

RESEARCH ARTICLE

Survey of Cancer Patient Safety Culture: A Comparison of Chemotherapy and Oncology Departments of Teaching Hospitals of Tehran

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Abstract

Background: Patient safety culture plays an important role in healthcare systems, especially in chemotherapy and oncology departments (CODs), and its assessment can help to improve quality of services and hospital care. **Objective:** This study aimed to evaluate and compare items and dimensions of patient safety culture in the CODs of selected teaching hospitals of Iran and Tehran University of Medical Sciences. **Materials and Methods:** This descriptive-analytical cross-sectional survey was conducted during a six-month period on 270 people from chemotherapy and oncology departments selected through a cluster sampling method. All participants answered the standard questionnaire for “Hospital Survey of Patient Safety Culture” (HSOPSC). Statistical analyses were performed using SPSS/18 software. **Results:** The average score for patient safety culture was three for the majority of the studied CODs. Statistically significant differences were observed for supervisor actions, teamwork within various units, feedback and communications about errors, and the level of hospital management support. ($p < 0.05$). Relationships between studied hospitals and patient safety culture were not statistically significant ($p > 0.05$). **Conclusion:** Our results showed that the overall status of patient safety culture is not good in the studied CODs. In particular, teamwork across different units and organizational learning with continuous improvement were the only two properly operating items among 12 dimensions of patient safety culture. Therefore, systematic interventions are strongly required to promote communication.

Keywords: Cancer chemotherapy- oncology service- patient safety

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Introduction

Patient safety has recently highlighted as an essential step in primary healthcare, that should be warranted for further improvements in care service quality (Makeham et al., 2006; Nieva and Sorra, 2003; Nygren et al., 2013; O’connor et al., 2010; Warburton, 2005; Zwart et al., 2011). Each day healthcare personnel from any level of organizational structure make important decisions regarding to patient safety issues. The publication of “To Err is Human: Building a Safer Health System” by the institute of medicine increased concerns about medication errors in general practice (Donaldson et al., 2000). Numerous studies then addressed incidents cost and harmful consequences occurring in primary care (Bodur and Filiz, 2010; Nie et al., 2013; Nygren et al., 2013; Zwart et al., 2011). For example, a health grades study in American hospitals revealed that patient safety incidents cost national Medicare program 8.8 \$ billion and caused 238,337 potentially preventable deaths from 2004 to 2006

(Asai et al., 2007). The world health organization (WHO) also warned that tens of millions of patients’ disabilities and death are attributed to unsafe medical care in a global scale (“Call for more research on patient safety,”).

This emphasizes not only on knowledge of patient safety culture in healthcare centers, but also improvements in quality of care service to reduce medical errors. Promotion in the patient safety culture is associated with both clinical factors and organizational aspects (Nygren et al., 2013; Ramanujam et al., 2005), and requires primary assessment about the current safety level. Without knowledge about the current safety status at the healthcare organizations, costs would unreasonably increase and they may face to unpredictable harms (Heidari and Ghodusi, 2015; Warburton, 2005). Patient safety culture should be established throughout the healthcare systems; however, special attention must have warranted for CODs.

The CODs are usually deprived of their burnout according to their particular conditions. Health-care staff working in an oncology clinic is under the high risk

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of burnout and requires enough energy to confront all problems and self-devotion (Asai et al., 2007; Isikhan et al., 2004; Shahbazi et al., 2017). The operating features specific to CODs, make it prone to practical errors and thus high rate of mortality and morbidity. These features included: time pressures, high stressful environment, need for multiple treatment concurrently, overcrowding, lack of sufficient experience for staffs, excessive cognitive load, low level of feedback and communication, interruptions/distractions, high number of decision and uncertain diagnosis (Croskerry et al., 2004; Croskerry and Sinclair, 2001; Friese et al., 2008; Peth, 2003; Whippen and Canellos, 1991). Therefore, a strong culture safety is highly needed to for CODs to improve public health and satisfaction level. An extensive literature search shows that current studies have mostly addressed the patient safety culture among developed countries, and high importance of this issue is thoroughly understood in their healthcare organizations (Makeham et al., 2006; Nie et al., 2013; Nygren et al., 2013; Zwart et al., 2011).

However, a few studies are pertained to this particular filed in the developing countries like Iran (Sabouriet al., 2017), and different aspects of patient safety still need to be assessed in order to establish it supportive and reduce its errors. Moreover, to the best knowledge of the authors few study has evaluated patient safety dimensions in a high error-producing with violation-producing behaviors of CODs. While, threats to patient safety and low quality of care are common in such workplaces and risk of fatal losses and permanent disabilities for patients is high (Bigham et al., 2012; Croskerry et al., 2004; Quinn et al., 2009). The primary objective of current study was to measure the patient safety culture in the CODs of 6 teaching hospitals of Tehran, Iran. We also compared the dimensions of patient safety culture among CODs of selected hospitals.

Material and Methods

Setting

This survey was a descriptive-analytical cross-sectional study carrying out during a 6-month period among the CODs of 7 teaching hospitals of Iran and Tehran University of Medical Science in January 2015 to March 2016. Selected hospitals included: Firoozgar, Hazrate Fatemeh, Hazrate Ali Asghar, Hazrat Rasoule Akram, Imam Khomeini, Shariati and Children's Medical Centre located in Tehran, Iran. The study population consisted of all the health care workers including physicians and nurses from CODs of above hospitals.

Participants

Cluster sampling technique was used to select 270 participants from aforementioned hospitals, to attain a comprehensive perception on overall patient safety culture.

Ethical approval

After selecting the eligible participant, the researcher was introduced to them and the objectives of the study were elaborated for the participants. The informed consent was obtained from the subjects and they were assured that

their information will remain confidential.

Data Collection

Hospital Survey on Patient Safety Culture (HSOPSC)

Standard questionnaire of (HSOPSC) then was used to collect data. The questionnaire proposed by the Agency of Healthcare Research and Quality in 2004, and has repeatedly been used to evaluate hospital staffs' opinions about patient safety culture worldwide. The validity and reliability of this questionnaire is well documented (Bodur and Filiz, 2010; Kiaei et al., 2016). The questionnaire was aimed to assess 12 dimensions of health care by taking into account 42 items of patient safety culture. These dimensions include frequency of events reported, overall perceptions of patient safety, supervisor/manager expectations and actions promoting patient safety, organizational learning-continuous improvement, teamwork within units, communication openness, feedback and communication about errors, non-punitive response to errors, staffing issues, management support for patient safety, teamwork across units, handoffs and transitions (Sorra and Nieva, 2004). The questionnaire also contains two questions about patient safety grade and number of events reported during the last 12 months. Finally, 6 questions regarding the service unit, history of working in the hospital, history of working in the current career, time worked in one week, organizational post and the way of interacting with patients were included in the questionnaire.

A 5-point Likert scale was used to rate respondents' opinions in which 1 and 5 corresponds to strongly disagree and strongly agree, respectively. Score of each field was measured respect to the number of questions in that field and also response of participants. The overall score of patient safety was obtained by multiplying total number of questions in the questionnaire (43) in score of each answers (between 1 to 5).

Statistical analysis

Data was analyzed using SPSS package 18.0 for Windows (SPSS, Chicago, Illinois, USA), descriptive statistic methods. For measuring the relation between variables, one-way variance analysis test was used. The significance level (P-value) was considered 0.05.

Results

From the 270 questionnaires distributed among participants after their verbal consent, the total of 200 completed and valid questionnaires were selected for next assessment. From the total valid questionnaires, 164 (82%) were belonged to nurses and the rest 36 (18%) to physicians. The majority of staff (35.5%) had 1 to 5 years of professional experience, and 67% of staff (127) reported no more than 2 errors during last 12 months. Near to 50% (89) of staff rated the current safety grade of their CODs as "poor".

Our findings exhibited that the overall average score of patient safety culture in the majority of teaching hospitals was near to three. The results showed that, in all circumstances, about 11.5% of the total respondents

Table 1. Status of the Objectives in Hospitals in the Case Study Separation

Hospitals	HazrateAli Asghar	Imam Khomeini	Shariati	Children's medical center	Hazrate Fatemeh	Rasool Akram	Firoozgar	p value
Objectives	N %	N %	N %	N %	N %	N %	N %	
Frequency of Events Reported	2.75 (0.58)	3.22 (0.96)	2.98 (0.65)	3.54 (0.59)	3.03 (0.72)	3.1 (0.79)	2.88 (0.84)	0.13
Supervisor/Manager Expectations & Actions Promoting Patient Safety	3.47 (0.69)	3.16 (0.63)	2.77 (0.73)	3.51 (0.71)	3.19 (0.56)	2.94 (0.58)	3.08 (0.64)	0
Teamwork within Units	3.53 (0.36)	3.77 (0.54)	2.96 (0.50)	3.75 (0.75)	3.42 (0.60)	3.3 (0.84)	3.35 (0.70)	0
Organizational Learning- continuous improvement	3.88 (0.73)	3.6 (0.66)	3.31 (0.74)	3.67 (0.66)	3.43 (0.68)	3.28 (0.71)	3.63 (0.53)	0.112
Feedback & Communication About Error	3.33 (0.84)	3.15 (0.90)	2.6 (0.74)	2.98 (0.95)	2.97 (0.77)	3.3 (0.61)	3.42 (0.86)	0.009
Management Support for Patient Safety	3.33 (0.98)	3.3 (0.80)	2.64 (0.91)	3.49 (0.85)	3.5 (0.82)	3.1 (0.65)	3.75 (0.59)	0
Staffing issues	3.6 (0.88)	3.43 (0.68)	3.31 (0.73)	3.8 (0.64)	3.6 (0.66)	3.29 (0.71)	3.61 (0.52)	0.12
Handoffs & Transitions	2.04 (0.49)	2.39 (0.79)	2.06 (0.86)	2.32 (0.58)	2.15 (0.59)	2.26 (0.45)	2.19 (0.74)	0.41
Communication Openness	3.92 (0.66)	3.21 (0.80)	2.69 (1.02)	2.96 (0.85)	3.04 (0.72)	3.19 (0.61)	3.08 (0.71)	0.11
non-punitive response to errors	1.91 (0.70)	2.48 (1.03)	2.07 (0.86)	2.26 (0.45)	2.14 (0.59)	2.32 (0.58)	2.19 (0.75)	0.4
Teamwork Across Units	3.03 (1.18)	2.98 (0.65)	2.88 (0.85)	3.23 (0.48)	3.21 (0.74)	2.94 (0.64)	2.94 (0.75)	0.35
Overall Perceptions of Patient Safety	2.75 (0.58)	3.19 (0.69)	2.98 (0.65)	3.1 (0.79)	3.04(0.72)	3.54 (0.59)	2.89 (0.84)	0.13
Overall status of patient safety	3.24 (0.40)	3.04 (0.35)	2.65 (0.41)	3.23 (0.35)	3.08 (0.36)	3 (0.39)	3.1 (0.42)	0

used to report the errors occurred within their workplace regularly. 10% of participants rated “excellent” for the performance of managers and supervisors in providing of patient safety in the CODs, however 33% rated as “good”, 30% as “acceptable”, 21.5% as poor, and eventually, 5.5% as “failing”. 63% of participants reported the quality of teamwork associated with patient safety in CODs as “good” and “excellent”. Half of respondents scored “good” for the status of organizational learning. 15% of the respondents rated “excellent” in terms of feedback and communications dimension of safety culture, while other 22% rated as “good”, 38% as “acceptable”, 18% as “poor”, and 7% as “failing”.

About 48% of respondents reported the management support was “good” and “e”. 25% of participants believed that the staffing issues was “failing”, while 42.5% rated as “poor”, 23% as “acceptable”, and 9.5% as “acceptable”. The quality of patient’s information handoffs and transitions was evaluated as “good” and “excellent” in 25% of participants. 6.5% of participants assessed communication openness as “excellent”, 17% as “good”, 45% as “acceptable”, 19% as “poor”, and 12.5% as “failing”.

Moreover, 30% of participants rated the quality of non-punitive responses of the managers to errors occurring in emergency ward as “excellent”, 36% as “poor”, 31.5% as “acceptable”, and other 2.5% as “good”. The teamwork across different units was reported as “excellent” in 63% of the cases; The perception of patient safety among participants in the studied hospitals was reported as “excellent” in 6%, as “good” in 16.5% as “acceptable” in 28%, as “poor” in 37.5% and eventually as “failing” in 12% of respondents.

We also found that there are significant differences between the studied hospitals in terms of supervisor/

manager expectations and actions promoting patient safety, teamwork within units, communications and feedback about errors, hospital manager support level for patient safety ($p < 0.05$) (Table 1).

Discussion

In order to establish a supportive safety culture throughout the health care systems, firstly their status quo should be assessed accurately in terms of patient safety by use of validated protocols and tools. In the present study, patient safety culture in CODs of twelve selected teaching hospitals in Tehran, was evaluated using HOSPC questionnaire. A total of 270 questionnaires were distributed among physicians and nurses, however 200 of them were considered eligible. Based on evaluation of self-report questionnaire, the overall status for the current patient safety culture in the CODs was estimated “acceptable” with mean score of 3.09. Similar studies in Iran reported same result (Littlewood, Bajetta, Nortier, Vercammen, and Rapoport, 2001; Nourmoradi et al., 2015; Sabouri et al., 2017) and demonstrated the patient safety level was not desirable.

Among all assessed dimensions of patient safety, only two items of teamwork within units and organizational learning-continuous improvement were rated as “good”, however non-punitive response to errors of personnel was evaluated in “poor” condition. Near to half of participated personnel expressed their worries regard to patient safety problems in their CODs that persuaded us to rate the overall perception of patient safety as “acceptable”. It is reasonable to accept that health care system and design play an important role in providing patient safety. In this regard, our findings showed that 48% of physicians and nurses believed that the health care system in their CODs

were designed in a proper way that can somehow support and improve the patient safety. According to American Medical Institute (AMI), and British National Health System (NHS), medical malpractices and shortcomings in healthcare systems are the main reasons for annual incidence of more than one million preventable medical errors (Dalton et al., 2008; Keady and Thacker, 2008).

In the present study, more than half of respondents complained about deficiencies and mismanagement in their CODs. Hence, the need for an appropriate design for healthcare systems is imperative in CODs of Iran to reduce medication malpractices and promote the patient safety level. The status of organizational learning in the studied CODs was in a "good" situation with an average score of 3.8. About 48% of the nurses believed that the errors can be learned to prevent them from future occurrence. This is in agreement with other studies in Turkey and China that development of an optional error reporting system in healthcare centers can benefit patient safety culture (Bodur and Filiz, 2010; Nie et al., 2013). However, many health organizations take a punitive view over safety incidents and errors that can dissuade the personnel from reporting their mistakes. In addition, feeling of fear and possible punishments is other preventing factors (Weiner et al., 2008).

More than half of the personnel (57%) contend that there was not a proper coordination amongst various units in their CODs, while about 46% of them showed their satisfaction about cooperation with other units. On the other hand, 52.8% of them believed that it is cooperation is an essential factor in hospital emergency department. This is in accord with Marshall et al. theory that emphasizes on teamwork and human factors to reduce medication errors and faults (Marshall and Manus, 2007).

The studied hospitals were significantly different in four dimensions of patient safety included: supervisor/manager expectations and actions, feedback and communication about error, teamwork within units and management support for patient safety. In terms of supervisor/manager expectations and actions, Children's medical center and Shariati hospitals rate as the highest and lowest ones, respectively. This could be related to the size of these facilities as Shariati is larger than Children's medical center. Smaller hospitals have lower workload; therefore, their managers/supervisors can spend more effort to address the issue of patient safety among their staff.

Shariati and Hazrate Fatemeh hospital indicated the best and worst conditions for feedback and communication dimension. It can be argued that smaller hospitals, Hazrate Fatemeh, has fewer personnel with a friendlier atmosphere that allow employees to talk about errors more freely. The dimension of teamwork within units was in high status at Shariati hospital, while it was poor in Hazrate Fatemeh hospital. Clearly, smaller care systems are provided with better coordination and cooperation.

In conclusion the patient safety culture in the studied CODs of Tehran was not appropriate, and this result can be generalized to all CODs in Iran. As the first step. It seemed necessary to establish non-punitive policies for medication errors to allow the personnel report their errors honestly.

Next the administration and managers should increase their managerial supports for communication openness, continuous education of personnel, encouragement of workers to identify risks and increase the responsibility and accountability amongst staff. To find the effectiveness of implemented care policies, administration should continuously evaluate patient safety culture to finally attain high safety levels.

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