



Available online at www.ujpronline.com
Universal Journal of Pharmaceutical Research
 An International Peer Reviewed Journal

ISSN: 2831-5235 (Print); 2456-8058 (Electronic)

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RESEARCH ARTICLE

DETERMINING THE IMPACT RATE OF TRIAGE TRAINING ON AWARENESS AND SKILL LEVEL OF PRE-HOSPITAL EMERGENCY PERSONNEL OF FASA CITY

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Article Info:



Article History:

Received: 4 December 2017

Reviewed: 11 January 2018

Accepted: 13 February 2018

Published: 15 March 2018

Cite this article: Jeihooni AK, Kazemi M, Yazdanpanah A. Determining the impact rate of triage training on awareness and skill level of pre-hospital emergency personnel of Fasa city. Universal Journal of Pharmaceutical Research 2018; 3(1): 61-66.

<http://doi.org/10.22270/ujpr.v3i1.R11>

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Abstract

Objectives: This study was conducted with the aim of determining the impact of triage training on awareness and skill level of pre-hospital emergency personnel of Fasa City. The present study is applied in respect of objective.

Methods: The statistical population of this study includes all members of crisis management system of Fasa emergency 115 (n=103) that the sample was considered equal to the population. The questionnaire has been adjusted based on 5-value Likert scale. For analysis of data collected from Pearson correlation coefficient, the research hypotheses were examined and tested using SPSS software version 18.

Results: There is a significant positive relation between participating in training courses and triage awareness of Fasa city pre-hospital emergency personnel. Also, there is a significant and positive relation between participating in training courses and triage skill of Fasa City pre-hospital emergency personnel.

Conclusion: Study concludes that, with healthcare information, it is recommended that the topics relating to performance and awareness to be noticed by authorities.

Keywords: Awareness level, Fasa, pre-hospital emergency, triage training.

INTRODUCTION

Main and primary role of emergency department is to treat severely injured patients¹. The main prophecy of every emergency department includes providing the most appropriate cares in the shortest possible time². Emergency department s every day faces presence of patients with various problems with varied degrees of severity. Studies show that between 20-60% of total patients referring to emergency department refer to this department due to urgent, but yet simple and without complication problems that the urgent and effective care of them is possible in lower levels of healthcare centers³. The hospital emergency department has a special significance since it receives the greatest, most various, most involved and most sensitive group of patients. According to declaration of World Health Organization, one third of hospital beds have been occupied due to incidents that the first place of hospitalizing such patients is the hospitals emergencies and loss due to it is more than 500 million Dollars^{4,5}. Most emergency department s doesn't have required facilities proportionate to references rate⁶. Crowd in

emergency department s is considerable in all regions of the country as a serious challenge. Sometimes, referees crowd is so that patients wait for more than 60 minutes. This matter is especially significant when cares are provided with delay since influences patients satisfaction rate⁷. Here the triage as the first point of meeting of the hospital emergency team with the patient and his relatives will undertake a unique role in realizing the department final prophecy⁸. Triage in emergency department the quick process of dividing patients referring to emergency so that patients who need more care. In fact, triage is determining correct patient, utilizing correct resources in correct place and time. Triage is the beginning of clinical stages of caring patients and triage and its results analysis indicates performance and status of emergency department⁹. Triage should be performed in the hospitals where more than 30000 patients refer to their emergency department each year¹⁰. Triage in emergency department prioritizes the way of adjusting and scheduling or designating the resources required for the patients and always seeks to provide effective treatment methods for more needful patients and

patients with less severity or treatment need generally wait¹¹. The results of performance of emergency departments in some countries such as Australia indicates that determining triage in the primary stage is undertaken by professional and skillful nurses (Ton, 2007). Increasing the number of specialized clinical nurses in emergency department minimizes the population crowd and waiting time and leads to patients' satisfaction¹². Nurses are the greatest and the most important professional group in healthcare system and play a sensible role that should have sufficient skill and attitude in all nursing fields¹³. The required criterion for a nurse (especially in effective triage) is the nursing skill and experience in emergency department especially in fast evaluation and recognition of the patient needs. The ability of these nurses in identifying, interpreting and controlling the patient's physiological abnormalities is very significant. Since is highly effective in reducing mortality and illness symptoms. Nurses progress in emergency domains depends on sufficient levels of clinical training and supports applied in this field. Lack of standard training in triage domain has some destructive consequences¹⁴. So, for increasing stability in the decision making domain of treatment categories on behalf of medics and paramedics, special traineeship sessions are considered¹⁵. The main role of triage nurse is to determine the priority of clinical care of patients and should be always considered as the primary aim of patient's triage. They have divided the factors effective in triage nurses decision making in two classes of internal and external factors. Internal factors include nurses' relational skills and their individual features¹⁶. Nurses skills relates to their experiences, knowledge and direct perception feeling. Also, in triage nurses features, moral courage, doubt feeling, confidence and logic have been pointed out. External factors effective in decision making of triage nurses include working environment status (working pressure imposed on triage nurses) and way of evaluating patients¹⁷. Regarding dynamicity of triage activities, the best and the most experienced people should be selected for this job. Since triage system setting up in the healthcare centers of the country is young, creating triage culture and training during education and after that for emergency personnel is. So, the present study is conducted with the aim of investigating the impact of triage training on awareness and skill of pre-hospital emergency personnel of Fasa City¹⁸.

METHODS

The present study method is descriptive of survey type and the statistical population in the present study includes all members of crisis management system of Fasa 115 emergency. And their number according to the obtained statistics is 103. Regarding Cochran table for the limited society, the sample was considered equal to the society^{19,20}. All members were considered. For collecting the considered data for the rate of impact of triage training on the skill and awareness of Fasa city pre-hospital emergency personnel the scholar made questionnaire was used. The questionnaires have

been adjusted based on 5-value Likert scale and include 5 ranges (very low, low, mean, high, very high) which has designated scores 1, 2, 3, 4, 5 respectively from very low to very high. This questionnaire includes 29 questions. The validity indicator of assessment tool items was of nominal validity of expert's consensus and the validity of the questionnaire was confirmed by analyzing exploratory factor and reliability was confirmed using Cronbach's alpha method that reliability factor of 0.83 was obtained for the whole questionnaire. The results have been stated regarding SPSS software and statistics in two levels of descriptive and inferential²¹.

RESULTS

For using parametric tests in order to investigate the research hypotheses, the normality of variables using Kolmogorov- Smirnov was confirmed (by observing Table 1 and investigating significance of all subscales that are greater than 0.05)^{22,23}.

Table 1: Investigating test of normality of variables.

Significance level	Kolmogorov- Smirnov statistics	Variable name
0.112	0.423	Training classes
0.142	0.510	Awareness towards personnel triage
0.100	0.812	Skill about personnel triage
0.178	0.761	Triage training
0.123	0.542	Demographic features

As it is observed in Table 2, regarding the correlation factor and significance level ($r=0.727$, $p=0.001$), there is a significance and positive relation between participating in training classes and awareness of triage of Fasa City pre-hospital emergency personnel. Regarding the correlation factor and significance level ($p=0.001$, $r=0.696$), there is a significance and positive relation between training classes and skill. As it is observed in Table 3, regarding the obtained correlation factor and significance level, there is no significant relation between any of demographic features (age, service record, education rate, sport history, marital status) and awareness towards emergency personnel triage²⁴.

Table 2: The results of Pearson correlation test.

Significance level (p)	Pearson Correlation coefficient (r)	Statistical indicator and variable
0.001 *	0.27	Between participating in training classes and awareness towards pre-hospital emergency personnel triage
0.001 *	0.6960	Participating in training classes and awareness towards pre-hospital emergency personnel triage

Table 3: The results of Pearson correlation analysis between demographic features and awareness towards emergency personnel triage.

Significance level	Correlation factor	Individual features
0.231	0.032	Age
0.324	0.053-	Service record
0.145	0.111-	Education rate
0.189	0.102	Marital status

As it is observed in Table 4, regarding obtained correlation factor rate and significance level, there is no significance relation between any of demographic features (age, service record, education rate, sport history, marital status) with skill towards Fasa City pre-hospital emergency personnel triage skill.

Table 4: Pearson Correlation analysis results between demographic variables and skill towards pre-hospital emergency personnel triage.

Significance level	Correlation factor	Individual features
0.123	0.051	Age
0.145	0.101	Service record
0.201	0.101	Education rate
0.354	0.105	Marital status

Table 5 shows the average impact of triage training on awareness level Fasa city pre-university emergency personnel and their comparison with acceptable adequacy level criteria (Q2) and optimal level (Q3). It is observed that the average of impact of triage training factors (3.61) has been evaluated higher than acceptable adequacy level (Q2=3), based on the obtained t rate in freedom degree of 102, a significance difference has been obtained in level 0.0001 between two averages. The average of triage training impact on awareness level of Fasa City pre-hospital emergency personnel has been observed lower than optimal level (Q3=4) and based on the obtained t rate in freedom level 102 a significance difference has been obtained in 0.0001 level between these two averages.

These findings means that the impact rate of triage training on awareness level of Fasa City pre-hospital emergency personnel is higher than acceptable adequacy level but lower than the optimal level²⁵. Table 6 shows that average of triage training impact on Fasa City pre-hospital emergency personnel skill level and also its comparison with criteria of acceptable

adequacy level (Q2) and optimal level (Q3). It is observed that the average of triage training impact (3.57) has been evaluated higher than acceptable adequacy level (Q2=3). Based on the t rate obtained in freedom degree 102, a significance difference in level 0.0001 between two averages has been obtained. The average of triage training impact on Fasa City pre-hospital emergency personnel skill level has been evaluated lower than optimal level (Q3=4) and based on the t rate obtained in freedom degree 102, a significance difference has been obtained in level 0.0001 between these two averages. These findings mean that the impact rate of triage training on Fasa City pre-hospital emergency personnel skill level is higher than the acceptable level but lower than the optimal level²⁶.

DISCUSSION

The results of the study showed that there is a positive and significant relation between participating in training classes and awareness of Fasa City pre-hospital emergency towards triage. Therefore, based on significance level of the research hypothesis, the research hypothesis is verified and is consistent with findings of Gonzalez *et al.*, Jalil *et al.*, and Pahlavani *et al.*, Gonzalez *et al.*, in a study, under the title of the relation of triage training and awareness and performance of emergency personnel concluded that triage training increases awareness and performance and trained people has more awareness and performance than non-trained people^{27,28,29}. Also, the regression results in this study showed that awareness and performance could predict triage training. Jalil *et al.*, in a study under the title of awareness and performance of Pakistan emergency personnel about pre-hospital triage concluded that training has a positive and significant relation with awareness and performance of Pakistan emergency personnel¹⁹. Also, demographic features have a more effective relation with the personnel awareness and performance. Mehr *et al.*, in a study about the relation between triage training and emergency personnel performance and awareness concluded that triage training has a positive and significant relation with performance and awareness of emergency personnel¹⁷. Also, there was a correlation matrix between components of awareness and performance of emergency personnel and triage training. Also, triage training predicts awareness and performance of emergency personnel.

Table 5: Comparing the impact rate of triage training on awareness level of Fasa City pre-hospital emergency personnel with acceptable adequacy level (Q2) and optimal level (Q3).

Variable	Average	Standard deviation	Acceptable adequacy level (Q2)	t rate	Freedom degree	Significance level	Optimal level (Q3)	T rate	Significance level
Triage training and freedom	3.61	0.83	3	11.55	102	0.0001	4	7.34	0.0001

Table 6: Comparison of the impact of triage training on Fasa City pre-hospital emergency personnel skill with acceptable adequacy (Q2) and optimal level (Q3).

Variable	average	Standard deviation	Acceptable adequacy level (Q2)	t rate	Freedom degree	Significance level	Optimal level (Q3)	T rate	Significance level
Triage training and skill level	3.61	0.83	3	11.55	102	0.0001	4	7.34	0.0001

There is a significant relation between participating in training classes and skill towards Fasa City pre-hospital emergency personnel triage. The results of the study showed that there is a significant and positive relation between participating in training classes and skill towards Fasa city pre-hospital emergency personnel triage³¹. Therefore, based on the significance level, the research hypothesis is confirmed and is consistent with findings of Gonzalez *et al.*, Manor *et al.* and Pahlavani *et al.*, Gonzalez *et al.*, in a study under the title of triage training relation with awareness and performance of emergency personnel concluded that triage training increases awareness and performance and trained people has more awareness and performance than non-trained people^{17,32,33}. Also, the regression results in this study showed that awareness and performance could predict triage training. Jalil *et al.*, in a study under the title of awareness and performance of Pakistan emergency personnel about pre-hospital triage concluded that training has a positive and significant relation with awareness and performance of Pakistan emergency personnel¹⁹. Also, demographic features have a more effective relation with the personnel awareness and performance. In a study about the relation between triage training and emergency personnel performance and awareness concluded that triage training has a positive and significant relation with performance and awareness of emergency personnel³⁴. Also, there was a correlation matrix between components of awareness and performance of emergency personnel and triage training. Also, triage training predicts awareness and performance of emergency personnel. The results of the study showed that regarding the correlation factor rate and the obtained significance level, there is no relation between any of demographic features (age, service record, education rate, sport history, marital status) and Fasa City pre-hospital emergency personnel awareness of triage. A previous study was performed related to triage training relation with awareness and performance of Gorgan emergency department. The obtained results have shown that there is a positive and moderate correlation factor (0.363) between triage training and performance of emergency department³⁴. The obtained significance rate is 0.037 and also the multivariate regression results showed that triage training could be predictor of emergency department performance more than 11%. In a study related to investigating knowledge and performance of emergency department nurses about hospital triage concluded that there is no significant relation between demographic features and

knowledge³⁵. Also, there is a significant and positive relation between demographic features and their performance. In a study related to the impact of training on awareness and performance of emergency department nurses in the field of patients triage concluded that there was no significant relation between nurses personal features and their score 6 weeks after training, while there was a significant relation between nursing history, working in emergency department, type of employment and average of performance scores in six week after training³⁶. And it seems that training has had a positive impact on increasing awareness and performance of nurses in the field of patients' triage. In a study related to investigating the impact of triage training on awareness, attitude and performance of nurses working in emergency department of Rasht City Poorsina training treatment center concluded that the average of triage awareness score has significantly increased from 16.25 before training to 30.75 after training, the average score of triage attitude from 126.75 before training to 154.95 after training and the average score of triage performance from 39.77 before training to 55.85 after training ($p=0.0001$). Also, findings showed that triage training has been effective on awareness rate, attitude and performance of personnel working in emergency department. The results of the study showed that regarding the correlation factor and significance level obtained, there is no significant relation between demographic features (age, service record, education rate, sport history and marital status) with skill towards Fasa city pre-hospital emergency personnel triage. In a study related to investigating triage training relation with awareness and performance of Gorgan emergency department³⁷. The obtained significance rate is 0.037 and also the multivariate regression results showed that triage training could be predictor of emergency department performance more than 11%. In a study under the title of investigating knowledge and performance of emergency department nurses about hospital triage concluded that there is no significant relation between demographic features and knowledge. Also, there is a significant and positive relation between demographic features and their performance. In a study related to the impact of training on awareness and performance of emergency department nurses in the field of patients triage concluded that there was no significant relation between nurses personal features and their score 6 weeks after training, while there was a significant relation between nursing history, working in emergency department, type of employment and

average of performance scores in six week after training³⁸. In a study related to investigating the impact of triage training on awareness, attitude and performance of nurses working in emergency department of Rasht City Poorsina training treatment center concluded that the average of triage awareness score has significantly increased from 16.25 before training to 30.75 after training, the average score of triage attitude from 126.75 before training to 154.95 after training and the average score of triage performance from 39.77 before training to 55.85 after training ($p=0.0001$)³⁷. Other results showed that there is a significant relation between marital status and people working shift and the average of scores promotion in the awareness domain ($p<0.05$). Also, findings showed that triage training has been effective on awareness rate, attitude and performance of personnel working in emergency department. There is a significant relation between demographic variables and skill of Fasa City pre-hospital emergency personnel triage. The results of the study showed the rate of triage training impact on personnel awareness is higher than acceptable level but it is lower than the optimal level. In a study under the title of investigating awareness rate and performance of personnel of medical emergency about pre-hospital training concluded that the rate of awareness of studied people of triage was in medium extent. Also, the results of performance section indicate medium performance of employees⁴⁰. In a study under the title of predicting triage training based on performance, intelligence, satisfaction and awareness concluded that triage training has a considerable impact on research variables³⁹. Also, the results showed that there is a significant relation with performance. In a study under the title of the impact of triage training on awareness and performance of emergency department in the field of patients triage concluded that awareness, attitude and performance of personnel after 6 weeks have considerably increased. Has triage training an impact on Fasa city pre-hospital emergency personnel skill level? The results of the study showed the rate of triage training impact on personnel awareness is higher than acceptable level but it is lower than the optimal level. In a study related to investigating awareness rate and performance of personnel of medical emergency about pre-hospital training concluded that the rate of awareness of studied people of triage was in medium extent. Also, the results of performance section indicate medium performance of employees³⁷. In a study under the title of predicting triage training based on performance, intelligence, satisfaction and awareness concluded that triage training has a considerable impact on research variables³⁸⁻⁴⁰.

CONCLUSIONS

The results showed that there is a significant relation with performance. In a study related to training on awareness and performance of emergency department in the field of patients triage concluded that awareness, attitude and performance of personnel

after 6 weeks have considerably increased. Also, there is a significant relation between demographic features and awareness and performance. Also, no significant relation was observed between demographic features and awareness and performance.

ACKNOWLEDGEMENTS

The authors extend their thanks and appreciation to the Fasa University of Medical Sciences, Fasa, Iran to provide necessary facilities for this work.

DATA AVAILABILITY

The datasets generated during this study are available from the corresponding author upon reasonable request.

AUTHOR'S CONTRIBUTION

Jeihooni AK: leadership and oversight of the design and implementation of the research activity. **Kazemi M:** data collection, writing: preparing the first draft. **Yazdanpanah A:** visualization and research. All authors read and approved the final manuscript for publication.

CONFLICT OF INTEREST

None to declare.

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