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Assessment of Safety Culture in Isfahan Hospitals (2010)

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ABSTRACT

Introduction. Many internal and external risk factors in health care organizations make safety important and it has caused the management to consider safety in their mission statement. One of the most important tools is to establish the appropriate organizational structure and safety culture. **The goal** of this research is to inform managers and staff about current safety culture status in hospitals in order to improve the efficiency and effectiveness of health services. **Methods:** This is a descriptive-survey research. The research population was selected hospitals of Isfahan, Iran. Research tool was a questionnaire (Cronbach alpha 0.75). The questionnaire including 93 questions (Likert scale) classified in 12 categories: Demographic questions, Individual attitude, management attitude, Safety Training, Induced stress, pressure and emotional conditions during work, Consultation and participation, Communications, Monitoring and control, work environment, Reporting, safety Rules, procedures and work instructions that distributed among 45 technicians, 208 Nurses and 62 Physicians. All data collected from the serve was analysis with statistical package of social science (SPSS). In this survey Friedman test, Spearman correlation, analysis of variance (ANOVA) and factor analysis have been used for data analyzing. **Results:** The score of safety culture dimensions was 2.90 for Individual attitude, 3.12 for management attitude, 3.32 for Safety Training, 3.14 for Induced stress, pressure and emotional conditions during work, 3.31 for Consultation and participation, 2.93 for Communications, 3.28 for Monitoring and control, 3.19 for work environment, 3.36 for Reporting, 3.59 safety Rules, procedures and work instructions that Communication and individual attitude were in bad condition. Safety culture among different hospitals: governmental and educational, governmental and non-educational and non-governmental and different functional groups (physicians, nurses, diagnostic) of studied hospitals showed no significant differences. There was no relationship between safety culture and demographic data. **Conclusion:** It was concluded that is no different among governmental and educational, governmental and non-educational and non-governmental in level of safety culture, all of them were on intermediate level so it is essential to attention to the safety culture in hospitals and planning to improve it.

Key words: Hospital, safety culture, staff

1. INTRODUCTION

A variety of reasons and different factors may threaten the safety of individuals in every workplace including manufacturing, service delivery and administrative (1). Due to internal factors and external disaster factors of safety in the hospital must be surveyed and analyzed (2). Furthermore, the importance of this issue rise up when we know that patients, visitors, staff and the community at large are exposed to safety risk factors in health care organizations (3).

Safety culture is a set of Values, beliefs and behavior patterns common between members of an organization which determines nature and general procedures of that organization. In other words, the behaviors and attitudes of members are the function of general culture governing the organization. Safety culture is part of the general culture of organization which influences on and directs the behaviors and attitudes of members about safety issues (4).

The safety culture is seen as a key to improving safety performance in most organizations today (5). Therefore, all human societies and organizations want to have an appropriate safety

culture program and to fulfill this goal, otherwise they pay a heavy price. When all members of the organization understand why safety is important and institutionalized it then the safety culture will be valuable and a priority of organization. Then the safety becomes a culture in organization which makes people do their work more carefully (6). Because of importance of this issue, several studies have been done in this regard, including: Singer and colleagues who have stated that the hospital cultures are significantly different between different hospitals and hospital departments and units (7).

Even employee perceptions and understanding of the safety culture of organization is different according to their job and ahead of the expertise and units in the organization. Pronovost and colleagues stated that nurses had higher scores about safety awareness than doctors. In assessing the safety culture organizations are faced with different components, each of which has serious effect on safety. Some organizations had a good performance about some components, but the other components require more attention (8). In Alhamdi research the strengths of most hospitals were: staff training, continuous

quality improvement, teamwork within units, feedback and communication, also it is necessary to improve the reporting of events with non-punitive response to errors, applying the proper staffing and teamwork between hospital units (9).

In another study done by Tayebi titled evaluation of safety attitude of a medical center employees: there was significant difference in perceptions between managers and nurses and allied health personnel in stress recognition and other safety factors (10).

Results of Zarvashani study indicated that 20% of the staff had positive attitude about safety, 67% had average attitude, 11/5% had poor attitude towards safety and 1.5% had the lowest attitude (11). In Roozbahani 's study the findings showed that radiology safety in hospitals of the Medical University of Isfahan had weaker than average score (12).

Another study by Forouzan and coworkers Patient safety culture in all hospitals of Medical University in Shiraz were undesirable (13). The Johnson and Maltsby in the research designed a program to improve safety. In that study they implemented an Auto-code technology which let to a reduction of 20% in medical errors (14).

In studying the safety culture Chiang realized that 69.4% of hospitals had an average score of safety culture (15). In another study Mohammadfam found similar result to Chiang study (16).

The results of Abdi's research studying patient safety culture showed low scores on ten dimension of safety culture (17). In general all the previous studies in Iran showed that less attention has been paid to safety culture in health care while other services of industry has had much improvement in this area. Managing patient safety culture requires an understanding of organizational cultural values and beliefs in order to change risk full behaviors and practices. Otherwise the organization will be confronted with cultural disturbances problem.

Therefore it is necessary for managers to do a situational analysis concerning the organizational values and beliefs to determine strengths and weaknesses of present safety culture programs.

In this study we attempted to evaluate the current condition of safety culture of academic-governmental, non academic-governmental and private hospitals. The population of study were doctors, nurses and diagnostic department employees. This study provides useful information for managers in order to promote safety culture in their hospitals through appropriate corrective action.

2. METHODS

This is a descriptive-survey research. The scope of study is selected academic-governmental, non academic-governmental and private hospitals under the supervision of medical university of Isfahan. The hospitals included Kashani, Nour and Ali Asghar, Feyz, Amin from governmental-teaching hospitals, Hazrate Zahra, Sina, Sa'di, Baharestan from non-governmental hospitals and Isabne maryam from governmental-non teaching hospitals. The population sample research was 1763 people and the research sample was 315 people using Stratified random sampling. The research tool questionnaire had 93 items and the research sample included 62 physicians, 208 nurses in various levels at head nurse and clinical nurse positions and 45 laboratory and radiology technician and technologist. Validity and reliability of research tool was approved (Cronbach alpha 0.75). The questionnaire including 93 questions

(Likert scale) classified in 12 categories: Demographic questions, Individual attitude, management attitude, Safety Training, Induced stress, pressure and emotional conditions during work, Consultation and participation, Communications, Monitoring and control, work environment, Reporting, safety Rules, procedures and work instructions. All data collected from the survey was analysis with Statistical Package of Social Science (SPSS). In this survey Friedman test, Spearman correlation, analysis of variance (ANOVA) have been used for data analyzing.

3. RESULTS

The tables contains dimension of safety culture, the relationship between hospital type and safety culture, the relationship between functional groups, hospital type and safety culture and Spearman correlation test and the figure include indicators status of safety culture.

Dimensions of safety culture: The amount of p-value safety culture Indicators was <0/001 and less than 0.05 (Table 1). The average amount of samples was greater than 3. From the above finding we can conclude that the safety culture in selected hospitals is on average level compared to mean level. Other indicators of safety culture are higher than the average (3) except individual attitude and communication (figure 1).

The Friedman test showed four indicators currently are in favorable conditions of hospital staff which include: Rules and safety procedures, safety training, reporting, Consultation and participation.

	Total	mean	SD	The standard error of the mean
Individual attitude	315	2.9053	.45273	.02551
Management attitude	315	3.1278	.37426	.02109
Safety Training	315	3.3271	.54845	.03090
Reporting	315	3.3620	.91972	.05182
Consultation and participation	315	3.3128	.68261	.03846
Communication	315	2.9365	.62356	.03513
Monitoring and control	315	3.2840	.45717	.02576
Work environment	315	3.1957	.51783	.02918
Safety Rules, procedures and work instructions	315	3.5901	.65607	.03697
Induced stress, pressure and emotional conditions during work	315	3.1416	.50809	.02863

Table 1. Descriptive statistics of Safety Culture

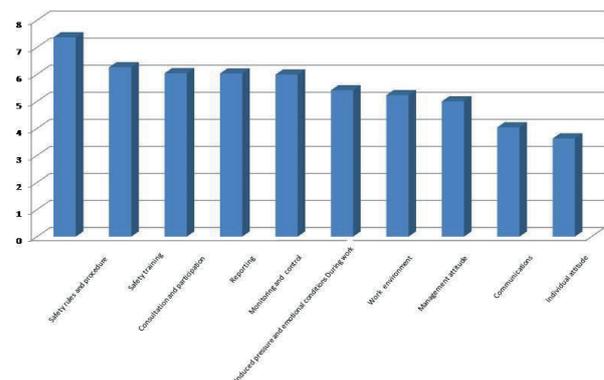


Figure 1. Bar graph safety culture indicators (based on Friedman's test)

The relationship between hospital type, and safety culture is shown in Table 2. Results of Table 2 shows the score of safety culture in Governmental-teaching hospitals, Governmental-nonteaching hospitals and non Governmental hospitals hospitals is on favorable condition.

The results of Chi-Square test value and table results that Sig = 0.367 > 0.05 we can accept that three groups of hospitals are in the same condition and there is no significant difference.

Rating average	Hospitals type
46/151	Governmental-teaching hospitals
49/172	Governmental-nonteaching hospitals
50/162	Governmental hospitals non

Table 2. The relationship between hospital type, and safety culture

The relationship between functional groups, and hospital type and safety culture as it shown in Table 3 safety culture score in 3 groups of hospitals was close to one another therefore we can assume that there is no significant difference in safety culture score.

Safety culture Score	Total	Functional groups	Hospital type
14/83	106	Nurses physicians Diagnostic groups total	Governmental- teaching hospitals
47/67	34		
19/71	16		
50/78	156		
06/17	18	Nurses physicians Diagnostic groups total	Governmental- nonteaching hospitals
37/11	12		
73/4	5		
20/13	35		
98/56	82	Nurses physicians Diagnostic groups total	Non Governmental- hospitals
02/79	16		
69/57	22		
05/60	120		

Table 3. The relationship between functional groups, hospital type and safety culture

In demographic factors and their impact on safety culture as it shown in Table 4, 33.7% of respondents were male and 65.7% were female. 42.2% of respondents were in the age group 40-30 and 07% were over 50 years old. 66% of respondents had B.Sc, 20.3% had M.Sc and upper, 9.5% were technician and 3.2% had high school diploma in referenced to level of education . 59.4% of respondents were nurse, 17.5% physicians and 13% included diagnostic groups. The most respondents work experience was about 1-10 years. According to the Spearman correlation test safety culture had no relation to work experience, education and age and the age and work experience were significantly correlated.

4. DISCUSSION AND CONCLUSION

This study was the first safety culture assessment in the health care centers in Isfahan. So the findings of this research produced an opportunity for health system managers and providers of health services to improve their organizational safety in order to provide a change in culture and infrastructure. The result (Table 1) showed that the rules, work procedures and safety guidelines had the highest score and the individual attitude and communication had the lowest scores and among the 10 safety culture dimensions ranked ninth and tenth in selected hospitals.

Study results also indicated that the individual attitude was not a priority for managers and the role of this factors on safety culture and health system improvement has not been significant. This result is consistent with Roozbahani study (12) but does not comply with Forouzan Research (13).

Safety culture scores concerning communication dimension were consistent with Alhamdi research (9) and Abdi research results (17). The safety culture scores in individual attitude and communication dimension were low because individual attitudes formed the basis for appropriate communications between people and infrastructural problems caused employees to follow their individual interests and forget the mission of their organization.

In our study the results also showed that the score of safety culture in relation to rules, work procedures and safety guidelines had the highest score among the ten dimensions of the safety culture which are similar to Johnson and Maltsby study (14). In their study the staff expressed that the patient care processes and procedures are important factors and 97% also believed that patient care processes are designed to minimize medical errors.

The staff also believed that the existence of approved policy and procedures, rules and regulations, accreditation assessment and evaluation facilitate matters of and good communication.

The safety culture among different hospitals: governmental and educational, governmental and non-educational and non-governmental and functional groups of hospitals studied (Tables 2 and 3) showed no significant differences. These results did not match with results of Singer and colleagues study (7), Pronovost and colleagues study (8) and Tayebi's study (10).

Singer and colleagues said that the culture among different hospital, different wards and different units differ significantly although the nurses and physicians differed in their attitude

		age	education	work experience	Safety culture
Spearman Age	Correlation	1.000	.083	.760(**)	.038
	Sig. (2-tailed)	.	.159	.000	.523
	N	289	288	273	289
Education	Correlation	.083	1.000	-.052	-.045
	Sig. (2-tailed)	.159	.	.372	.433
	N	288	312	292	312
work experience	Correlation	.760(**)	-.052	1.000	.014
	Sig. (2-tailed)	.000	.372	.	.815
	N	273	292	293	293
Safety culture	Correlation	.038	-.045	.014	1.000
	Sig. (2-tailed)	.523	.433	.815	.
	N	289	312	293	315

Table 4. Spearman correlation test

towards safety efforts in their hospitals. Doctors fear of embarrassment due to committed errors was more than nurses (7).

Pronovost and colleagues study (8) showed that the nurses had more safety awareness than doctors and Tayebies study (10) results showed that supervisors commitment to safety culture was more compared to top managers.

Also in Tayebi research, job satisfaction, stress, understanding management and were different between managers, nurses and staff while the employees had the same attitude towards team work, work climate and their work status (10).

In our study the results resemblance is probably because of the same conditions, facilities, staff training, management style and awareness of three functional groups to safety issues related to their job. According to the Spearman correlation test (Table 4), safety culture was not related to work experience, gender, education level and age only employees experience and age were significantly correlated. Based on Chiang and Zarvashani study there was no significant relation between gender and safety culture so this study which is consistent with our results (11, 15).

As stated in Mohammadfam's study (16) there was positive and significant relationship between ages, work experience with safety culture score which is different from our study. The result of their study also showed the effect of occupation type, responsibility and work location on safety culture scores.

The relationship between demographic factors and safety culture was not one of the main objectives of this research; therefore it is necessary to do more research in this field to make the results more comprehensive and acceptable.

The overall results obtained from this study indicated several important points that can be expressed as follows:

The safety culture score in our study was on intermediate level. The hospital staff was not aware of the importance of safety and there weren't proper communication between different parts of the hospital. As strength, there was fair to adequate work methods and rules for staff and organizations to provide training to employees (although not in the right direction) was in a piecemeal fashion and ad hoc.

It is recommended that for promotion of safety culture at the studied hospitals the management should improve employee attitudes, by developing awareness and a sense of being vulnerable due to the nature of their job, identify risky behaviors, safety training management, root causes analysis, continues control and evaluation and finally improve communication and encourage teamwork and provide an appropriate incentive system for safe behaviors and practices which formed wrong attitude in staff during regulatory control methods.

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