

## Survey of the Patient Safety Culture in the Clinics and Hospitals of Chabahar, Iran

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ARTICLE INFO	ABSTRACT
<p><b>Article type:</b> Original Article</p> <hr/> <p><b>Article history:</b> Received: 27-May-2017 Accepted: 24-June-2017</p> <hr/> <p><b>Keywords:</b> Clinic Culture Hospital Patient Safety</p>	<p><b>Introduction:</b> Patient safety is a basic principle of health care, and the purpose of the patient safety culture is to provide safe conditions for the care of patients. The present study aimed to evaluate the patient safety culture in the clinics and hospitals of Chabahar, Iran.</p> <p><b>Materials and Methods:</b> This cross-sectional study was conducted on three groups of physicians, nurses, and paraclinical staff in 2017. Data were collected by using the hospital survey on patient safety culture (HSOPS). Data analysis was performed in SPSS version 21 using descriptive statistics, ANOVA, and Tukey's post-hoc test.</p> <p><b>Results:</b> In total, 255.85 subjects were enrolled in the study and equally divided into three groups (33.3%). The minimum and maximum work experience was one and 27 years, respectively. Among the participants, 116 cases (45.49%) were female, and 139 cases (54.50%) were male. Mean total score of the patient safety culture was <math>149.87 \pm 25.20</math>. The lowest and highest scores were observed in the dimensions of 'non-punitive response to errors' (<math>3.23 \pm 9.11</math>) and 'teamwork within units' (<math>3.86 \pm 15.41</math>), respectively. The results indicated a significant difference between the three study groups in terms of the patient safety culture (<math>P &lt; 0.001</math>). However, mean score of the general perception of the safety culture had no significant difference between the physicians and nurses (<math>P = 0.064</math>).</p> <p><b>Conclusion:</b> Findings of the present study could help justify the establishment of a positive patient safety culture in the healthcare systems. In addition, recruitment of capable managers, who are committed to eliminating medical errors, is required for implementing the patient safety culture. Therefore, it is recommended that interventions in the field of the patient safety culture be planned and the association of patient safety and clinical outcomes be assessed in further investigations.</p>

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### Introduction

Patient safety is an inherent element of healthcare quality, which is considered to be a priority in today's health system to improve the quality of patient care (1-3). Patient safety involves preventing the losses

resulting from the errors caused by negligence in duty or actions, which in turn decreased the risk of the adverse events associated with medical services (4-6). In 1999, patient safety became a major concern

among healthcare researchers due to the high frequency of medical errors in the United States (7, 8).

According to the literature, medical errors are associated with the poor culture of patient safety (9). In 2004, the World Health Organization (WHO) initiated patient safety projects following the reports on human errors published by the Institute of Medicine (IOM) in 2000 (10). According to the IOM reports, more than 98,000 deaths occurred annually due to human errors in the United States (11). In 2005, WHO programs launched to describe the nature and extent of the damages imposed on the patients across the world, aiming to develop practical and culturally adapted solutions in all environments (10). Medical errors account for a major cause of mortality and morbidity in patients in different regions of the world, leading to the death and disability of millions of individuals (12).

According to the previous studies, an undesirable event or medical error leads to adverse effects in 3.7-16.6% of hospitalized patients (9, 13). Furthermore, some reports suggest that medical errors are the eighth causes of mortality in the United States (14), while in recent studies, medical errors are considered to be the third leading cause of death in the United States (15).

With this background in mind, implementing the patient safety culture is of paramount importance. Patient safety culture is a key priority for policymakers, healthcare providers, and managers, so that that proper planning and prioritization are constantly carried out to promote this concept for the public. Continuous emphasis on this concept in healthcare organizations is known to create a strong and positive patient safety culture (16, 17). Patient safety culture as an integrated pattern of the individual and organizational behaviors, established based on specific beliefs and values to enhance the quality of healthcare and minimize the harm to the health of patients through proper care (9). In a study, Tsao considered the patient safety culture to be the foundation of health care, which also plays a pivotal role in the promotion of trust, strengthening error reports, and preventing pseudo-events and possible risks to healthcare providers (11). In this regard, Laal examined the attitudes of individuals toward the patient safety culture in healthcare systems and concluded that improving the patient safety culture is essential to the management of hospitals and clinics, holding collaborative training, development of educational programs, and designing systems for the effective report of events (18). In another research, Wang assessed the association of the patient safety culture with medical complications in several hospitals in China. According to the findings, improving the patient safety culture was positively associated with the reduction of medical incidents and adverse events (19). Furthermore, Kaboudi (20) and Da Costa (21) have confirmed the patient safety culture to be a proper measure to reduce medical errors. Despite the paramount importance of the patient safety culture, we still witness the irreparable damages caused for

patients due to medical errors. Data published on the patient safety culture in the medical centers in Iran are often limited to some studies in the large, central cities. Cultural, economic, and social differences between the metropolises and small towns, as well as the lack of reports on the level of patient safety in the healthcare centers of small cities, are among the obstacles against elaborating on the status of the patient safety culture in Iran. The present study aimed to evaluate the level of patient safety culture among the healthcare providers in Chabahar, a port located in the south of Iran.

## Materials and Methods

This descriptive, cross-sectional study was conducted in 2017. Study population consisted of all the clinical personnel of the clinics and hospitals in Chabahar, including nurses, head nurses, physicians or residents, and paraclinical staff. With the standard deviation (SD) of 10 from the previous study (18), 95% confidence interval, and accuracy of 2.5, 64 samples were considered for each study group. Participants were selected via convenience sampling. In the next step, considering the potential sample loss and lack of response, 85 nurses and nursing assistants, 85 physicians, and 85 clinical personnel were selected to complete the questionnaire. Data were collected using the hospital survey on patient safety culture (HSOPS), developed by the Agency of Health Research and Quality (AHRQ) in 2004, which has been widely used to evaluate the opinions of hospital staff on the patient safety culture in different regions of the world (22).

HSOPS contains seven demographic items, and 42 items measure the patient safety culture as the dependent variable. Items in the questionnaire were scored based on five-point Likert scale, and necessary modifications were made on the items with negative load, so that higher scores would indicate the desirability of the patient safety status. In HSOPS, the independent variables included 12 dimensions, including 'communication openness', 'non-punitive response toward errors', 'organizational learning-continuous improvement', 'overview of the current status of patient safety', 'expectations and actions of manager to promote patient safety' (three items each), 'feedback and communication about errors', 'frequency of incident report', 'management support of patient safety', 'employee-related issues', 'displacing the important patient data between clinics and shifts', and 'teamwork between the wards' (four items each, each item with five options). Total score of each dimension in the HSOPS was calculated by summing up the scores of all the items, which were added up to obtain the overall score. In this questionnaire, scores lower than 105 indicated poor patient safety culture, scores 105 to less than 157.5 showed medium patient safety culture, and scores 157.5-210 demonstrated favorable patient safety culture. Validity and reliability of the Persian version of HSOPS have been confirmed by Maqari for the Iranian population (23). Data analysis was

performed in SPSS version 21 using Shapiro-Wilk test to evaluate the normality of data. Moreover, one-way ANOVA and Tukey's post-hoc test were used to measure the differences in the patient safety culture between the study groups. To determine the correlations between various dimensions of the patient safety culture, Pearson's correlation-coefficient was used. In all statistical tests, level of significance was considered at 0.05. Prior to participation, informed consent was obtained from the participants without coercion, intimidation, bribery or refusal of the subjects at any stage during the study. Participation in the research was voluntary, and the participants were assured of confidentiality terms regarding their personal information.

## Results

In total, 255 participants were recruited and divided into three groups of physicians, nurses, and paraclinical staff (85 subjects per each group; 33.3%). The minimum and maximum work experience was one and 27 years, respectively. Among the participants, 116 cases (45.49%) were female, and 139 cases (54.50%) were male. In terms of the education level, the majority of the subjects had bachelor's degree ( $n=97$ ; 38.03%). With regard to marital status, 177 participants (69.4%) were married, 75 cases (29.4%) were single, and three cases (1.2%) lived alone due to the death of their spouse. In addition, none of the subjects were divorced.

According to the information in Table 1, mean total score of the patient safety culture was  $25.20 \pm 149.87$ .

The lowest and highest score (maximum score: 20) belonged to the dimensions of 'management support of the patient safety culture' ( $2.21 \pm 10.51$ ) and 'teamwork within units' ( $3.86 \pm 15.41$ ), respectively. Additionally, 'non-punitive response to errors' was observed to have the lowest score in the dimensions ( $3.23 \pm 9.11$ ).

**Table 1: Mean Scores of Patient Safety Culture and Its Dimensions in Clinics and Hospitals of Chabahar, Iran**

Dimensions of Patient Safety Culture	Mean	SD	Max Possible Score
Frequency of Incident Reports	11.63	2.26	20
General Understanding of Patient Safety	14.69	3.00	15
Expectations and Measures for Manager in Promoting Patient Safety	14.77	3.31	15
Organizational Learning-Continuous Improvement	11.08	2.10	15
Teamwork within Units	15.41	3.86	20
Communication Openness	10.17	2.85	15
Feedback and Communication about Errors	10.79	2.48	20
Non-Punitive Response to Errors	9.11	3.23	15
Employee-Relates Issues	13.21	3.27	20
Management Support of Patient Safety Culture	10.51	2.21	20
Teamwork between Hospital Wards	14.11	3.41	20
Transfer of Important Patient Data between Wards and Shifts	14.33	3.59	20
Patient Safety Culture Dimensions	149.87	25.20	210

According to the results of Pearson's correlation-coefficient (Table 2), there was a significant positive correlation between the patient safety culture and each of its dimensions ( $P < 0.05$ ); the most notable associations in this regard were observed between the patient safety culture and 'teamwork within units' ( $r=0.775$ ), while the least significant correlation was with the dimension of 'employee-related issues' ( $r=0.577$ ).

**Table 2: Correlations between Patient Safety Culture and Its Dimensions**

Dimensions of Patient Safety Culture	Patient Safety Culture	
	r	P-value
Frequency of Incident Reports	0.602	0.001>
General Understanding of Patient Safety	0.679	0.001>
Managers' Expectations and Measures to Promote Patient Safety	0.767	0.001>
Organizational Learning-Continuous Improvement	0.711	0.001>
Teamwork within units	0.775	0.001>
Communication Openness	0.726	0.001>
Feedback and Communication about Errors	0.702	0.001>
Non-Punitive Response to Errors	0.709	0.001>
Employee-Related Issues	0.577	0.001>
Management Support of Patient Safety	0.691	0.001>
Teamwork within Units	0.774	0.001>
Transfer of Important Patient Data between Wards and Shifts	0.774	0.001>

Scores obtained in the dimensions of patient safety culture in the three study groups are presented in Table 3.

Accordingly, the score of patient safety culture had a significant difference among the three groups ( $P < 0.05$ ).

According to the results of Tukey's post-hoc test, the significance between the study groups was in pairs, while in all the dimensions of the binary groups, the difference was not significant, so that the lack of significance was mostly related to the nurses and paraclinical staff and physicians and clinical staff in several dimensions.

Of note, no significant difference was observed between the physicians and nurses in terms of the mean score of the general perception toward the patient safety culture ( $P=0.064$ ).

In the three study groups, the mean score of patient safety culture in most of the dimensions was higher in nurses compared to the physicians and paraclinical staff.

On the other hand, the highest score of the patient safety culture belonged to the dimensions of 'teamwork within the units' in all the study groups. In addition, the highest score obtained by nurses in the dimension of 'teamwork within units' was  $16.94 \pm 3.13$ .

**Table 3: Mean Scores of Patient Safety Culture in Study Groups**

Dimensions of Patient Safety Culture	Physicians	Nurses	Paraclinical Staff	P-value
Frequency of Incident Reports	10.89±2.19	12.17±2.25	11.83±2.18	0.001
General Understanding of Patient Safety	13.75±2.59	15.54±3.15	14.76±2.99	0.000
Managers' Expectations and Measures to Promote Patient Safety	13.36±2.90	15.94±2.85	14.97±3.63	0.000
Organizational Learning-Continuous Improvement	10.54±1.89	11.80±2.15	10.89±2.06	0.000
Teamwork within units	14.09±3.49	16.94±3.13	15.17±4.35	0.000
Communication Openness	9.10±2.40	11.24±2.85	10.15±2.88	0.000
Feedback and Communication about Errors	9.75±2.30	11.97±2.19	10.62±2.46	0.000
Non-Punitive Response to Errors	7.80±2.63	10.12±3.31	9.37±3.29	0.000
Employee-Related Issues	11.67±2.97	14.40±3.74	13.51±2.35	0.000
Management Support of Patient Safety	9.67±2.03	11.55±2.61	10.28±1.42	0.000
Teamwork within Units	12.92±2.72	15.50±3.18	13.89±3.76	0.000
Transfer of Important Patient Data between Wards and Shifts	13.23±3.11	15.43±3.85	14.30±3.46	0.000
Total	136.84±16.16	162.65±28.10	149.81±22.95	0.000

## Discussion

The present study aimed to evaluate the level of the patient safety culture among the three groups of medical staff in the hospital and clinics of Chabahar, Iran. According to the results showed, total mean score of the patient safety culture was 149.87 in the hospitals and clinics of Chabahar, which indicated the patient safety culture to be at a medium level. Furthermore, the perceptions of the healthcare providers toward the patient safety culture revealed that the studied care centers had poor performance in several dimensions of the patient safety culture. According to our findings, the lowest possible score belonged to the dimension of 'non-punitive response to errors', which is in line with the previous studies in this regard. In fact, healthcare employees believed that reporting their errors would be consequential with respect to their work experience and records. In addition, it was assumed that the management's focus on the blame of the personnel might lead to the negligence of the faults and shortcomings in the health systems. As such, culture of blame and punishment confines the prevention of medical errors. Consistently, in the studies by Laal (18), Maqari (23), and Chen and Li (24), the lowest score of the patient safety culture was reported in the dimension of 'non-punitive response to errors', while the total score of the patient safety culture was reported to be at a medium level in the study by Laal.

In the current research, low scores were obtained in the dimension of 'management support of patient safety'. Considering that our research and the study by Laal (18) have both been conducted in Sistan-Baluchestan province (Iran), it could be inferred that this dimension of patient safety is often neglected and requires the immediate attention of the academic directors and healthcare managers. In this regard, managers should create a proper environment to promote patient safety and demonstrate that patient safety is one of the key priorities of the hospital.

In the present study, the highest mean score of patient safety belonged to the dimension of 'teamwork within units' (3.86±15.41), which is in congruence with the majority of the studies in this regard. For instance, findings of Laal (18), Al Ahmadi (25), and Ravaqi (26) were indicative of the favorable score of this dimension. As observed in the current research, various hospital and clinical wards had effective cooperation in offering the most appropriate care services to the patients.

According to the findings of Al Ahmadi (25) and Ravaqi (26), the highest rate of positive responses belonged to the dimensions of 'organizational learning-continuous improvement' and 'teamwork within units'. On the other hand, Fadi El-Jardali (27) reported that 'organizational learning-continuous improvement' and 'non-punitive response to errors' were the strongest and weakest dimensions of the patient safety culture in hospitals, respectively.

In general, it could be stated that patient safety must be a strategic priority for policymakers and healthcare providers, and adequate budget must be allocated to enhancing this issue. A basic approach to improve the patient safety culture is the training of personnel in the health system. In a study by Ling (28), which evaluated the effect of patient safety training in healthcare providers, it was concluded that holding such courses could improve several aspects of the patient safety culture. Moreover, improvement of the patient safety culture could reduce medical errors, which has been confirmed by the Wang as well (19). Similarly, in the research by Abdi (29), many participants considered training on patient safety and medical errors to play a key role in increasing their knowledge in this regard.

According to Wang (2014), improving the patient safety culture could reduce the incidence of adverse events (19). In addition, to enhance the patient safety culture, healthcare staff must be aware of the errors and

learn from changes. According to the findings of the present study, immediate improvement was required in the dimension of 'management support of patient safety' in the selected clinics and hospitals.

One of the limitations of the current research was the length of the HSOPS, which caused the refusal of some participants to complete the questionnaire. This problem was overcome by explaining the paramount importance of patient safety to the participants and their awareness of this issue, which encouraged the staff to respond to the items of the questionnaire with patience and care. Moreover, by assuring the participants of confidentiality terms, they were asked to avoid conservatism in responding to the items and expressing their real opinions without concern.

### Conclusion

Findings of the present study could elaborate on the pivotal role of the patient safety culture in the prevention of medical errors in care centers and justify the need for the establishment of a positive safety

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