in the human mind is physical danger, it can be understood in biological, chemical, physical, psychosocial forms. Different forms of risks are observed in nurses' work environments, and nurses care for patients with support and vigilance. Risk-taking of people of different ages has been considered from biological, economic, and anthropological aspects. Aging is associated with changes in human cognitive, emotional and motivational control and can affect their risk-taking. Several studies showed a reduction in the risk-taking of older people in economic and biological situations (9). The meta-analysis results of risk-taking-related studies showed that the risk pattern of individuals at different ages varies according to the type of risk and does not follow the predicted pattern described by experts (24).

This study showed that married employees who had more experience than others and had a higher ability to defend the rights compared to single and young colleagues. In the study by Ebadi et al., the ability to defend the right was not significantly associated with any of the nurses' demographic variables (9), which is inconsistent with the present study. This discrepancy can be due to different cultural and organizational contexts, adherence to administrative hierarchies, personal characteristics of EMTs such as their motivation, beliefs, and religious values.

Few studies have been conducted on the moral courage of emergency medical technicians during the Covid-19 pandemic. Therefore, the findings of the present study can provide a basic knowledge for emergency medical staff to deal with future emerging diseases.

The limitations of this study included the sampling method which was cluster random sampling, so it can not represent the whole study population. Also, since the study was cross-sectional, it is

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impossible to deduce causality from its results. Moreover, due to the nature of the studied variables, social-desire responses bias was high among participants. It is therefore suggested that the study findings be generalized with some caution. It is recommended that further studies be conducted using other research approaches, including qualitative methods.

Implications for practice

According to the results of the present study, EMTs had a high level of moral courage. Moral self-actualization received the highest score compared to other subscales of moral courage. Therefore, this important moral virtue can be maintained and improved with effective planning and training and the organization's support. Consequently, it results in the increase of the quality of pre-hospital care. Based on the findings, attention to individual and socio-demographic characteristics of EMTs and the use of experienced staff in emergency stations is recommended to managers of medical and emergency management centers. More experienced people have higher moral courage and have a high ability to manage and resolve moral conflicts in complex moral situations.

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Conflicts of interest

The authors declared no conflict of interest.

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