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Patient safety culture among nurses

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Background: Patient safety is considered to be crucial to healthcare quality and is one of the major parameters monitored by all healthcare organizations around the world. Nurses play a vital role in maintaining and promoting patient safety due to the nature of their work.

Aims: The purpose of this study was to investigate nurses' perceptions about patient safety culture and to identify the factors that need to be emphasized in order to develop and maintain the culture of safety among nurses in Oman.

Methods: A descriptive and cross-sectional design was used. Patient safety culture was assessed by using the Hospital Survey on Patient Safety Culture among 414 registered nurses working in four major governmental hospitals in Oman. Descriptive statistics and general linear regression were employed to assess the association between patient safety culture and demographic variables.

Results: Nurses who perceived more supervisor or manager expectations, feedback and communications about errors, teamwork across hospital units, and hospital handoffs and transitions had more overall perception of patient safety. Nurses who perceived more teamwork within units and more feedback and communications about errors had more frequency of events reported. Furthermore, nurses who had more years of experience and were working in teaching hospitals had more perception of patient safety culture.

Conclusion: Learning and continuous improvement, hospital management support, supervisor/manager expectations, feedback and communications about error, teamwork, hospital handoffs and transitions were found to be major patient safety culture predictors. Investing in practices and systems that focus on improving these aspects is likely to enhance the culture of patient safety in Omani hospitals and others like them.

Implications for Nursing and Health Policy: Strategies to nurture patient safety culture in Omani hospitals should focus upon building leadership capacity that support open communication, blame free, team work and continuous organizational learning.

Keywords: Culture, Nurses, Oman, Patient Safety

Introduction

Errors are a leading cause of death in the medical field (Kohn et al. 2000). Worldwide, it is estimated that 1 in every 300 patients experiences harm while getting health care, and in the developed countries, the number of patients harmed during hospitalization is estimated to be one in ten patients (World Health Organization 2012). This harm is caused by a range of

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Conflict of interest

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medical errors or adverse events. When the medical errors take place, they lead to increased length of stay in hospitals, litigation costs, healthcare-associated infections, lost income, disability and additional healthcare expenses (World Health Organization 2012). However, medical errors are preventable and this can be achieved through improving all aspects of patient safety (Kohn et al. 2000; World Health Organization 2012). Patient safety is defined as 'the prevention of patients' harm' (Kohn et al. 2000). To prevent such harm, the Institute of Medicine (IOM) recommends developing a patient safety culture (Kohn et al. 2000) and this is now required by healthcare accreditation organizations (Joint Commission Resources 2007). This study investigated the perception of patient safety culture and the factors that need to be considered in order to develop and maintain this culture among nurses in Oman.

Background

Patient safety is considered to be crucial to the maintenance of healthcare quality and has become a main concern for healthcare organizations around the world. The culture of safety is an evolving concept and focuses upon preventing medical errors and maintaining patient safety. According to Nieva & Sorra (2003), patient safety culture is the outcome of interactions between attitudes, values, skills and behaviours to commit to workplace safety management. Therefore, patient safety culture is a multifactorial framework that aims at promoting a system approach to preventing and reducing harm to patients. In order to create a patient safety culture, many factors must be present and these include effective communication, appropriate staffing, procedure compliance, environmental safety, environmental security, culture, supportive leadership, orientation and training, and open communication about medical errors (Joint Commission Resources 2007). Many studies have established that factors such as poor communication, lack of leadership and teamwork, lack of reporting systems, inadequate analysis of adverse events and inadequate staff knowledge about safety compromises patient safety (Department of Health and Children 2008).

Other studies about patients' safety have also indicated that there is a relationship between elements of safety culture and patient outcomes, suggesting that high levels of patient safety can improve patient outcomes and reduce healthcare costs (Clarke & Ward 2006; Kohn et al. 2000; Mustard 2002). In this regard, the IOM report recommends establishing a safety culture focused upon transforming work environments for nurses to promote safety (Kohn et al. 2000). Transforming work environments to promote safety is also one of the main requirements and considerations considered by organizations that give accreditation to hospitals and other healthcare organizations. In response to these recommendations and requirements, many hospitals around the world are redesigning and restructuring their work environments to support safe job performance and promote patient safety culture (Hughes et al. 2009).

For instance, in the UK, the National Health Services recognizes that to build and promote safety culture, healthcare administrators should encourage reporting and analysing of adverse events as safety lessons to promote risk management planning and safe practices (National Health Service 2004). While in the USA, the Department of Health acknowledges that the traditional 'blame safety culture' is still dominant in healthcare and hinders the opportunity to learn from medical errors (Agency for Health Care Research and Quality (AHRQ) 2012). In Oman and other developing countries, there is limited literature about patient safety culture, but there are many hospitals that have started to recognize the importance of patient safety and have embarked on seeking accreditation from various international bodies. The efforts towards seeking international accreditation and improving patient outcomes have led to increased recognition of the need to create blame-free environments. A blame-free working environment is vital to the promotion of patient safety culture because it allows healthcare providers to report and learn from medical errors without being afraid of any punitive actions.

In all hospitals, nurses play a vital role in ensuring patient safety due to the nature of their work, which involves ongoing patient monitoring and coordination of care (Kirwan et al. 2013). The nature of work carried out by nurses and the roles they perform provide them with various opportunities to reduce adverse events and to intercept healthcare errors before they happen (Institute of Medicine 2004). Nurses exercise many roles, including providing effective and safe care, monitoring quality indicators and conducting risk assessment. Literature shows that positive work environment (Hughes et al. 2009; Kirwan et al. 2013), managerial commitment (Hughes et al. 2009), nurse education level (Kirwan et al. 2013) and identifying reported mistakes (Scherer & Fitzpatrick 2008) have a positive impact on patient safety outcomes.

Studies conducted in developed countries such as the USA show that nurses who work in settings such as academic medical centres have higher safety awareness compared with other healthcare providers (Pronovost et al. 2003), but the evidence supporting nursing contribution to patient safety through empowerment, leadership and teamwork is limited (Richardson & Storr 2010). In the Middle East region, there have been studies conducted about healthcare providers and patient safety culture in countries such as Lebanon and Saudi Arabia and these show that the areas of strength are organizational learning and continuous improvement and

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teamwork within units (El-Jardali et al. 2014). However, there is still limited information about nurses' awareness and perceptions about patient safety in developing countries such as Oman. Therefore, it is necessary to explore and examine factors that promote the safety culture among nurses because these are likely to differ across countries and regions in a country.

Indeed, healthcare institutions such as hospitals are urged to evaluate their patient safety culture in order to improve safety, quality of care and patient outcomes. In Oman, the issue of patient safety and patient safety culture is especially important because until now the country still recruits a substantial number of nurses to fill in hospital-based staff nurse positions from other countries. Therefore, a typical clinical unit in Oman hospitals is staffed by Omani and non-Omani nurses. The non-Omani (foreign nurses) are usually trained at diploma or degree level and are not fluent in the native Arabic language or the culture of the patients they are caring for. Additionally, in most Omani hospitals, nursing work still mostly involves the traditional roles of bedside care and implementation of physician orders. The advanced practice roles such as nurse practitioners and clinical nurse specialists have not yet taken root. Therefore, the nursing workforce in Oman is multi-cultural and with diverse educational backgrounds, which itself can lead to differences in perceptions about the different aspects of nursing care, including patient safety.

The Ministry of Health (MOH) and hospitals in Oman are responding to the increase in medical errors and other aspects of patient safety by actively pursuing efforts to improve quality of care and patient safety. In order to enhance patient safety, the MOH in Oman is in the process of establishing patient safety standards and has initiated various activities to raise awareness about specific aspects of patient safety such as medical errors. However, there is a paucity of knowledge about safety culture in Omani hospitals, and no study has been carried out to examine the extent to which safety culture supports patient safety. Thus, this study aimed to investigate nurses' perceptions about patient safety culture and to identify the factors that need to be emphasized in order to develop and maintain safety culture in Omani hospitals.

Methods

Design

A descriptive, cross-sectional design using self-report questionnaires was used.

Sample and settings

The study was conducted in four major governmental hospitals in the capital city of Oman, Muscat. All registered nurses working in these hospitals were invited to participate in the study. All nurses were working full time in these hospitals and the majority of nurses had baccalaureate or diploma degree with specialized nursing experience. The four hospitals had an average bed capacity of 350 and clinical inpatient units/wards where patients requiring medical, surgical, orthopedic, emergency, intensive care, coronary care and heart surgery services are admitted.

The questionnaires were distributed to participants in the four hospitals between February 2012 and November 2012 and responses were received from 414 participants. Based upon Cohen's power table, a power analysis using regression analysis with four independent variables was conducted and the results showed that a sample size of 84 participants was required based upon a medium effect size ($f^2 = 0.15$), a power of 0.80 and significance level of 0.05 (Cohen 1992). Therefore, the attained sample size of 414 participants was more than adequate for the proposed statistical analysis.

Ethical consideration

The study protocol and instrument were reviewed and approved by the Institutional Review Boards of a governmental university and the four hospitals where the study was carried out. Participation was voluntary, and the identity of the participants was kept confidential by assigning questionnaire identification numbers. The questionnaire did not collect any information that could be used to identify the participants. Confidentiality was maintained at every stage of the study. Written consent was obtained from all participants prior to participation in the study. The signed consent form was retrieved from the participants before completing the study questionnaire and was stored separately from the completed instruments to enhance anonymity.

Instrument

The English version of the Hospital Survey on Patient Safety Culture (HSOPSC) was used to assess patient safety culture among nurses. Although originally developed in the USA, the HSOPSC has been widely used internationally (including countries in the Middle East region) to study and evaluate perceptions about patient safety culture in hospital settings (Agency for Health Care Research and Quality (AHCiQ) 2012; El-Jardali et al. 2014). All nurses working in Oman speak and write English at work and all patient care is documented in English. The HSOPSC has 12 dimensions measuring perceptions about patient safety culture and these include communication openness, feedback about errors, transitions and handoffs, management support for patient safety, non-punitive response to error, organizational learning and continuous improvement, staffing,

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supervisor/manager expectations, teamwork across units, teamwork within units, overall perceptions of safety and frequency of events reported.

The HSOPSC is comprised of 42 items and the participants respond to the items on a 5-point Likert scale ranging from 'Strongly disagree' to 'Strongly agree' or from 'Never' to 'Always'. Items with negative wording were reversed when computing means of dimensions, percent of positive response rates and total score; the percentage of positive responses for each item and dimension was calculated. All items with responses of 'most of the time/always' or 'agree/strongly agree' were considered as positive responses. The HSOPSC has very well-established psychometric properties including factor analysis, reliability and item analysis (Colla et al. 2005; Fleming 2005; Flin 2007; Hellings et al. 2007). The Cronbach's α reliability for the HSOPSC dimensions has been reported to range from 0.63 to 0.84 (Fleming 2005). In this study, the Cronbach's α ranged from 0.69 to 0.87.

Statistical analysis

The data management and analysis was conducted using SPSS version 19 (SPSS Inc., Chicago, IL, USA). All data were de-identified and organized by questionnaires' identification number. Descriptive statistical analyses such as frequencies and percentages of positive responses for each item and dimension were used to examine nurses' perceptions about patient safety culture. Multiple regression statistical analyses were used to examine the relationship between means of overall perceptions safety, frequency of events reported and the independent variables (patient safety culture dimensions). The multiple regression statistical analyses were also used to examine the relationships between total score of patient safety cultures dimensions and participants' demographic variables such as gender, age, years of experience, educational degree, position at the hospital, unit of work and hospital type. Prior to data analysis, statistical assumptions, collinearity and examining the adequacy of the regression were tested. All data were analysed at alpha level of 0.05.

Results

Participants

The sample was comprised of 414 respondents, 68.8% of these were working in non-teaching hospitals. The mean age and years of professional experience of participants were 35 years (SD = 8.25) and 12.6 years (SD = 8.03), respectively. The majority of participants (89.6%) were female and had professional education at the level of a diploma (65.4%). Only 34.6% of the participants had professional education at the level of a baccalaureate degree. The nurses included in the study were working in hospital clinical units such as surgical wards (30%), intensive care units (29%), medical wards (16.7%), obstetrics units (13%, paediatrics wards (6.3%) and non-specific units (5.1%)

Nurses' perceived patient safety culture

The results summarized in Table 1 show that the HSOPSC dimensions with the highest positive score were teamwork within units (83.4%), organizational learning and continuous improvement (81.1%), and feedback and communications about error (68.7%). The dimensions with the lowest positive scores were non-punitive response to error (21.4%), hospital management support (25.2%) and staffing (27.0%). Under the dimension of teamwork within units, issues reflecting employee support of their colleagues' work, respect and teamwork under pressure were the only areas of strength. With regard to the organizational learning and continuous improvement dimension, items focusing upon actions to improve patient safety and evaluation of their effectiveness had high positive responses. Therefore, the dimensions focusing upon staffing, hospital management support and the non-punitive response to error subscales indicate areas that require improvement in order to enhance patient safety in the hospitals where the participants were working (see Table 1).

Overall perception of patient safety and frequency of events reported associations with patient safety culture dimensions

The results presented in Table 2 show that the overall perception of patient safety by nurses was significantly associated with four dimensions of patient safety culture. In this study, the nurses who perceived more supervisor/manager expectations ($\beta = 0.280$, $P < 0.001$), more feedback and communications about error ($\beta = 0.314$, $P < 0.001$), more teamwork across hospital units ($\beta = 0.394$, $P < 0.001$), and more hospital handoffs and transitions ($\beta = 0.224$, $P < 0.01$) had more overall perception of patient safety.

The results presented in Table 2 also show that only five out of the ten dimensions of patient safety culture were significantly associated with the frequency of events reported. The nurses who perceived more teamwork within units ($\beta = 0.208$, $P < 0.05$) and more feedback and communications about error ($\beta = 0.438$, $P < 0.001$) had more frequency of events reported. On the contrary, nurses who perceived more organizational learning and continuous improvement ($\beta = -0.198$, $P < 0.05$), more hospital management support ($\beta = -0.212$, $P < 0.05$) and more teamwork across hospital units ($\beta = -0.497$, $P < 0.001$) had less frequency of events reported.

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Table 1 Responses to patient safety cultures items

Item	*Strongly disagree/Disagree* n *(%)*	*Neither* n *(%)*	*Strongly agree/Agree* n *(%)*	*% Average positively respond*
Supervisor/manager expectations and promoting patient safety				**60.0**
My supervisor/manager says a good word when a job done according to established patient safety procedures	22 (5.3)	57 (13.8)	335 (80.9)	80.9
My supervisor/manager seriously considers staff suggestions for improving patient safety	29 (7.0)	47 (11.4)	338 (81.6)	81.6
Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts (R)	210 (50.7)	89 (21.5)	115 (27.8)	50.7
My supervisor/manager overlooks patient safety problems that happen over and over (R)	110 (26.6)	80 (19.3)	223 (53.9)	26.6
Organizational learning/continuous improvement				**81.1**
We are actively doing things to improve patient safety	18 (4.3)	14 (3.4)	381 (92.0)	92.0
Mistake have led to positive changes here	47 (11.4)	85 (20.5)	282 (68.1)	68.1
After we make changes to improve patient safety, we evaluate their effectiveness	25 (6.0)	44 (10.6)	345 (83.3)	83.3
Teamwork within units				**83.4**
People support one another in terms of work in this unit	27 (6.5)	35 (8.5)	352 (85.0)	85.0
When a lot of work needs to be done quickly, we work together as a team to get the work done	20 (4.8)	27 (6.5)	367 (88.6)	88.6
In this unit, people treat each other with respect	14 (3.4)	39 (9.4)	361 (87.2)	87.2
When one area in this unit get really busy, others help out	46 (11.1)	66 (15.9)	302 (72.9)	72.9
Non-punitive response to error				**21.4**
Staff feel like their mistakes are held against them (R)	115 (27.8)	132 (31.9)	167 (40.3)	27.8
When an event is reported, it feels like the person is being reported, not the problem (R)	100 (24.2)	123 (29.7)	191 (46.1)	24.2
Staff worry that mistakes are kept in their file (R)	51 (12.3)	68 (16.4)	295 (71.3)	12.3
Staffing				**27.0**
We have enough staff to handle the workload	191 (46)	89 (21.5)	134 (32.4)	32.4
Staff in this unit work long hours which might affect patient care (R)	59 (14.3)	66 (15.9)	289 (69.8)	14.3
We use more agency/ temporary staff than is best patient care (R)	199 (48.1)	117 (28.3)	95 (22.9)	48.1
When work in 'crisis mode' trying to do too much, too quickly (R)	54 (13.0)	91 (22.0)	269 (65.0)	13.0
Hospital management support for patient safety				**25.2**
Hospital management provides a work climate that promotes patient safety	310 (74.9)	56 (13.5)	48 (11.6)	11.6
Hospital management show that patient safety is a top priority	312 (75.4)	57 (13.8)	45 (10.9)	10.9
Hospital management interested in patient safety only after an adverse event happens	121 (29.2)	69 (16.7)	220 (53.1)	53.1
Teamwork across hospital units				**66.1**
Hospital units do not coordinate well with each other (R)	226 (54.6)	93 (22.5)	94 (22.7)	54.6
There is good cooperation among hospital units that need to work together	66 (15.9)	66 (15.9)	282 (68.1)	68.1
It is often not easy to work with staff from other hospital units (R)	269 (65.0)	82 (19.8)	63 (15.2)	65.0
Hospital units work well together to provide the best care for patients	47 (11.4)	49 (11.8)	318 (76.8)	76.8
Hospital handoffs and transitions				**57.7**
Things 'fall between the cracks' when transferring patients to another unit (R)	187 (45.2)	143 (34.5)	84 (20.3)	45.2
Important patient care information is often lost during shift changes (R)	304 (73.4)	49 (11.8)	61 (14.7)	73.4
Problems often occur in the exchange of information across hospital units(R)	192 (46.4)	112 (27.1)	109 (26.3)	46.4
Shift changes are problematic for patients in this hospital (R)	272 (65.7)	80 (19.3)	60 (14.5)	65.7
Communication openness				**49.7**
Staff will freely speak up if they see something that may negatively affect patient care	36 (8.7)	99 (23.9)	279 (67.4)	67.4
Staff feel free to question the decisions or actions of those with more authority	73 (17.6)	152 (36.7)	189 (45.7)	45.7
Staff are afraid to ask questions when something does not feel right (R)	149 (36.0)	166 (40.1)	99 (23.9)	36.0
Feedback and communications about error				**68.7**
We are given feedback about changes put into place based on event reports	31 (7.5)	145 (35.0)	238 (57.5)	57.5
We are informed about errors that happen in this unit	20 (4.8)	82 (19.8)	312 (75.4)	75.4
In this unit, we discuss ways to prevent errors from happening again	35 (8.5)	76 (18.4)	303 (73.2)	73.2
Overall perception of safety				**50.7**
It is just by chance that more serious mistakes do not happen around here (R)	101 (24.4)	100 (24.2)	212 (51.2)	24.4
Patient safety is never sacrificed to get more work done	61 (14.7)	71 (17.1)	282 (68.1)	68.1
We have patient safety problems in this unit (R)	162 (39.1)	96 (23.2)	156 (37.7)	39.1
Our procedures and systems are effective in preventing errors	35 (8.5)	84 (20.3)	295 (71.3)	71.3
Frequency of events reported				**58.8**
When a mistake is made, but is caught and corrected before it affects the patient, how often is this reported?	84 (20.3)	99 (23.9)	230 (55.6)	55.6
When a mistake is made, but has no potential to harm the patient, how often is this reported?	87 (21.0)	96 (23.2)	229 (55.3)	55.3
When a mistake is made that could harm the patient, but does not, how often is this reported?	64 (15.5)	78 (18.8)	271 (65.5)	65.5

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Table 2 Multiple regression analysis of patient safety culture measures on overall patient safety grade and frequency events reported

Variable	*Overall perception of safety†*		*Frequency of events reports‡*	
	β	t-*value*	*β*	t-*value*
Supervisor/manager expectations/actions promoting patient safety	0.280	5.495***	−0.056	−0.701
Organizational learning and continuous improvement	−0.046	−0.621	−0.198	2.081*
Teamwork within units	−0.028	−0.414	0.208	2.410*
Non-punitive response to error	−0.048	−0.840	0.034	0.474
Staffing	0.089	1.320	−0.043	−0.503
Hospital management support for patient safety	−0.026	0.499	−0.212	−2.181*
Teamwork across hospital units	0.394	5.294***	−0.479	5.255***
Hospital handoffs and transitions	0.224	3.280**	0.100	1.147
Communication openness	0.013	0.214	−0.042	−0.539
Feedback and communications about error	0.314	4.965***	0.438	5.399***

*$P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.
†F (10, 403) = 21.74, $P < 0.001$, $R^2 = 0.35$.
‡F (10, 403) = 4.28, $P < 0.001$, $R^2 = 0.096$.

Demographics and hospital factors associated with patient safety culture

Analysis of the demographic and hospital characteristics reported by the participants showed that nurses who had more years of experience ($\beta = 0.293$, $P < 0.01$) and were working in teaching hospitals ($\beta = 0.403$, $P < 0.05$) had more perception of patient safety culture. The other participants' demographic characteristics such as gender, age, educational degree, position at the hospital and unit of work had no significant relationship with the nurses' perception of patient safety culture. Nine per cent of total variance in perceived patient safety culture was accounted for by the independent variables, F (10, 375) = 2.974, $P < 0.001$.

Discussion

The findings of the current study show that nurses working in selected Omani hospitals perceived patient safety culture more in the aspects of teamwork within units, organizational learning and continuous improvement, and feedback and communications about error. Communication and teamwork within hospital units is essential to provide effective and safe care as the patient is usually treated by multidisciplinary team of healthcare providers and in a variety of clinical settings within the hospital (Joint Commision 2007). Lack of communication can significantly jeopardize patient safety and patient care outcomes. Available evidence also shows that lack of communication between healthcare providers is one of the major contributors to medical errors (Beyer et al. 2007). It is therefore well recognized that the quality of health care and patient safety depend upon effective communication between the healthcare team members themselves and between healthcare providers and the patient (Canadian Patient Safety Institute 2009).

The results of this study are in a way consistent with the findings of other studies, which found that effective leadership is important to build strong patient safety culture, encourage teamwork and learn from adverse events (Piotrowski & Hinshaw 2002). Effective leadership in the hospital setting can easily nature critical aspects of patient safety culture such as team work, organizational learning, and continuous improvement and communication. In this study, we found that teamwork within units and communications about error are significant predictors of an increase in the frequency of events reported by nurse, and these results are similar to those of the previous studies (Ballangrud et al. 2012; El-Jardali et al. 2011). Proper communication and teamwork are important to eliminate threats to the safety of patients (El-Jardali et al. 2011). According to The Joint Commission (2013), 82% of sentinel events reported in 2010 were a result of failure in communication. Moreover, lack of proper communication might jeopardize patient safety and increase frequency of sentinel events.

The other findings of the current study are in line with those of other studies, which show that manager expectations and actions, feedback and communications about error, teamwork across hospital units (Alahmadi 2010; Ballangrud et al. 2012), and hospital hand-offs and transitions (El-Jardali et al. 2011) are predictors of overall perception of patient safety culture. This shows the importance of the managers in fostering patient safety. The findings show the approaches the manager can take,

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including providing feedback and communications about error that is happening in the unit and proactively respond to staff recommendations to improve patient safety and to prevent errors from happening. Other studies have also found that managers are primarily force to set and enforce behavioural expectations to maintain safety and to nurture mutual ownership of patient safety culture among nurses (Hughes et al. 2009; Katz-Navon et al. 2005).

The findings also indicate that nurses who perceived good organizational learning, teamwork across hospital units and hospital management support had less frequency of events reported. To communicate normative expectations about positive workplace safety behaviours, managers should utilize teamwork approach (Hughes et al. 2009) and effective teamwork relies upon communication and coordination between nurses to provide safe patient care (Manser 2009). Effective teamwork plays a critical role in causation as well as prevention of adverse medical events (Manser 2009). Effective communication and teamwork are both critical to maintaining an environment and culture where nurses feel free to report about patient safety issues because encouraging nurses to report events is very crucial to improve patient safety; however, this required non-punitive environment where people are not blamed (Ballangrud et al. 2012; El-Jardali et al. 2011).

In our study, the non-punitive dimension received the lowest score, indicating that the nurses were feeling threatened if they report errors. This finding is consistent with other studies where non-punitive responses to error scored the lowest (Alahmadi 2010; Bodur & Filiz 2009; El-Jardali et al. 2011). Having hospital management support for patient safety and organizational learning climate does not guarantee increased propensity for errors reporting. Fear of punitive responses and its consequences from hospital administration limits the frequency of error reporting among nurses (National Research Council 2004). It is important for all healthcare settings to view errors as valuable learning opportunities to improve patient safety culture but not as personal failures (Institute of Medicine 2001; National Research Council 2004). When errors are viewed as valuable learning opportunities, the result is a blame-free environment where nurses are able to readily identify and report errors, hence improving patient safety. Building a safety culture requires blame-free, fear-free and error reporting environment (Alahmadi 2010).

The findings of the current study highlight also some key attributes of hospitals and nurses that have affect perceptions of patient culture of safety. For instance, nurses who were working in teaching hospitals scored higher on total score of patient safety culture measures than nurses in non-teaching hospitals. Other studies have reported similar results showing that nurses working in teaching hospitals are more knowledgeable about patient safety and they have high organizational learning culture (Hatam et al. 2012; Tabibi et al. 2011). Nurses who had more years of experience also had more perception of patient safety; and this is similar to findings from a study conducted to examine patient safety culture among nurses in Egypt (Aboul-Fotouh et al. 2012).

It is important to note that the level of experience of the nurse (Aiken et al. 2009), and the mission and vision of hospital (teaching vs. non-teaching) where nurses work are important factors that influence nurses' perception about patient safety culture. Expert nurses are likely to ask more questions compared with less experienced nurses during hospital handoffs, while novice nurses prefer to follow written orders (Taylor 2002). Therefore, the findings of the present study show that nurses in Oman, like their counterparts in other countries where perception about patient safety has been studied, value teamwork within units, organizational learning and continuous improvement, and feedback and communications about error, as important aspects of patient safety culture. The nurses' perceptions and recognition of patient safety culture increase with increasing professional experience and if they in teaching hospital settings.

In viewing the results of our study, readers should take into account some limitations. The study has a cross-sectional nature, which constrains the ability to interpret the causal relationships between the study variables. The collected data were self-report data that have biases related to recall. Sample recruitment methods depended upon convenience sampling and may not be representative of the Omani nurse population.

Implication for nursing and health policy

Evidence has shown that lack of communication between healthcare providers is a major contributor to errors. It is therefore important for hospitals settings in Omani and other countries to have deliberate strategies to nurture leadership capacity that support open communication, blame-free, team work and continuous organizational learning. Such strategies may take the form of continuing education activities and specific policy on blame-free reporting of errors. Additionally, as has been already indicated by Viasmoradi et al. (2011), there is a need for nursing education curriculum and continuing education programmes for nurses to transition from teaching theoretical concepts of patient safety and entrench application of safety knowledge and competencies in nursing practice. The present study findings show that it is very beneficial to patient safety if a nurse is kept in the same clinical area for long time or is more experienced. The findings also highlight the need of having well-established hospital mentorship programme for new

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nurses. Such mentoring programme gives an opportunity for experienced nurses to clarify, teach, mentor and role model patient safety culture to novice nurses. Thus, hospital settings that are intended on promoting patient safety culture among nurses have to consider factors such as mission and vision of the hospital, available strategies to promote leadership capacity, open communication, and blame-free environment and level of the nurses.

Conclusion

This study provides a general assessment of perceived safety among nurses in Oman. Our results indicate that safety culture is yet to be established and developed in Oman. Initiatives are needed to improve communication, teamwork, error reporting and response to errors. Error reporting should be viewed as a strategy to learn from mistakes and an initial step to create patient safety culture.

Author contribution

A.A. Ammouri: Study design, data collection and analysis, manuscript writing, and intellectual content.

A.K. Tailakh: Study design, data collection and analysis, and manuscript writing.

J.K. Muliira: Data analysis and manuscript writing.

R. Geethakrishnan: Data collection and analysis, and manuscript writing.

S.N. Al Kindi: Study design, data collection and manuscript writing.

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