

Patient Safety Culture Challenges: Survey Results of Iranian Educational Hospitals

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Abstract: Patient safety culture is defined as the integration of safety thinking and practices into clinical activities. The objective of this study was to measure patient safety culture in 2 Iran teaching hospitals. In a cross-sectional survey, we used hospital survey on patient safety culture in 2 teaching hospitals of Yazd, Iran in 2011 and 2012. Study population was comprised of these hospitals nurses. A total of 270 surveys were distributed to all randomly-selected nurses from different units. Data analysis was done using SPSS software version 13. Research findings showed that both hospitals have low to average scores in all dimensions of patient safety culture with except of organizational learning (continuous improvement) in Shahid Saddoughi burning hospital. Staffing (19.45% positive response), non-punitive response to error (21.46% positive response) and frequency of events reported (34.9% positive response) in Afshar and frequency of events reported (16.66% positive response), staffing (25.00% positive response) and non-punitive response to error (25% positive response) are the lowest scores of patient safety culture dimensions in studied hospitals. Only organizational learning (75.00% positive score) in Shahid Saddoughi burning hospital has high score. Also, only, 41.20 and 25.00 percent of nurses in Afshar and Shahid Saddoughi burning hospitals evaluated the patient safety grade of their hospital as “excellent” and “very good”. Our study demonstrated the challenge of patient safety culture in educational hospitals that needs urgent attention.

Key words: Patient Safety Culture • Nurse • Educational Hospital • Iran

INTRODUCTION

Organizational culture has been defined as a group's shared assumptions, values and norms developed through formal training or socialization [1-3]. Safety culture, a subset of organizational culture, is defined in healthcare as the integration of safety thinking and practices into clinical activities [4-6]. A culture of safety refers to a commitment to safety that permeates the traditions, beliefs and values of each member of an organization [7]. Common features of a culture of safety include: 1-an organizational commitment towards safety concerns, 2-the acknowledgment of the high-risk, error-prone nature of an organization's activities, 3- an emphasis on teamwork and effective communication, 4-honesty, 5-respect and 6-an organizational commitment towards systems analysis and redesign to improve safety. A culture of safety

allows healthcare practitioners to work in a blame-free environment where errors are readily reported and serve as a source of learning [7].

Since work in healthcare is becoming more and more complex, the potential for errors is high. Studies from a number of countries indicate unacceptably high rates of medical injury and preventable deaths [8-12]. Therefore, the challenge of achieving significant improvements in patient safety is one of the key tasks facing healthcare at the start of the 21st century [13]. There is broad international agreement on the nature of the task faced and the importance of achieving improvements to quality in this area [2, 13, 14]. Therefore, today, Improvements in patient safety are a shared international priority as too many errors and other forms of unnecessary harm are currently occurring in the process of caring for and treating patients [13]. So, discussion of the term “patient safety” occurs

frequently in health care [15, 16]. These discussions started with the 2000 Institute of Medicine's seminal report, *To Err is Human* [7, 9, 10, 14, 15, 17-19].

Improvement of patient safety, in terms of risk and outcomes, in a healthcare system depends on the building of a patient safety culture [6]. A strong patient safety culture is a necessary component to promote patient safety and improve quality of patient care [18, 20]. So, over the years, various programs and resources have emerged on the topic and safety culture has become firmly established within organizational research and practice as a construct for explaining and predicting safety-related behavior [15].

Creating a culture of safety will be challenging, because it requires a change in the values and beliefs historically held by healthcare practitioners. Additionally, standardized methods do not exist that outline how a culture of safety can be established in healthcare. But fortunately, recent studies have demonstrated that cultural change can be initiated in healthcare settings [7, 9, 10, 13, 21, 22].

International patient safety strategies advocate measuring safety culture as a strategy to improve patient safety. Evidence suggests it is necessary to fully understand the safety culture of an organization to make improvements to patient safety [23]. Measuring and monitoring the patient safety culture in healthcare organizations allows hospital to detect vulnerabilities and to implement and evaluate improvement interventions to strengthen it. Also, measurement promotes transparency; it allows us to benchmark how we are performing relative to others and provides a stimulus to change [4,24].

There is little known about the safety culture in Iranian educational hospitals. So, with the hypothesis that measuring patient safety culture can implement as the first step in improving patient safety and outcomes, we undertook a case study to explore the safety culture in 2 educational hospitals of Yazd, Iran. Our goal was to assess safety culture throughout the hospitals to raise the awareness of patient safety issues in the whole work environment of Iranian hospitals.

MATERIALS AND METHODS

This study reports the result of a patient safety culture measurement in 2 Iranian teaching hospitals. The purpose of the study was to assess nurses' perceptions of the safety culture in these hospitals.

The data presented here were collected from 2 teaching hospitals (Afshar and Shahid Saddoughi burning hospitals) of Yazd, Iran in 2011 and 2012.

Data were collected using Hospital Survey on Patient Safety Culture (HSOPSC). The HSOPSC consists of 42 items that are categorized in 12 dimensions. The survey measures seven unit-level aspects of safety culture including:

- Supervisor/manager expectations and actions promoting safety (4 items)
- Organizational learning (continuous improvement) (3 items)
- Teamwork within units (4 items)
- Communication openness (3 items)
- Feedback and communication about error (3 items)
- Non-punitive response to error (3 items) and
- Staffing (4 items). In addition, the survey measures three hospital-level aspects of safety culture:
- Hospital management support for patient safety (3 items),
- Teamwork across hospital units (4 items) and
- Hospital handoffs and transitions (4 items). Finally, two outcome variables are included:
- Overall perceptions of safety (4 items),
- Frequency of event reporting (3 items) [8, 25-27]

A total of 270 paper-based surveys were distributed to all randomly-selected nurses from different units with a response rate of 84%. The high response rate was due to reminder letter we sent for the sample members. Also, in the first survey we sent a cover letter whit the main survey. Data analysis was done by using SPSS software English version 17. Survey results were compared with those from some another reported results. It is notable that before data analyzing incomplete Surveys were removed prior to analysis. The exclusion criteria were: no entire section completed and fewer than half the items answered.

RESULTS AND DISCUSSION

The characteristics of sample are shown in Table 1: This research indicated that the studied hospitals safety culture scores are of low and average rates. Therefore, the urgent and imperative action for improving the current situation is inevitable. The results of survey showed that these hospitals should make improvements in patient safety culture by implementing actions that

Table1: Characteristics of sample

| Afshar hospital | Percent | Shahid Saddoughi burning hospital | Percent |
|---|---------|---|---------|
| Work area/unit: | | Work area/unit: | |
| Internal (medical) unit | 28.9 | Surgery/dermatology | 62.5 |
| Surgical unit | 20.0 | Intensive care | 25.0 |
| Intensive care | 26.7 | Other | 12.5 |
| Emergency department | 13.3 | Professional experience (years): | |
| Other | 11.1 | <1 | 25.0 |
| Professional experience (years): | | 1-5 | 25.0 |
| <1 | 15.6 | 6-10 | 50 |
| 1-5 | 28.9 | 11-15 | 0.0 |
| 6-10 | 15.6 | = > 16 | 0.0 |
| 11-15 | 22.2 | Professional experience in the same unit (years): | |
| = > 16 | 17.8 | <1 | 37.5 |
| Professional experience in the same unit (years): | | 1-5 | 25.0 |
| <1 | 24.4 | 6-10 | 37.5 |
| 1-5 | 37.8 | = > 11 | 0.0 |
| 6-10 | 26.7 | Professional experience in the same position (years): | |
| = > 11 | 11.1 | <1 | 25.0 |
| Professional experience in the same position (years): | | 1-5 | 25.0 |
| <1 | 11.1 | 6-10 | 37.5 |
| 1-5 | 31.1 | 11-15 | 12.5 |
| 6-10 | 22.2 | = > 16 | 0.0 |
| 11-15 | 33.3 | Working time in hospital (hours per week): | |
| = > 16 | 0.0 | <20 | 0.0 |
| Working time in hospital (hours per week): | | 20-39 | 0.0 |
| <20 | 0.0 | 40-59 | 75.0 |
| 20-39 | 6.7 | = > 60 | 25.0 |
| 40-59 | 77.8 | | |
| = > 60 | 15.6 | | |

Table 2: Dimensional and item- level average percent- positive scores in 2012

| Dimensions and items | Average percent of positive scores | | | | |
|--|------------------------------------|-----------------------|----------------------|----------------------------------|---|
| | Afshar hospital-2012 | Burning hospital-2012 | AHRQ 2012 report(26) | Firouzgar hospital-Iran, 2008(9) | 24 critical access hospitals-USA, 2007(8) |
| Overall perceptions of safety | 66.22 | 50.00 | 66.00 | 59.50 | 69.00 |
| 1. ^a Patient safety is never sacrificed to get more work done. | 77.80 | 50.00 | 62.00 | NR | 70.00 |
| 2. ^a Our procedures and systems are good at preventing errors from happening. | 44.40 | 50.00 | 64.00 | NR | 69.00 |
| 3. ^b It is just by chance that more serious mistakes don't happen around here. | 88.90 | 50.00 | 64.00 | NR | 69.00 |
| 4. ^b We have patient safety problems in this department. | 37.80 | 50.00 | 72.00 | NR | 68.00 |
| Frequency of events reported | 34.90 | 16.66 | 63.00 | 50.17 | 61.00 |
| 1. ^c When a mistake is made but is caught and corrected before affecting the patient, how often is this reported? | 55.60 | 25 | 57.00 | NR | 48.00 |
| 2. ^c When a mistake is made but has no potential to harm the patient, how often is this reported? | 24.40 | 12.50 | 59.00 | NR | 58.00 |
| 3. ^c When a mistake is made that could harm the patient but does not, how often is this reported? | 24.40 | 12.50 | 74.00 | NR | 76.00 |

Table 2: Continue

| Dimensions and items | Average percent of positive scores | | | | |
|--|------------------------------------|-----------------------|----------------------|----------------------------------|---|
| | Afshar hospital-2012 | Burning hospital-2012 | AHRQ 2012 report(26) | Firouzgar hospital-Iran, 2008(9) | 24 critical access hospitals-USA, 2007(8) |
| Supervisor/manager expectations & actions promoting patient safety | 36.12 | 62.5 | 75.00 | 70.00 | 72.00 |
| 1. ^a My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures. | 15.60 | 50.00 | 73.00 | NR | 63.00 |
| 2. ^a My supervisor/manager seriously considers staff suggestions for improving patient safety. | 26.70 | 62.50 | 76.00 | NR | 73.00 |
| 3. ^b Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts. | 40.00 | 62.50 | 74.00 | NR | 75.00 |
| 4. ^b My supervisor/manager overlooks patient safety problems that happen over and over. | 62.20 | 75.00 | 76.00 | NR | 76.00 |
| Organizational learning - continuous improvement | 71.86 | 75.00 | 72.00 | 66.90 | 72.00 |
| 1. ^a We are actively doing things to improve patient safety. | 86.70 | 75.00 | 84.00 | NR | 83.00 |
| 2. ^a Mistakes have led to positive changes here. | 48.90 | 62.50 | 64.00 | NR | 65.00 |
| 3. ^a After we make changes to improve patient safety, we evaluate their effectiveness. | 80.00 | 87.50 | 69.00 | NR | 67.00 |
| Teamwork within units | 68.87 | 62.50 | 80.00 | 71.40 | 80.00 |
| 1. ^a People support one another in this department. | 80.00 | 75.00 | 86.00 | NR | 86.00 |
| 2. ^a When a lot of work needs to be done quickly, we work together as a team to get the work done. | 82.20 | 62.50 | 86.00 | NR | 89.00 |
| 3. ^a In this department, people treat each other with respect. | 84.40 | 75.00 | 78.00 | NR | 77.00 |
| 4. ^a When one area in this department gets really busy, others help out. | 28.90 | 37.50 | 69.00 | NR | 67.00 |
| Communication openness | 37.06 | 45.83 | 62.00 | 60.00 | 58.00 |
| 1. ^a Staff will freely speak up if they see something that may negatively affect patient care. | 57.80 | 50.00 | 75.00 | NR | 72.00 |
| 2. ^a Staff feel free to question the decisions or actions of those with more authority. | 6.70 | 37.50 | 47.00 | NR | 41.00 |
| 3. ^b Staff are afraid to ask questions when something does not seem right. | 46.70 | 50.00 | 63.00 | NR | 61.00 |
| Feedback and communication about error | 33.56 | 54.16 | 64.00 | 64.80 | 59.00 |
| 1. ^a We are given feedback about changes put into place based on event reports. | 40.00 | 50.00 | 56.00 | NR | 45.00 |
| 2. ^a We are informed about errors that happen in this department. | 48.90 | 75.00 | 65.00 | NR | 63.00 |
| 3. ^a In this department, we discuss ways to prevent errors from happening again. | 17.80 | 37.50 | 72.00 | NR | 68.00 |
| Non-punitive response to error | 21.46 | 25.00 | 44.00 | 22.80 | 50.00 |
| 1. ^b Staff feel like their mistakes are held against them. | 24.40 | 50.00 | 50.00 | NR | 59.00 |
| 2. ^b When an event is reported, it feels like the person is being written up, not the problem. | 28.90 | 12.50 | 46.00 | NR | 50.00 |
| 3. ^b Staff worry that mistakes they make are kept in their personnel file. | 11.10 | 12.50 | 35.00 | NR | 41.00 |
| Staffing | 19.45 | 25.00 | 56.00 | 38.10 | 67.00 |
| 1.a We have enough staff to handle the workload. | 17.80 | 12.50 | 56.00 | NR | 68.00 |
| 2.b Staff in this department work longer hours than is best for patient care. | 11.10 | 25.00 | 68.00 | NR | 62.00 |
| 3.b We use more agency/temporary staff than is best for patient care. | 35.60 | 37.50 | 68.00 | NR | 75.00 |
| 4.b We work in "crisis mode," trying to do too much, too quickly. | 13.30 | 25.00 | 50.00 | NR | 62.00 |

Table 2: Continue

| Dimensions and items | Average percent of positive scores | | | | |
|---|------------------------------------|-----------------------|----------------------|----------------------------------|---|
| | Afshar hospital-2012 | Burning hospital-2012 | AHRQ 2012 report(26) | Firouzgar hospital-Iran, 2008(9) | 24 critical access hospitals-USA, 2007(8) |
| Hospital management support for patient safety | 37.00 | 58.33 | 72.00 | 32.20 | 73.00 |
| 1.a Hospital management provides a work climate that promotes patient safety. | 44.40 | 87.50 | 81.00 | NR | 84.00 |
| 2.a The actions of hospital management show that patient safety is a top priority. | 42.20 | 75.00 | 75.00 | NR | 73.00 |
| 3.b Hospital management seems interested in patient safety only after an adverse event happens. | 24.40 | 12.50 | 61.00 | NR | 63.00 |
| Teamwork across hospital units | 55.55 | 37.50 | 58.00 | 43.8 | 64.00 |
| 1.a There is good cooperation among hospital departments that need to work together. | 62.20 | 50.00 | 46.00 | NR | 66.00 |
| 2.a Hospital departments work well together to provide the best care for patients. | 66.70 | 62.50 | 60.00 | NR | 75.00 |
| 3.b Hospital departments do not coordinate well with each other. | 24.40 | 12.50 | 59.00 | NR | 51.00 |
| 4.b It is often unpleasant to work with staff from other hospital departments. | 68.90 | 25.00 | 68.00 | NR | 63.00 |
| Hospital handoffs & transitions | 58.35 | 53.12 | 45.00 | 54.20 | 57.00 |
| 1. ^b Things "fall between the cracks" when transferring patients from one department to another. | 35.60 | 50.00 | 41.00 | NR | 57.00 |
| 2. ^b Important patient care information is often lost during shift changes. | 82.20 | 75.00 | 51.00 | NR | 56.00 |
| 3. ^b Problems often occur in the exchange of information across hospital departments. | 48.90 | 25.00 | 44.00 | NR | 52.00 |
| 4. ^b Shift changes are problematic for patients in this hospital. | 66.70 | 62.50 | 45.00 | NR | 61.00 |
| Patient safety grade | - | - | - | - | - |
| Excellent | 11.10 | 0.00 | 30.00 | NR | 22.00 |
| Very good | 31.10 | 25.00 | 45.00 | NR | 52.00 |
| Acceptable | 51.10 | | 20.00 | NR | 23.00 |
| Poor | 0.00 | | 4.00 | NR | 3.00 |
| Failing | 6.70 | | 1.00 | NR | 0.00 |
| Number of events reported ^d | - | | - | - | - |
| No event report | 71.10 | | 55.00 | NR | 63.00 |
| 1 to 2 event reports | 22.20 | | 27.00 | NR | 16.00 |
| 3 to 5 event reports | 6.60 | | 12.00 | NR | 13.00 |
| 6 events reports or more | 0.00 | | 7.00 | NR | 8.00 |

a: "Agree" and "Strongly Agree" are positive responses.

b: "Strongly Disagree" and "Disagree" are positive responses.

c: "Most of the time" and "Always" are positive responses.

d: The "Number of events reported" item, asked respondents how many medication safety reports have you filled out and submitted.

NR: Not Reported

support all dimensions of a positive safety culture. Some areas need improvement in the studied hospitals includes:

Staffing: This dimension has the first lowest positive score (19.45%) in Afshar and second lowest positive score (25.00%) in Shahid Saddoughi burning hospital. It means that in these hospitals there is not enough staff to handle the workload appropriately to provide the best care for the patients [25-27] Today, lack of enough staff in contrast of high demand, is an important challenge of Iranian hospitals. This issue is wider in educational

hospitals because their budgets are allocated from the public funds. This limited budgets damage the hospitals potential to recruit enough staff. Also, because of low salaries and benefits of governmental hospitals, most specialists have low motivation to work in governmental sector and prefer the private sector. Also, low financial efficiency of Iran governmental hospitals decreases their potential to give suitable rewards and benefits to their staff. Therefore, staffing challenge, remains as one of the challenges of Iran hospitals that we showed it can harm the patient safety culture and leads to inappropriate level of care quality.

Non-Punitive Response to Error: This dimension has the second and third lowest scores in Afshar and Shahid Saddoughi burning hospitals respectively. Non-punitive response to errors in HSOPSC measures means that staffs should not feel that their mistakes and event reports are held against them in their personnel file. [25-27]. Organizational culture in healthcare has traditionally included steep authority hierarchies and propensity to punish people who make errors named the culture of “name, shame, blame”. These cultural characteristics are detrimental to healthcare quality and directly oppose the concept of culture of safety. So, the quality movement in medicine has prompted a shift from a “name, shame, blame” approach to medical errors to one in which each error is regarded as an opportunity to prevent future patient harm. This new culture of patient safety requires the involvement of all members of the health care team and learning of skill which related to quality improvement. For solving this problem Iranian healthcare context requires changing the culture of health care from one in which errors are viewed as the result of individual failure to one in which errors are viewed as opportunity to improve the system named “system approach”. The system approach to errors is based on the supposition that human error is inevitable and that through the production of “system” errors can be reduced. If it is accepted that people are liable to make errors, system and equipment design, training and other aspects of the work environment are given priority in terms of initiating change to minimize the risk [7, 24].

Frequency of Events Reported: Taking low score in frequency of events reported means that mistakes are not reported in the hospitals [25-27]. Afshar and Shahid Saddoughi burning hospitals of Yazd are orderly assigned for the third and the first lowest scores of these hospitals in this dimension. Therefore, both hospitals surveyed in the study have weakness in reporting of events. As defined in the health care literature, a safety culture is an environment that encourages reporting. A reporting culture is a culture in which all members readily report errors and near misses. It seems that low frequency of events reported related to some another cultural dimensions. Existing punitive response to error that prioritized as the 1st weakness of studied hospitals can result the low reports of events. Also, Iran hospitals do not have any excellent clinical incident report system that can affect their reporting potential. Indeed, most Iranian

specialists working in governmental hospitals have second job in private hospitals. So, reporting of errors with a culture in which errors are viewed as individual failure may lead to missing the public trust that affects their private job. So, developing an organizational culture that encourages reporting and avoids blame is needed in our hospitals. Also, investment in reporting systems can improve the situation.

Some Strength of Hospitals: This research demonstrated that studied hospitals have some strengths areas in patient safety culture. In Afshar hospital, organizational learning (continuous improvement), teamwork within hospital units, overall perception of patient safety, hospital hands off and transition and teamwork across hospital units' scores are in average rates shows some better situation in these dimensions. Also, in Shahid Saddoughi burning hospital, organizational learning (continuous improvement), teamwork within hospital units, supervisors/managers expectations and actions promoting patient safety, hospital management support for patient safety, feedback and communication openness and hospital hands off and transitions have average scores. Although, these dimensions evaluated in average scores (with except of organizational learning in Shahid Saddoughi burning hospital) and have some acceptable scores in Iran educational hospitals context but even they need improvement. Only, organizational learning (continuous improvement) dimension of patient safety culture has high score in Shahid Saddoughi burning hospital that is evaluated as a good situation. Organizational learning component of positive safety culture means that mistakes have led to positive changes and changes are evaluated for effectiveness.

This study demonstrates the challenge of patient safety in educational hospitals. When the result is compared with some another surveys including AHRQ 2012 report from US hospitals [26], the survey of patient safety culture in Firouzgar hospital (another Iranian educational hospital in Tehran) [9] and the same study of 24 US critical access hospitals (CAH_s) in 2007 [8], it is considered that the dimensional scores of two studied hospitals are lower. So it can conclude that the mentioned hospitals are far from a strong positive patient safety culture and changes are inevitable. Based on existing literature and our knowledge and experience in hospital management some initiatives as followings can help to promote the culture of safety in Iranian educational hospitals:

- Establishment, development and optimizing of data collection and reporting systems and developing long-term, mid-term and short-term evidence-based programs for improving culture of patient safety in educational hospitals.
- A focus on the system and avoiding individualism in the work environment.
- Reducing individual blame through developing rich protocols for avoiding individual blame in the case of errors.
- Increasing negotiations and set suitable rules in national level for recruiting enough healthcare personnel.
- Development of motivator benefits and incentive packages for health workers.
- Establishment of patient safety committee in hospitals.
- Change in educational system through creating patient safety courses in medical universities curriculums. Also, in-service education courses can stress on training patient safety aspects such as communicational skills, data collection and reporting skills and etc.
- Routine measurement of patient safety for clarifying the weaknesses, taking trends in patient safety aspects and planning to improve can be proposed. Also, measurements results can be integrated in accreditation of hospitals that now are done with medical universities for grading hospitals.
- And finally, the top managers of healthcare supports are fundamental requirement of patient safety improvement. We can suggest a national agency or a unit of patient safety in ministry of health and medical education who coordinate all initiatives of patient safety improvement in hospitals. Also, non-governmental and civil society organizations can create wide campaigns for supporting from patient safety improvements.

This study had some strengths and limitations. The strengths of it include the use of valid survey tool and the high rate of response to surveys. Despite these strengths, the study had some limitations. First of all, the results presented here are cross-sectional and also analyze patient safety culture at one point. They therefore fail to capture the impact of ongoing efforts at hospitals to improve patient safety and also, the generalization of the result should be done with caution. Another limitation lies in the fact that hospital worker

groups are mix of clinical and non-clinical. In this research, we only studied nurses as the study population because of their direct contact with the patients. Indeed, we used a quantitative approach to measure safety culture. Some studies, mentioned that with this approach there is a risk that one selects and measures dimensions that are not relevant or important in terms of organization's cultural dynamics. There are doubts whether questionnaire is actually reliable and valid or not, since validating something as deep and complex as cultural assumptions is intrinsically difficult [28] Therefore, some authors have been proposed that it would be interesting to explore more in-depth specific topics that were revealed by the survey using qualitative approaches, like interviews or focus groups. From a qualitative perspective, it would be interesting to investigate specific safety culture issues in different wards and departments and also interaction between professional [23, 29]. Same doubts can be relevant to our study.

ACKNOWLEDGEMENT

This paper has been extracted from a thesis project of Shahid Saddoughi university of medical sciences. Authors appreciate Afshar and Shahid Saddoughi burning hospitals nurses' participation in research.

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