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Effect of In-Person and E-Training on Nurse Managers' Perception of Patient Safety Culture in Hospitals of the Golestan Province, Iran

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ABSTRACT

Background and objectives: Patient safety culture is one of the basic principles of health care. Nurses are the first to be involved in the implementation of this culture in clinical settings. The aim of this study was to determine effect of in-person and E-training on patient safety culture of nurse managers working in hospitals affiliated to the Golestan University of Medical Sciences, Golestan Province, Iran.

Methods: This semi-experimental study was conducted on 60 nurse managers working in hospitals affiliated to the Golestan University of Medical Sciences in 2012. The subjects were randomly divided into an in-person training group and an E-training group. Data were collected using the patient safety culture questionnaire (originally designed by Liane Ginsburg). SPSS (version 16) was used for analysis of data using descriptive and inferential statistics.

Results: After the training intervention, the patient safety culture improved significantly in both groups ($P<0.001$). However, the mean score of patient safety culture in the in-person training group was significantly higher than that in the E-training group ($P<0.03$).

Conclusion: The results of this study showed that both training programs are beneficial for promoting the patient safety culture in nurse managers. Since the support, commitment and understanding of hospital managers are crucial for creating a positive safety culture, managers can provide planned strategies for improving patient safety.

KEYWORDS: Patient safety, safety culture, nurse managers, hospitals

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INTRODUCTION

Clinical governance is a novel, systematic and comprehensive approach for maintaining and improving the quality of health services (1). This strategy provides a framework within health organizations for continuous improvement of quality of health services and ensuring high standards of care (2, 3).

Patient safety is one of the dimensions of clinical governance (4) and a key component of quality of care (5). Medical procedures and treatments are not always safe and there is always the possibility of medical errors. Patient safety can be reffered to as the absence of any preventable harm during medical procedures inclduing medication errors, surgical errors, misdiagnosis, failure or faulty equipment, hospital infections, patient falls and bedsore (5, 6). unsafe care has serious consequences for the patient and his or her family, and put psychological pressure on healthcare personnel and the community, thus imposing a large burden on the health system and the society (5). In developed and developing countries, the health system aims to raise awareness of both patients and head nurses about patient safety in hospitals. As a representative of the front line of health care, nurses are the first to create a patient safety culture in clinical settings (6). For example, NHS has recognized the development and promotion of a patient safety culture in health centers, which urges nurse managers to prepare and analyze reports on this issue as part of a risk management program (7). Various factors such as communication, workforce, safety and security of the environment, culture and leadership are involved in creating a patient safety culture in hospitals (8, 9). Revealing errors and accidents, training staff on patient safety, reporting various types of errors, the use of an error reporting system, minimizing reproachful attitude towards employees, promoting teamwork and transparent communication between units are the hallmarks of the patient safety culture (5). Piotrowski and Hinshaw stated that management has a crucial role in activating and strengthening patients' safety culture and encouraging teamwork. Managers should consider errors as an opportunity and always contemplate employees for promoting patient safety (9). According to Ginsburg et al., effective promotion of the patient safety culture requires the support of managers (10).

Several studies on the promotion of patient safety culture and the impact of training methods have substantiated the increasing importance of this issue. Due to the lack of consensus on the best method and duration of training, we aimed to determine the effect of in-person and E-training on the patient safety culture in nurse managers working in hospitals affiliated to the Golestan University of Medical Sciences.

MATERIALS AND METHODS

This semi experimental study was carried out in 2012 on 60 matrons and educational supervisors in 14 hospitals affiliated with the Golestan University of Medical Sciences, Golestan Province, Iran. Inclusion criteria were willingness to participate in the study and having at least one year of work experience as head nurse, educational supervisor or matron. Those who did not cooperated and were unwilling to continue participation in the study were excluded. Written informed consent was obtained from all subjects after explaining the research objectives, procedures and benefits.

The participants were randomly divided into two groups of in-person (n=30) and E-training (n=30). Sample size was calculated using the method described by Ginsburg et al. at confidence level of 95% and statistical power of 80% (11). Data were collected using a patient safety questionnaire consisting of two parts. The first part included 40 questions about the patient safety culture that were scored based on a 5-point Likert scale ranging from completely agree (5 point) to completely disagree (1 points). The second part of the questionnaire included demographic information including age, gender, education level, work experience, working ward/department, history of ward management, ethnicity, etc. The questionnaire

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was obtained from the original designer (Liane Ginsburg), the forward and backward translation process was applied and the content validity was approved by 10 nursing experts. The reliability (internal consistency) of the questionnaire was confirmed with Cronbach's alpha coefficient of 0.83. The reliability of the original version of the questionnaire was 0.84 (11). The questionnaire was completed before the intervention and 10 days after the intervention.

In the in-person training group, a one-day workshop was held in a classroom. Training packages including workshop topics were given to the subjects. The workshop lasted seven hours and was presented by experts in the field of clinical governance and risk management. The trainings were delivered in form of lecture, questions and answers and group discussions. The workshop topics included the epidemiology of nursing and medical errors and its determinants, patient safety's position in the clinical governance strategy, clinical competencies of nurses and patient safety, patient safety standards in hospitals (safe environment standards, etc.), the role of nursing management in patient safety, medication errors and their management and root cause analysis in the management of patient safety. Finally, a workshop was held by the clinical nurse managers participating in the study on strategies for promoting patient safety. The same workshop contents were provided to the participants in the E-training group in form of CDs or educational pamphlets. Normality of data was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk test. Data were analyzed in SPSS (version 16) using descriptive statistics, Fisher exact test, chi-square test, independent t-test, paired t-test, Mann-Whitney and ANOVA at significance level of 0.05.

RESULTS

Mean age of the subjects was 40.56 ± 5.22 years. Most of the subjects had a bachelor's degree and were permanent employees. The demographic characteristics did not differ significantly between the two groups (Table 1).

Table 1. Demographic characteristics of the subjects

Groups	Characteristics	Variables	Number	Perception of patient safety culture (mean score ± standard deviation)	P-value
In-person training group	Gender	Woman	19	92.2 ± 12.2	0.44
		Men	10	96.8 ± 8.4	
	Position	Head nurse	7	84.4 ± 15.3	0.25
		Supervisor	14	92.6 ± 16.6	
		Matron	8	106.5 ± 10.2	
	Education	Bachelor's degree	26	90.29 ±13.6	0.11
		Master's degree	4	98.5 ± 10.5	
E-training group	Gender	Woman	26	92.2 ± 12.2	0.083
		Men	3	٩١ ± 7.4	
	Position	Head nurse	10	93.2 ±12.2	0.175
		Supervisor	13	92.2 ± 12.9	
		Matron	6	89.6± 7.94	
	Education	Bachelor's degree	27	93.21 ±11.6	0.76
		Master's degree	2	75.5 ± 6.1	

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The results showed that the in-person training significantly improved nurses' perception of the patient safety culture compared to the E-training (Table 2).

Table 2. Mean score of nurses' perception of the patient safety culture before and after the intervention

Group	Variable	Post-test	Pre-test	Mean difference	P-value within groups	P-value between groups
E-training	Number	29	29	11.45	P<0.001	P<0.03
	Mean	103.63	92.17			
	Standard deviation	11.5	5.9			
	Median	104	92			
In-person training	Number	28	29	28.15	P<0.001	
	Mean	122.75	94.6			
	Standard deviation	12.4	15.6			
	Median	112	94.5			

DISCUSSION

The aim of this study was to determine the effect of in-person training and E-training on the patient safety culture of nurse managers. Although both training methods improved the patient safety culture in the nurse managers, the mean score of nurses' perception of the patient safety culture was significantly higher in the in-person training group. In a study by AbuAlRub and Abu Alhijaa in Jordan, error reporting rates increased significantly and reproachful attitude towards nurses decreased significantly after seven session of E-training (1-2 hour lectures) on patient safety culture (12).

Jones et al. investigated impact of an online patient safety program based on voluntary reporting of medication errors on 1963 employees of 21 hospitals. In this program, participants not only reported their medication errors, but also analyzed them it in terms of severity, type, causes and stage of medication, and compared them with data from other hospitals. After two years, reassessment of the patient safety culture showed that the implementation of this program has had a considerable positive impact on various aspects of the patient safety culture (13), which is in line with our findings. Pakzad et al. reported that both in-person lectures and E-training can significantly improve patient safety, but the mean score of nurses' perception of the patient safety culture was significantly higher in the E-training group (14), which is inconsistent with our findings. Lecture-based training is a traditional and commonly used method of teaching that could produce positive, valid and appropriate outcomes while utilizing useful content and competent lecturers (15). However, lecture-based learning become inevitable for everyone at some point and could be useful for providing basic information (16).

Some studies have demonstrated a significant relationship between variables such as age, work experience (17), and education level (18) with patient safety. However, we did not observe any relationship between patient safety and demographic characteristics.

CONCLUSION

Based on the results of our study, it can be stated that both in-person training and E-training can significantly improve nurse managers' attitude toward patient safety. Therefore, it is recommended to use these methods to promote patient safety in hospitals

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and health centers. In addition to development of educational programs, designing supportive training programs by nurse managers seems necessary. It is suggested to investigate other aspects of the patient safety culture including medication errors reporting rate and root cause analysis in patient safety management in future studies.

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DECLARATIONS

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Ethics approvals and consent to participate

Written consent was obtained from all participants. The study received approval from the ethics committee of the Golestan University of Medical Sciences (ethical approval code: 2377/35/PG).

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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