Evaluation of patient safety culture in medical students

Evaluación de la cultura de seguridad del paciente en estudiantes de medicina

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Resumen

Introducción: la seguridad del paciente es la prevención de la prevención y la mejora de resultados desfavorables o daños resultantes del proceso de atención médica. Hoy, reducir y erradicar estos errores y ampliar la seguridad de la atención se ha convertido en una prioridad mundial. El objetivo principal del presente estudio es investigar las percepciones de los médicos internos de diferentes hospitales de la Universidad de Ciencias Médicas Shahid Beheshti sobre el tema de la cultura de seguridad del paciente.

Materiales y métodos: se seleccionaron 90 estudiantes de diferentes barrios. El cuestionario de cultura de seguridad del paciente AHRQ se usó para recopilar los datos. Cultura de seguridad del paciente en pasantes se estudió en 7 campos utilizando esta herramienta confiable y sostenible. pregunta de puntuación relacionada con cualquier elemento de 5 grados (1 a 5) usando Likert hecho. Las opciones incluyen totalmente en desacuerdo, en desacuerdo, neutral, de acuerdo y totalmente de acuerdo. Usando pruebas no paramétricas, se evaluó la relación de respuesta a cada ítem y se analizó la importancia de la diferencia de las razones.

Resultados: Los resultados generales mostraron que la puntuación de los rendimientos medios de la unidad de trabajo (p = 0.00), los errores de replicación (p = 0.00) y el hospital (p = 0.03) fueron significativamente más altos y las puntuaciones del grado de concesiones de seguridad del paciente (p = 0.00) son significativamente más bajas que el promedio también en los campos de supervisión (p = 0.058) y las comunicaciones (p = 0.1) las medias no mostraron diferencias significativas con respecto al promedio. Se observó el grado de seguridad del paciente en términos de diferencia estadísticamente significativa entre las puntuaciones de hombres y mujeres (p = 0.00) y el hospital (p = 0.01), mientras que en otras áreas hay diferencias significativas entre los grupos.

Conclusión: Los resultados de este estudio mostraron que, en general, en el campo de la cultura de seguridad del paciente, es necesario adoptar una actitud integral, es la falta de una gestión integral y una reducción eficiente de la seguridad del paciente en el hospital, seguido de un aumento de las lesiones a los pacientes y los sectores de salud .

Palabras clave: Seguridad del paciente, Cultura, Estudiante de medicina, Hospital.

Abstract

Introduction: Patient safety is the avoidance prevention and improvement of unfavorable results or harm resulting from the process of health care. Today, reducing and eradicating these errors and expand the safety of care has become a global priority. The main purpose of the present study is to investigate the insights of the medical interns of different hospitals of Shahid Beheshti University of Medical Sciences on the issue of patient safety culture.

Materials and Methods: Ninety students were selected from different wards The questionnaire of patient safety culture AHRQ was used to collect the data Patient Safety Culture in interns were studied at 7 field Using this reliable and sustainable tool. Scoring question related to any item 5 degrees (1 to 5) using Likert done. The options include strongly disagree, disagree, neutral, agree and strongly agree is. Using nonparametric tests, the ratio of responsiveness to each item was evaluated and the significance of ratios' difference was analyzed.

Results: The overall results showed that the score mean offields of work unit (p 0.01), replication errors (p>0.01) and hospital (p=0.03) were significantly higher and concessions degree of patient safety (p>0.01) scores is signifi-

cantly lower than the average. Also in fields of supervision (p=0.058) and communications (p=0.1) means did not show significant difference from average. The degree of patient safety in terms of statistically significant difference between the scores of men and women (p>0.01) and hospital (p=0.01) was observed, while in other areas there are significant differences between the groups.

Conclusion: The results of this study showed that in general in the field of patient safety culture needs to take a holistic is the lack of comprehensive management and efficient reduction of patient safety in the hospital, followed by an increase in injuries to patients and health sectors.

Keywords: Patient safety, Culture, Medical student, Hospital

Introduction

Apart from their undesirable impacts, the non-safety clinical services cause a significant economic burden to be imposed on the health system and society1-2. It is estimated that between 5% and 10% of health costs are due to non-safety clinical services that can lead to harm to patients1-2. In this regard, the contribution of systems failures is more than the role of individuals. Based on the World Health Organization's statistics and the results of the previous studies, about 10% of all patients during hospitalization are affected to varying degrees by medical errors, and it is estimated that up to 75% of these errors could be prevented1-2. During the last few decades, patient safety culture turned to be one of the key elements in improving the safety and quality of patient care, so that today, this issue is considered as to be the main concern of health system1-2.The medical interns enter the stage of practical training and following that they enter the health system, thus the development and promotion of safety culture among them is of particular importance1. The majority of researches are focused on hospitals and healthcare staff, while the number of researches conducted on the topic of patient safety culture is very little. The main purpose of the present study is to investigate the insights of the medical interns of different hospitals of Shahid Beheshti University of Medical Sciences on the issue of patient safety culture. Therefore, using the results of this study, the appropriate and useful strategies could be developed to improve the patient safety culture and the roots and causes of errors could be identified.

Methods

This study is a descriptive-survey research that was carried out in 4 teaching hospitals of Shahid Beheshti University of Medical Sciences in Tehran in 1396. A goal-based sampling method was used to select students from hospitals. Students were selected from different departments of the hospital. Accordingly, surgical departments, women, children, internal ward, emergency department, intensive care unit, psychiatric and others were considered.

To determine the sample size, Cochrane formula was used and the values of p = 0.5 and d = 80%, 90 is considered. The questionnaire of patient safety culture AHRQ was used to collect the data. Using this reliable and sustainable tool1-2, the patient safety culture was evaluated at 7 level including: workplace, supervisor, communications, accidents and errors, degree of patient safety, hospitals and the number of accidents. At first, a pilot- study was performed and 20 students were chosen randomly and the questionnaires were distributed among them. The reliability of questionnaire was confirmed by exploratory factor analysis used in previous studies and its sustainability was confirmed by a Cronbach's alpha-coefficient of 0.89.

After obtaining the respondent's consent, the questionnaires were distributed. If less than half of the items are attempted or all responses were the same, then the scale is not interpreted. The AHRQ safety culture questionnaire measured 7 level of safety culture, each of which included different sub- level. Responses were scored on a five point Likert scale ranging from one to five (Strongly Disagree takes 1, Disagree takes 2, neither takes 3, Agree takes 4, and strongly Agree takes 5). The data were analyzed by SPSS software. Assuming a 0.95 value as to be the significance level of one way t-test, mean score of each level was compared to assumed medium level. Using non-parametric tests, the ratio of responsiveness to each item was evaluated and the significance of ratios' difference was analyzed.

Findings:

The total number of participants was 90 medical students and 40 students (44.4%) were male and 50 (55.6%) were female. Their average age was 9±1.66, 25 years. The total score assigned to the "workplace" was 58.64±6.1, which was significantly higher than the mean (P<0.01). A review of the points by gender showed that the average score of men was more than that of women, so that the average score of men was 59.80 ± 6.2 and women's mean score was 57.72±59, but this difference was not statistically significant between men and women.

Regarding different dimensions of workplace's item, the results show that the mean score of the first question (the dimension of the students' attitude toward 'supporting

each other") was in medium level and there was not a significant positive tendency to strongly disagree or strongly agree scale (p=0.91). The mean score of questions 8-9-11-12-13-14 were significantly lower than the medium level and there was a significant positive tendency to disagree. These findings showed the negative attitude of respondents towards this dimension (p<0.05). Regarding the responses of other questions, it was found that there was a significant positive tendency to agree scale, and their mean score was significantly different from medium level. These findings showed the positive attitude of respondents towards this dimension.

In terms of supervisors, the study of safety culture includes 4 dimensions, as detailed in Table 2. A review of the points by gender showed that the average score of women was more than that of men, so that the average score of men was 10.62±2.8 and women's mean score was 10.70±2.4.This difference, however, was not statistically significant between men and women (p=0.99).Following that, the different dimensions of supervisors was analyzed. The mean scores of the dimensions of reward system or encouraging supervisors (item 1) and considering the students proposals for improving patient safety (item 2) (p=0.00), was significantly lower than the assumptive medium level. These findings showed the negative attitude of respondents towards this dimension. The mean score of the third question (the dimension of accelerating the activities by supervisors under high pressure) was significantly higher than the assumptive medium level. These findings showed the positive attitude of respondents towards this dimension (p=0.00) (table 2).

Table 1: SECTION A: Work Area/Unit

	Min	Max	Med &Standard deviation	P vanue
People support one another in this unit	1	5	3.01±.966	0.91
We have enough staff to handle the workload	1	5	3.86±1.045	> 0.01
When a lot of work needs to be done quickly, we work together as a team to get the work done	2	5	3.70±.930	> 0.01
In this unit, people treat each other with respect	1	5	3.23±984	0.027
Staff in this unit work longer hours than is best for patient care	1	5	3.88±1.004	> 0.01
We are actively doing things to improve patient safety.	1	5	3.54±.973	> 0.01
We use more agency/temporary staff than is best for patient care..	2	5	3.70±.905	> 0.01
Staff feel like their mistakes are held against them..	1	5	2.72±.862	0.003
Mistakes have led to positive changes here	1	5	2.52±1.019	> 0.01
it is just by chance that more serious mistakes don't happen aroundhere	2	5	3.82±.856	> 0.01
When one area in this unit gets really busy, others help out	1	5	2.73±.958	0.01
When an event is reported, it feels like the person is being written up, not the problem	1	5	2.43±1.082	> 0.01
After we make changes to improve patient safety, we evaluate their effectiveness	1	4	2.78±.790	0.009
We work in «crisis mode» trying to do too much, too quickly	1	5	2.49±.838	> 0.01
Patient safety is never sacrificed to get more work done	2	5	3.84±.911	> 0.01
aff worry that mistakes they make are kept in their personnel file	1	5	3.89±.827	> 0.01
We have patient safety problems in this uni.	1	5	2.93±.946	0.50
Our procedures and systems are good at preventing errors from happening.	2	5	3.56±.849	> 0.01

Table 2: SECTION B: Supervisor/Manager

	Min	Max	Med &Standard deviation	P vanue
My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	1	5	2.71±1.114	0.016
My supervisor/manager seriously considers staff suggestions for improving patient safety	1	5	2.41±1.016	> 0.01
Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	1	5	2.57±1.112	> 0.01
My supervisor/manager overlooks patient safety problems that happen over and over.	1	5	2.98±.861	0.80

The mean score assigned to the dimension of "communication" was 14.58±3.39, which was not significantly different from the mean (p=0.1). A review of the points by gender showed that the average score of women was more than that of men, so that the average score of women was 14.96 ± 3.4 and men's mean score was 14.10±3.3.This difference, however, was not statistically significant between men and women (p=0.38). The different aspects of the communication dimension was analyzed. As revealed by the findings, the dimension of the awareness of students about the errors occurred in hospital was not significantly different from assumptive mean score (score 3) (p=0.45), while the mean score of other aspects of the communication dimension was significantly different from assumptive mean score. This difference was statistically significant and showed that there was a significant positive tendency to disagree item and indicate the negative attitude of respondents towards the different aspects of the communication dimension (table 3).

With regards to the "incidents and errors" dimension of patient safety, three aspects were evaluated. The total score

assigned to the "workplace" dimension was 11.64±2.51, which was not significantly different from the mean (p 0.01). A review of the points by gender showed that the average score of men was more than that of women, so that the average score of men was 11.90±2.6 and women's mean score was 11.44±44, but this difference was not statistically significant between men and women (p=0.38). Additionally, in terms of the dimension of "incidents and errors", as revealed by the findings, the mean score of all aspects of this dimension was significantly higher than the assumptive mean score and this difference was statistically significant, as detailed in (table 4).

In section E: Patient Safety Grade regarding the degree of patient safety, the respondents were asked to rank and describe their units in terms of the degree of attention paid to patient safety as excellent, very good, acceptable, poor, and ignorance. The mean score assigned to the dimension of "the degree of patient safety" was 2.82±0.81, which was significantly different from the mean (p>0.01). A review of the points by gender showed that the average score of men was more than that of women, so that the average score of men was 3.05±0.78 and women's mean score was 2.6±0.59. This difference was statistically significant between men and women (p> 0.01).

In, section F, Hospital, was conducted. This survey measured 11 aspects of patient safety (table 6). Among 90 participants, the mean score assigned to the dimension of hospital was 28.24±5.6, which was significantly higher than the mean (p=0.03). A review of the points by gender showed that the average score of men was 28.02±5.1 and women's mean score was 28.42±6.2.This difference, however, was not statistically significant between men and women (p=0.84). These findings showed the neutral attitude of respondents towards this dimension. A review of the points assigned to the fourth dimension showed that its' mean score was significantly higher than the assumptive medium level. These findings demonstrated the positive and significant attitude of respondents towards this dimension (p=0.001), it is while the mean score of the dimensions (2, 3, 4, 7, 8, 9) was significantly lower than the medium level. This result showed the negative attitude of respondents towards these dimensions.

Table 3: SECTION C: Communications

	Min	Max	Med &Standard deviation	P vanue
We are given feedback about changes put into place based on eventreports	1	4	2.38±.869	> 0.01
Staff will freely speak up if they see something that may negatively affect patient care	1	5	2.31±1.013	> 0.01
We are informed about errors that happen in this unit	1	5	3.08±.986	0.45
Staff feel free to question the decisions or actions of those with moreauthority	1	4	2.11±.999	> 0.01
In this unit, we discuss ways to prevent errors from happening again	1	4	2.04±.860	> 0.01
Staff are afraid to ask questions when something does not seem right.	1	5	2.66±1.018	0.002

Table 4: SECTION D: Frequency of Events Reported

	Mnvvi	Maximum	Mean	Std. Deviation	P vanue
When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	1	5	3.62	1.077	0.01>
When a mistake is made, but has no potential to harm the patient, howoften is this reported? .	1	5	3.68	1.069	0.01>
When a mistake is made that could harm the patient, but does not, how often is this reported?...	2	5	4.34	.823	<0.01

Table 5: SECTION F: Your Hospital

	Minimum	Maximum	Mean	Std. Deviation	P vanue
Hospital management provides a work climate that promotes patient safety	1	5	3.12	.992	0.0246
Hospital units do not coordinate well with each other	1	5	2.53	1.062	0.01>
Things "fall between the cracks" when transferring patients from one unit to another	1	5	2.78	.921	0.025
There is good cooperation among hospital units that need to work together	1	5	3.38	1.034	0.001
Important patient care information is often lost during shift changes	1	5	2.90	1.102	0.392
It is often unpleasant to work with staff from other hospital units	1	5	2.84	.898	0.0104
Problems often occur in the exchange of information across hospital units	1	4	2.63	.880	0.01>
The actions of hospital management show that patient safety is a top priority	1	4	2.43	.862	0.01>
Hospital management seems interested in patient safety only after an adverse event happens	1	4	2.66	.823	0.01>
Hospital units work well together to provide the best care for patients	1	5	2.97	1.194	0.792
Shift changes are problematic for patients in this hospital.	1	5	2.07	0.854	0.097

By verifying the numbers of errors reported in the past 12 months, it is revealed that 91 percent of participants didn't report any error within this period. (Table 6).

Table 6: section G: Number of Events Reported

		Frequency	Percent
Valid	≥21	1	1.1
	6-10	2	2.2
	3-5	1	1.1
	1-2	4	4.4
	0	82	91.1
	Total	90	100.0

In order to verify the patient safety culture, the questionnaire's questions were categorized in 7 categories including: workplace, supervisor, communication, incidents and errors, degree of patient safety, hospitals and the number of reported incidents.

Among 90 participants, the mean score assigned to the "workplace" was 58.64±6.1. A review of the points by gender showed that the average score of men assigned to this item was more than that of women. The results showed that the mean score of the first question (the dimension of the students' attitude toward 'supporting each other") was in medium level and there was not a significant positive tendency to strongly disagree or strongly agree scale. Regarding the responses of other questions, it was found that there was a significant positive tendency to agree scale, and their mean score was significantly different from medium level. These findings showed the positive attitude of respondents towards this dimension.

In order to enhance the collaboration between hospital's staff that could lead to the better management of in an study results from multivariate regression analyses indicated a significant and positive relation between teamwork culture and patient satisfaction for inpatient care, and a significant and negative relation between bureaucratic culture and patient satisfaction for inpatient care. Other investigates discovered an almost 1 standard deviation difference in patient satisfaction scores between hospitals in the top third and bottom third of the spreading for the teamwork culture degree1.In the same line, the findings of our study showed that there was a good co-operation between interns across different units of hospital, and as approved by respondents, this proper collaboration yielded good results.

In terms of the different aspects of the "supervision" dimension, only the score of fourth question (the awareness of the supervisor on the patient's safety needs) had not a significant difference with the assumptive medium level. However, points of two aspects, to encourage the supervisor (1) and taking into account the suggestion of students to improve patient safety (2), were significantly lower than the medium level, which indicates a negative assessment of students in this regard. On the other hand, the score of third question, which examines the subject of accelerating the activities by supervisor under high work pressure, is significantly higher than the medium level and indicates a positive assessment of students in this regard. The finding of a study at Johns Hopkins University in 20032 showed the respondents believed that departmental supervisors had a higher commitment to hospital safety than hospital managers, and in cases where supervisors were directly responsible for controlling patients' safety, patients had higher satisfaction with the services provided. These findings are not compatible with the results of our study. Also, the results of the present study showed that, in terms of patients' safety culture, our management system has many problems and challenges that will probably affect the quality of patient service.

In terms of the dimension of "communication", the finding showed that only question 3 (students' awareness regarding the errors occurred in the hospital) statistically had a significant difference with the assumptive medium level, but the average scores of other aspects of communication was significantly lower than the assumptive medium level. This statistically significant difference indicates the students' significant positive tendency to disagree item and their negative assessment in this regard. Another similar study is conducted by Saeed Bodor et al in Turkey3. This study was conducted to examine the patients' safety culture across different hospitals of this country. The results showed that in cases where there is a strong surveillance and control, the degree of errors occurrence decreased and in cases where patients' safety issues followed-up seriously and feedback were communicated to the health care staff, is significantly higher than other fields. As revealed by the findings of the present study, the lack of a careful monitoring system that could appropriately communicate the feedback to the health care staff in the investigated hospitals is very evident. Also, the results of this study showed that, in terms of the patient's safety culture, there was no proper relationship between different units of hospital. In most cases, the interns pointed out that, in terms of communication, the score of the quality of the patient safety culture was lower than medium level and the patients' safety problems and challenges issues have not received good deal of attention or these issues are not appropriately communicated to the relevant authorities.

In terms of "accidents and errors", the corresponding results indicated that the mean score of all aspects of this dimension was higher than the assumptive medium level, and this difference was statistically significant. In general, reporting errors in hospitals is important to prevent them from happening and to improve patients' safety. Fortunately, the results of our study showed that the interns' viewpoints in this regard was positive, this approach can lead to the reduction of risks which endanger the patients. Study regarding Critical incident reporting systems

in the Turkish anesthesia departments/hospitals highlights the lack of knowledge and awareness of and use in anaesthesia departments/teaching hospitals in Turkey despite a safety reporting system set up by the Turkish Ministry of Health The results of this study and other studies1-2 showed that one of the main failures of Turkey's health system in the field of safety of patients follows from the problems relating to report the errors and in this regard, our situation is much better.

The total mean score assigned to the "patient safety degree" was 2.82±0.81, which was lower than the medium level. As revealed by the results of the examination of scores by gender, the mean score of men was higher than that of women, which was statistically significant between men and women. According to the results of a study he evaluation of patient safety by the professionals was "Regular" (48.9%). The dimension of the safety culture with the most positive effect was "Organizational learning-continuous improvement" (58.7%), and with least positive grades were "Opening for communication" (32.3%) and "Feedback and communication about errors" (32.6%)5. In different studies problematic areas in the safety culture of the sector, shows that this culture needs to be better developed, with special attention to the dimensions of the culture that presented a less positive evaluation5.

Further, all aspects relating to the field of "hospital" was analyzed. The results indicated that the mean scores of the first question did not have a significant statistical difference with the assumptive medium level. On the other hand, the scores assigned to the fourth aspect (lack of exchange of important information about patient in rotating shifts) indicated that the mean scores of this aspect was significantly higher than the medium level. These findings showed the participants' significant positive tendency to agree item. The information obtained showed that patient information was not properly communicated in rotating shifts, and this can lead to the failure of information and endanger the patient safety. Therefore, to remove these problems, the proper initiative should be undertaken. Finally, the numbers of error reports over last 12 months was reviewed and using following options, they were evaluated. 91% of participants did not report any error during the last 12 months. This finding has a positive effect on the evaluation of patient safety. In Australia, Johnson et al. have investigated the medical errors in Sydney hospitals that lead to harm to patients. The results of this study showed that from 2000 to 2010, errors reported by the medical or health care staff that led to harm to patients decreased from 12 cases in every 100 patients, to 7 cases.

These results indicate the improvement of the patient safety condition over last 10 years. The results of our study indicate that, in terms of the patient safety, our hospitals stand in good position, the fact that reflect the strengths of hospitals in the field of patient safety.

Conclusions

The results of this study showed that, the improvement of the patient safety culture requires comprehensive measures. One of the most important problems explored in this study was the lack of a comprehensive approach for promoting patient safety culture across different units of the hospital. Therefore, based on the results obtained in this study, we suggest that, to achieve a comprehensive promotion of the patient safety culture across all hospitals, a committee should be formed. Training medical and health care staff and promoting patient safety culture could be defined as the main mission of this committee.

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