Study of Patient Safety Culture from the Perspective of Nurses Working in Teaching Hospitals of Kurdistan University of Medical Sciences in 1401

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A R T I C L E I N F O	A B S T R A C T
	Introduction: Patient safety culture is an important aspect for the provision of quality health services, so that it has received attention at the global level, and is the main step in promoting and improving the patient safety culture to evaluate it, for this reason the purpose of this research is to investigation of patient safety culture from the point of view of nurses working in teaching hospitals of Kurdistan University of Medical Sciences in 1401. ***Materials and Methods:*** The present study was descriptive (cross-sectional) and the research sample included 300 nurses working in teaching hospitals of Kurdistan University of Medical Sciences, who were selected for the study by simple random sampling method. The study tool was the patient safety culture monitoring questionnaire in the hospital. Chi-square test was used to compare qualitative variables and independent t-test or its non-parametric equivalent, data analysis was done using Stata 14 software. ***Results:*** The overall score of patient safety culture dimensions is 140.053 and is in the average range. The dimensions of "information exchange and transfer" with a score of 16.933 is the highest, and the dimensions of "repetition of incident reporting" with a score of 9.9333 is the lowest. ***Conclusion:*** It is recommended that measures be taken at different levels, including the ministry and management, to promote patient safety culture, so that hospital managers implement safety culture policies and non-punishment policies in the hospital and support their employees.

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Introduction

One of the rights of hospitalized patients is to ensure that their needs are met and receive safe and comprehensive care from the health care system (1).

As the largest workforce in the field of health care, nurses play an important role in ensuring the quality of care and patient safety in hospitals (2). Quality of care is defined as the extent to which the best health outcome is achieved (3). The quality of care in the hospital is a multi-dimensional concept of which patient safety is one of the most important dimensions (4).

The first characteristic of the quality of nursing care is the purposefulness of care, and purposefulness has characteristics based on the patient's needs, the nursing process, having a caring attitude, achieving patient satisfaction, and science and knowledge (3). Patient safety, as one of the main components of the quality of health services, means avoiding any harm and injury to the patient while providing health care (5). Patient safety is an indicator of the quality of nursing care, so it can be considered the core of high quality nursing care (6). The phrase "safety culture" was officially used for the first time in 1986 by the International Atomic Energy Agency in the Chernobyl accident report (7). Safety culture is a term used to evaluate attitudes, beliefs, and perceptions and is considered to define the norms and values that determine how people react to reporting errors, analyzing them, and preventing life-threatening errors (8). The general set of beliefs, opinions and values of the group that is manifested in the behavior and shows its importance from the point of view of the treatment staff, is the definition that is proposed for the safety culture (7). Safety culture includes three parts of existing culture, error reporting culture and learning culture, and 12 dimensions, among which, error reporting culture is a prerequisite for learning culture (9). According to the statistics published by the World Health Organization, about 75 percent of errors related to patient safety can be prevented by establishing a culture of patient safety and creating appropriate organizational practices (10). The state of patient safety culture in American hospitals, which is announced by the Agency for Research and Quality of Health Care in 2018, was reported as average (65.33%) (11). Examining the status of patient safety culture in the nurses of Imam Khomeini Hospital in Ardabil in 2019 average patient safety culture has been reported (6). In the study of Elnaz Rahimi et al., which was conducted in 2019 to investigate the status of patient safety culture in the medical staff of four hospitals in Ardabil city, it was reported that the patient safety culture was moderate (57.71%) (12). In the study of Raisi and colleagues in 18 hospitals of Tehran and Iran Universities of Medical Sciences, the overall average of positive response percentages was between 42.74 and 67.22%, which evaluated the safety status of 12 hospitals as average and 6 hospitals as favorable (13).

In general, it can be said that the culture of patient safety plays a very important role in protecting the safety of patients in medical environments, and during the corona pandemic, due to the special conditions that were applied to the treatment and care of patients, the quality of nursing care was more or less affected.

This has caused the safety of all patients who are hospitalized with any problem to be compromised. Therefore, with the impact of the corona pandemic on nursing care, the present study was conducted with the aim of determining the patient safety culture from the perspective of nurses working in the teaching hospitals of the Kurdistan University of Medical Sciences in 1401. The results of this research revealed the problems and the status of safety culture in teaching hospitals of Kurdistan University of Medical Sciences.

Materials and Methods

The present study is a descriptive (cross-sectional) study that was conducted in 1401 among the nurses of Kurdistan University of Medical Sciences teaching hospitals in Sanandaj city. The purpose of this study was

to determine the patient safety culture from the perspective of working nurses. Sampling was done randomly so that after determining the total number of samples, the proportion of samples in each hospital was calculated.

$$n = \frac{z_{1-\alpha/2}^2 \times p(1-p)}{d^2}$$

The number of samples was calculated using the formula so that out of 300 nurses, 122 from Kausar Hospital, 101 from. Tawheed Hospital, 61 from Bethat Hospital and 16 from Quds Hospital were selected as samples.

The criteria for entering the study were having at least 6 months of work experience and consent to participate in the research, and the exclusion criteria were incomplete completion of the questionnaires. At all stages, the objectives of the research were explained to the participants and it was mentioned that they can withdraw from the study at any stage of the research.

The way to complete the questionnaires was in person and in all three work shifts (morning, evening and night). A two-part questionnaire was used to collect information. The first part included demographic characteristics in 7 questions (age, gender, marital status, education level, employment status, work experience, and shift work). The second part was the patient safety culture hospital monitoring questionnaire from the Health Care Research and Quality Agency it was that its American version was created in 2004 by Sora and Niwa (14). This questionnaire has been validated in Iran (Tehran University of Medical Sciences) through confirmatory factor analysis with Iranian culture by Javad Moghri. In the study of Maghri and her psychometric colleagues (2012), the Persian version of the Patient Safety Culture Questionnaire was conducted and the results indicate the appropriate validity and reliability of the tool. The correlation coefficient of the questions was between 0.57 and 0.80, the Cronbach's alpha of all areas was 0.82 and the Spearman-Brown coefficient was 0.81 (15). This questionnaire has 42 items that examined the perception of health providers in 12 dimensions. The dimensions of this questionnaire in the order of questions include: teamwork within organizational units (4 questions),

organizational learning (3 questions), general understanding of patient safety (4 questions), non-punitive response to error events (3 questions), issues related to employees (4 questions), management expectations and actions in line with patient safety (4 questions), management support for patient safety (3 questions), teamwork between organizational units (3 questions), exchange and transfer of information (5 questions), communication and providing feedback about errors (3 questions), openness of communication channels (3 questions) and frequency of reporting (3 questions). In this questionnaire, in order to obtain the opinions of the respondents, a Likert scale was used, where 1 means completely disagree and 5 means completely agree (12). Scoring was used to analyze the data. In this way, it is the least among the dimensions of 3 questions a minimum score of 3 and a maximum score of 15 were considered, in the dimensions of 4 questions, the lowest score was 4 and the highest score was 20, and in the dimensions of 5 questions, the lowest score was 5 and the highest score was 25. In general safety culture, the minimum score is 42 and the maximum score is 210. A score between 42 and 84 indicates a very weak safety culture, 84 to 126 indicates a weak safety culture, 126 to 168 indicates a moderate safety culture, and 168 to 210 indicates a strong safety culture. Data analysis was done using Stata 14 software. Chi-square test was used to compare qualitative variables and independent t-test or its non-parametric equivalent, Mann-Whitney U, was used to compare quantitative variables between two groups. One-way analysis of variance or its non-parametric equivalent i.e. Kruskal-Wallis was used to investigate the difference in the mean of quantitative variables in qualitative variables in more than two cases. To check the correlation between quantitative variables, Pearson's correlation coefficient or its non-parametric equivalent, i.e. Spearman's correlation coefficient, was used. The significance level in this study was considered $P<0.05$.

Results

Most of the nurses who participated in this study were in the age group of 20-30 years (60%). There were 184 female participants (61.3%) and they accounted for the highest

percentage. (62.2%) of the studied nurses were married. Most of the nurses present in the study were with a bachelor's degree in nursing. The employment status of the majority of nurses (48%) was official. The work experience of the studied nurses varied from zero (2%) months to 25 years (1%). 232 of the nurses participating in the study, which included a large percentage of them, had rotating work shifts (Table 1).

Table 1: Demographic characteristics

Demographic characteristics	Classification	Number	Percent
Age	20 - 30	180	60.0
	30 - 40	101	33.6
	40 - 50	19	6.3
Gender	Male	116	38.7
	Female	184	61.3
Marital status	Single	113	37.7
	Married	187	62.3
Education level	BSN	249	83.0
	MSN	51	17.0
Employment status	**Project nurse**	92	30.7
	Temporary nurse	7	2.3
	Contract nurse	57	19.0
	Official nurse	144	48.0
Work experience	Less than 1 year	29	9.6
	1 to 5 years	99	33.0
	5 to 10 years	104	34.6
	10 to 15 years	46	15.3
	15 to 20 years	14	4.6
	20 to 25 years	8	2.6
Work shift	Morning	68	22.7
	Rotary	232	77.3

In the present study, the status of patient safety culture in the target hospitals was examined, and the results of the patient safety culture hospital monitoring questionnaire were examined. The obtained results showed that the overall average score for the dimensions of patient safety culture in this research is 140.053 and is in the medium range. "Information exchange and transmission" had the highest score with a score of 16.933 and "Organizational learning" had the lowest score with a score of 9.330 (Table No. 2).

Table 2: The obtained score of dimensions of patient safety culture from the point of view of nurses

	Min	Max	Mean	Sd
Total safety culture	42.00	210.00	140	16.0
Team work within organizational units	4.00	20.00	13.9	2.8
Organizational Learning	3.00	40.00	9.33	2.5
General understanding of patient safety	4.00	20.00	13.2	2.4
Non-punitive response to an error event	3.00	15.00	10.7	1.9
Staff issues	4.00	20.00	14.7	2.0
Expectations and management actions in the direction of patient safety	4.00	20.00	11.3	2.7
Management support for patient safety	3.00	15.00	10.4	2.0
Teamwork between organizational units	3.00	15.00	10.1	2.3
Exchange and transfer of information	5.00	25.00	16.2	2.7
Communicate and provide feedback on errors	3.00	15.00	10.1	2.2
Open communication channels	3.00	15.00	9.58	2.3
Frequency of error reporting	3.00	15.00	9.93	2.2

Also, the relationship between dimensions of patient safety culture and demographic characteristics of employees was investigated. There is no significant relationship between the dimensions of patient safety culture and demographic characteristics (age, sex, marital status, education level, employment status, work experience and shift work) (Table 3).

Table 3: Relationship between patient safety culture and demographic characteristics

	Demographic characteristics	Mean	P value
Total safety culture	Age	-0.456	0.203
	Gender	-0.283	0.869
	Marital status	-1.945	0.566
	Education level	-0.212	0.748
	Employment status	-0.365	0.144
	Work experience	-0.145	0.322
	Work shift	-0.569	0.106

Discussion

The overall score of the dimensions of patient safety culture in this study is 140.053, which expresses the patient safety culture in the medium range. The overall average percentage of positive response to the aspects of patient safety culture in four hospitals of Ardabil University of Medical Sciences was 65.71% and similar to the present study, it was in the medium range (12). The average score of patient safety culture from the point of view of nurses working in the special departments of four teaching hospitals in Tehran was 144.330, which with an approximate difference of about 4 points seems to be similar to the present study (16). The dimensions of "information exchange and transfer" with a score of 16.933 and "issues related to employees" with the highest score of 14.793 and the dimensions of "frequency of reporting incidents" with a score of 9.933, "openness of communication channels" with a score of 9.583 and "organizational learning" with a score of 9.330 respectively received the lowest score. In Katsina Hospital, the high scores are related to the dimensions of "employee issues", "error reporting frequency" and "non-punitive response to the error event" (8). The results of the investigation of the patient safety culture in the internal, surgical and emergency departments of two public hospitals in four European countries,

including Croatia, Hungary, Spain and Sweden, show that the highest positive perception in all countries was the "teamwork in units" dimension. This dimension was associated with the most positive perception (more than 75%) and has shown strength for several countries. In Sweden, teamwork in units was considered a strength for all hospitals and in each unit (82.7%) (1).

In the four hospitals of Ardabil University of Medical Sciences, the highest percentage of positive response, unlike the present study, is related to the dimensions of "communication and providing feedback about errors" 86.82% and "teamwork within hospital units" 86.64% and the lowest percentage of positive response is similar. The present study was related to the dimension of "event reporting frequency" and it was 24.83% (12).

In the study of patient safety culture from the point of view of nurses working in special departments of four teaching hospitals in Tehran, the highest percentage of positive responses from nurses about patient safety culture was related to the "non-punitive response to events" dimension (67.5%) and the lowest percentage of safety culture In the next dimension was "performance and expectations of the supervisor/manager in relation to safety promotion" (28 percent) (16). In examining the dimensions of patient safety culture in the study conducted on nurses of Imam Reza (AS) educational center in Tabriz city, the highest mean scores related to the dimensions of "organizational learning", "support of hospital management for safety" and "general perception of safety culture" And the lowest average score was related to the dimensions of "teamwork between organizational units", "employee matters" and "non-punitive response to errors" (5).

In the study by Sharifi et al., in the hospitals of Mazandaran province, there was a significant relationship between the dimension of "group work between hospital departments" and age and work experience (17). Corona has been done, no significant relationship has been reported between any of the aspects of patient safety culture and demographic characteristics. Among the limitations that existed in this study, we can mention the large number of questions in the questionnaire and the possibility of

inaccuracy in completing the questionnaire by people due to fatigue and lack of time.

Conclusion

In this study, no significant relationship was found between any of the dimensions of patient safety culture and demographic characteristics. Patient safety culture in general in four educational hospitals affiliated to Kurdistan University of Medical Sciences in Sanandaj city was considered average. "Incident reporting frequency" was reported as one of the dimensions with the lowest score.

The factors of not reporting the error are divided into two categories, organizational and individual factors, and these factors can be the way of feedback and reaction of the authorities, disciplinary action, lack of recognition and awareness about the error, fear of the consequences of reporting, including reprimand or being blamed and hinted at a possible revenge.

The limitations of the study can be attributed to the concern of nurses regarding informing their superiors of errors that may be made and not being reported, which can be resolved by giving the necessary explanations and ensuring the confidentiality of the answers to the questionnaires and not needing to mention the name and surname. Creating a safe environment for nursing staff after errors can reduce the amount of errors to the lowest possible level and report unavoidable errors to senior officials without fear of consequences.

Acknowledgments

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