The First Study of Patient Safety Culture in Iranian Primary Health Centers

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Abstract- Although the error in health care has received attention recently, patient safety culture in health centers has been relatively neglected. To measure the patient safety culture in primary health centers. A cross-sectional study, utilizing the modified version of the Hospital Survey on Patient Safety Culture (HSOPSC) developed by the Agency for Healthcare Research and Quality (AHRQ) and a demographic questionnaire. Healthcare staffs from health centers were participated in the survey. The patient safety culture score including subscores on 11 dimensions and 39 items; patient safety grade and number of events reported. The overall positive response rate of patient safety culture was 57 ±16.8 (CI $_{95}$55%–59%). The dimensions that received higher positive response rate were "Teamwork across units of health center", "Teamwork within units", "Head of center support for patient safety". The lowest percentage of positive responses was "Non punitive response to error". There were no relationship between working years and patients safely culture score. Similarly, no relationship was found between professional, gender and total patients safely culture score. Statistical analysis showed discrepancies between Iranian health centers and the US hospitals in three dimensions. For improving patient safety culture in health centers, it is necessary to have enough staff and establish an environment to be open and fair with staff which helps report errors spontaneously and without any fear. The findings of this study could be used to measure changes in patient safety culture over the time.

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Introduction

Although healthcare services are intended to profit patients, but sometimes instead of treatment, they cause harm[1].The various studies have estimated that around 10% of patients in the hospitals suffer some kind of harm (1,2).

Unfortunately, the developing world's data is few and there is little research that has examined primary care (2). The investigations show that errors in primary care have a miserable consequence (3,4).

Nowadays, many people treated in primary care. Understanding the complex quiddity and causes of errors, which occurred in primary care can led to correct decisions for promoting the patient's safety (5). Primary health care centers need to organizational safety culture as it is in hospitals (6). Organizational safety culture means that everyone knows the safety as his most important concern in the organization.

Patient safety culture means as acceptance and actions of patient safety as the first priority in the organization.

National Patient Safety Agency of United Kingdom introduce a guideline that describes the seven key points that primary care can work through to protect the patients, against the treatment which they received (7). Most of these steps are asked in the questionnaires which measure patient safety culture (8-10).

Almost all covered five common areas of patient safety leadership, policies and procedures, staffing, communication, reporting (9). Hospital Survey of Patient Safety Culture (HSOPSC) questionnaire that was prepared by United States Agency for Health Care Research and Quality (AHRQ) in 2004 is one of the above-mentioned questionnaires (11).

This tool has moderate-to-strong validity and reliability exception from the staffing subscale (12).

Whereas, a modified version of this tool has been used in non-hospital settings such as nursing homes, it

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seems to be appropriate for primary care, so it is being used in this research (13).

In Iran, the survey of patient safety culture has not implemented in primary healthcare (health centers) yet; the main objective of this survey was to determine patient safety culture scores in health centers and comparison of the results with existing data from Iranian's hospitals and the 2009 AHRQ database using HSOPSC and a similar study which had been done in Turkey (14-16).

Materials and Methods

Iran's health network was commissioned in 1981.The health centers were considered for urban and rural areas. Every rural health center was provided to cover around a population of 7500-9000. A team of skilled health technicians provide diagnosis and outpatient care services such as: maternal care, family planning, immunization and child growth monitoring and investigating the environment and occupational health, under the supervision of a general physician. Every health center is to be staffed by the head of center, general physician, dentist, midwife, several health workers. In cities there is implemented, urban health center that is performed the same type of function for a population around 12000-15000 (17,18).

In a cross sectional study, from 21 health centers (15 urban, 6 rural) in the Shahr-e-Ray city, Iran, 16 centers (12 urban, 4 rural) were randomly selected. In each cluster100% of head of centers and dentists and 50-100%of health workers, midwives, and physicians were included in the study. Proportional to number of staffs in each center, 5 to 9 people were selected.

According to patient safety culture in Iran (15) (44%) and by ordinary formula sample size was calculated. Total population size was less than calculated number, so the sample size was modified by finite formula. 20% attrition rate was added to sample size. In total, 120 health care staff members were taken part in the study.

Formal consent to participate the survey was granted by the management of the Shar-e- Rey health network.

The data was completed by self-administrated questionnaires in 2010.To ensure the privacy of the participants, the study was strictly anonymous.

Whereas, finding the specific tool for evaluation of patient safety culture in health centers was difficult, therefore we used the HSOPSC which compiled by the Agency for Healthcare Research and Quality (AHRQ) (12) with appropriate modification for our health centers.

This tool consists of 12 dimensions and 42 items which including the noted aspects related to the patient safety culture.

These scopes include Manager expectation, Organizational learning, Teamwork within units, Staffing, Feedback and communication about errors, Communication openness, Management support for patient, non-punitive response to errors, Handoffs transitions, Teamwork across units, Perception of safety and Frequency of event reporting safety.

Creating the Iranian version of HSOPSC questionnaire

The HSOPSC questions were translated into Persian by another investigator with background in patient safety survey. The translation was reviewed by some masters and professional experts from patient safety fields for removing the probable defects and final confirmation.

After the confirmation, the questionnaire distributed among the 30 people from the target population for the pilot study. Then factor analysis and test for level of reliability for internal consistency was obtained (15).

Series of minor changes was made to use this instrument in health centers. For example, the word "hospital" was substituted with "health center" and " manager" with a "head of center" and " department" with " unit" and whereas the investigating centers act in one shift, so we omit the dimension of shift change and also three related items. Finally there were 39 items and 11 dimensions and some demographic questions in questionnaire. Although changes were minor, but before the study was started, pretest was completed with health care staffs from other region and their recommendations were considered in questionnaire. Some experts in this field approved content validity of the questionnaire

Internal consistency of the questionnaire was measured by calculating Cronbach's coefficient α for the items.

Pilot study was done with 10% of the study population and study process was completed until reporting.

Data analysis

This study used SPSS 16.0 for Windows to perform the statistical analysis. Descriptive statistics were computed for the demographic characteristics of

respondents, study groups and HSOPSC dimensions. The average percent of the dimension items express dimension score and the average percentage of positive responses within a HSOPSC dimension, represented positive perception of patient safety culture. The higher score is a sign of more positive response.

Percent of respondents that gave their work area/unit a patient safety grade and the number of error reports has been generated during the past 12 months were summarized.

The relationship between demographic factors and patient safety culture score were examined by using linear multivariate analysis in such a way that the positive score percent average was considered as a dependent variable. It was used from chi-squared test for comparison of professions group and patient safety dimensions.

Results

From 120 questionnaires which were hand distributed, 100 staffs were eligible(working in current health center more than 6month and their questionnaires were not distorted) to take part in this survey.

The majority of participants were health worker (48%). (Family health, occupational health, and vaccinator) (Table 1).

The highest percentage of positive responses were in "teamwork cross unit" (77%)," management support for patient safety" (75%), "teamwork within unit" (74%), "continuous organizational learning" (72%) and the lowest in "non punitive response to error" (17%) (Figure 1).

The overall mean score for positive perception of patients safety culture was 57±16.8 (95%CI: 55%-59%).Patient safety culture was56.4% in female and 61% in male.

Table 1. Sociodemographic and professional characteristics of participants.

	Head of center (n=11)	Physician (n=12)	Dentist (n=12)	Midwife (n=17)	health worker (n=47)	Total
Mean years working in this center (SD)	1.9(0.83)	1.5(0.54)	1.5(0.53)	1.57(0.64)	1.7(0.8)	1.7(0.73)
Mean years working in health centers (SD)	3.2(1.25)	2.6(.81)	2.8(1.16)	2.9(1.26)	3.1(1.6)	3.05(1.39)
Female(%)	8(72.7)	11(91.7)	11(91.7)	17(100)	39(83)	86(86)

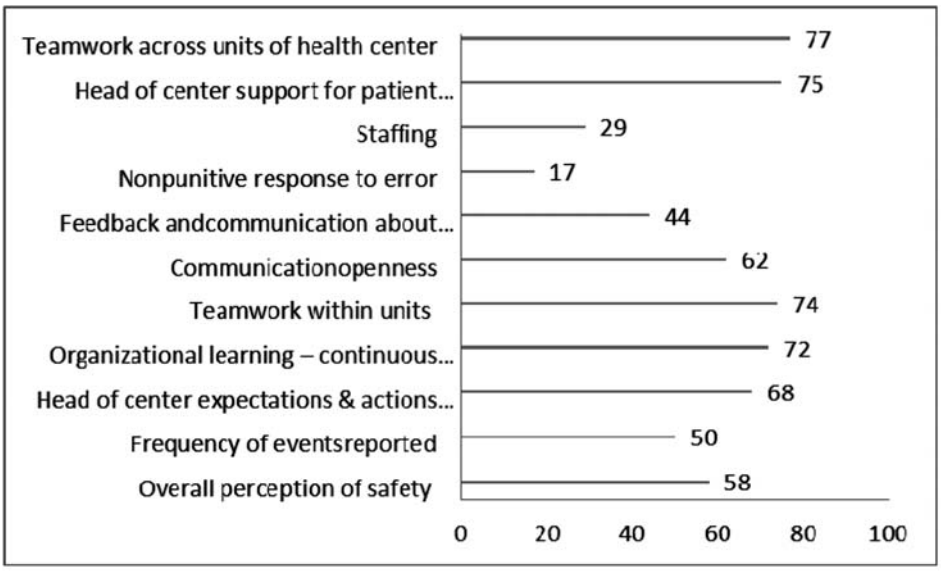

Figure 1. Scores in patient safety culture dimensions.

Table 2. Mean percent of patient safety culture dimensions scores across professions.

Mean percent/profession	Head of the center	Physician	Dentist	Midwife	Heath worker
Overall perception of safety (SD)	70(26)	45(30)	46(23)	58(40)	60(30)
Frequency of events reported (SD)	72(41)	38(42)	28(39)	60(27)	50(20)
Head of center expectations & actions promoting patient safety (SD)	86(23)	58(36)	81(26)	62(38)	65(30)
Organizational learning-continuous improvement (SD)	87(16)	55(26)	75(25)	59(43)	78(31)
Communication openness (SD)	81(17)	58(32)	55(32)	60(33)	61(30)
Feedback and communication about error (SD)	66(26)	39(34)	28(28)	47(35)	44(35)
Nonpunitive response to error (SD)	27(32)	8.3(15)	28(28)	19(29)	12(18)
Staffing(SD)	40(28)	22(20)	25(30)	29(35)	28(35)
Head of center support for patient safety (SD)	100(0)	58(40)	86(22)	59(29)	77(17)
Teamwork across units of health center (SD)	98(7)	64(39)	83(24)	62(22)	80(28)
Teamwork within unit(SD)	90(17)	58(34)	70(23)	73(25)	76(28)

The highest of that score was for head of center (74%) which was significantly difference with the other staffs (P<0.001). This score was 46 for physicians ,55 for dentists ,53 for midwives and 57 for health workers.

No relationship was found between gender and total patients safely culture score (P=0.37, power=92.6%).

In comparison to scores in safety culture dimensions, the lowest score belongs to physicians in term of “non punitive response to error” (8.3%) (Table 2).

There was no relationship between working years in their present center or total work records and patients safely culture score (P=0.45, P=0.59 respectively).

The dimensions showing the largest difference were as follows: "Staffing" (29%), "Nonpunitive response to error" (17%), "Feedback and communication about error" (44%) .

Approximately, 67 % of staffs valuate the patient safety grade in employing center as “good” or “perfect”. Moreover, 74 % of staffs had no error reporting over 12 previous months and only 27 % of them mentioned that errors were reported.

Discussion

Whereas the emergency and complicated cases refer to the hospitals, it should attach great importance to the patient's safety education. The outpatient and health center had a poor potential for incidence of serious and life-threatening medical errors; therefore, patient safety culture in these services have been relatively neglected. The modified version of HSOPSC questionnaire which prepared by the AHRQ for the hospitals (12), provides evidence for assessing patient safety culture in health centers in IRAN. The overall average positive response rate for the 11 patient safety culture dimensions of the modified version of HSOPSC survey was 57%. It was lower than the average positive response rate for the AHRQ data (16). The dimensions that received higher positive response rate were "Teamwork across units of health center", "Teamwork within units", "Head of center support for patient safety".

This was carried out in both the urban areas as well as rural areas. The present study has been implemented on 100 staff of health centers. The lowest score was in dimension of "Nonpunitive response to error" which had a similarity score in nearly all other studies (14-16,18,19,21).

72 % of staff said that nothing reported over the 12 previous months, moreover, they had 50% positive score on "frequency of event reported" which these two items were similar with some studies (14,15,20,21) and different with others (16,19), may be the low error report is for fear from its consequences (22-24).

In order to promote the no punitive response and increase the frequency of reporting, there should be established a system which wants to report the errors continuously and remember this subject frequently (25) this process may leads to voluntary reports (1).

For the dimension of "Teamwork across units", the positive response rate was higher than the AHRQ data , Turkish primary healthcare services and Iranian hospitals and for" Teamwork within the unit "the positive response rate was similar to the AHRQ data (16). Staffs in health centers seem to have better cooperation and coordination across different units or within the unit.

In the current study score of “head of center support for patient safety” was better than US study (16). The

appropriate score in this dimension and of "head of center expectations" revealed that head of centers are inform from the importance of safety culture, so we should persuade them to change the culture of staffs. In the culture which staff found guilty and punished for their mistakes, they try to hide the errors instead of reporting them. Therefore, root cause analysis of errors rather than blaming individuals and try to learn from mistakes and prevent from the second incidence, a health center could promote the perception of safety.

The scores of "communication openness" and" organizational learning" were similar to US hospitals scores; these show there is a discussion about the error and staff are aware of importance of safety and they don't afraid to ask if something may harm patients and they actively make changes to improve patient safety.

The scores of "Staffing "and "feedback and communication about error" were lower than 50%."Staffing" shows whether a health center has adequate staff to overcome the workload and whether the working hours are appropriate. In the situation which the employees had to work a lot and meanwhile there is no system for following the reports, there is no adequate motivation for reporting.

In all aspects, the scores of head of centers were higher than those of physicians, which was a considerable finding, because although 97 % of the managers were physicians but so as to their management responsibility, they have a poor relation to patients and the physicians had a direct relation to them most of the time. Maybe this significant difference regarded to management training or professional experience.

The mean overall score of patient safety culture in health centers was lower than US hospitals (16).

Patient safety grade that employers gave to their health center was lower than US hospitals, but higher than Iranian's hospitals and Turkish primary health service . Only 27 % of staffs mentioned that errors were reported over 12 previous months which was lower than US Hospitals.

As mentioned above, the health care staffs may have inadequate training in this regard; consequently it may lead to develop unexpected threats. US hospitals' staff have been better trained in safety related issues and encouraged for reporting errors.

This research is among the first researches in the field of patient safety culture in primary healthcare and we used the questionnaire therefore, this subject is included as one of research limitations.

Another limitation was limited sample size in one city. With a large scale investigation, which would be completed among various health networks, the results could be generalized.

Overall, items of patient safety culture in Iranian health centers have better scores than Iranian hospitals and Turkish primary services. Current study found that Iranian society tends to be more collective than other societies but they avoid reporting adverse events and errors. Also safety culture needs to enhance in critical issues such as "nonpunitive responses", "staffing" and "feedback and communication about the error" and "frequency of error report".

The modified version HSOPSC survey used in this study shed light on the current status of patient safety culture in Iran and revealed the areas that could be improved by adequate resource allocation to activities like education and promoting programs to establish a climate that helps staffs report errors spontaneously and without any fear. The findings of this study provide a better understanding about patient safety culture in health centers and can be used to measure changes in patient safety culture over the time.

Patient safety culture in outpatient and health center services has been relatively neglected. The main objective of this survey was to determine patient safety culture scores in health centers and comparison of the results with existing data. The study revealed better results in some dimensions and the need to work vigorously in other areas in primary health care units.

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