

PATIENT SAFETY CULTURE DIMENSIONS AS PERCEIVED BY NURSES

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Abstract

Patient safety is a global concept that every healthcare professional must hold at the very heart of what they do. Shared culture of patient safety should be of primary significance and there is resolute need for theory lead research approaches for safety culture in health care organizations. The main objective of this research was to investigate staff nurses' understanding of patient safety culture in governmental hospitals in the northern region of Saudi Arabia. The descriptive cross-sectional design was used in this research. 503 nurses from six hospitals were included. This study introduced credible findings owing to the whole high response rate (73%) and outcomes with specified results. The staff nurses rated patient safety as very good (Mean = 2.30; SD = 0.839) supposing that efforts of the organizations and nurses were executed to offer the safest patient care possible. The whole patient safety culture was rated neutral supposing that (63%) of the staff nurses who participated in the current study have merged ideas about the status of patient safety culture in their respective organizations. Another essential result that required further investigation was the extent of frequency of events reported wherein between 25% and 32% or the whole 21% never or rarely

reported events that occurred. The results of this research reflect that patient safety should be taken into account as a priority when enhancing health care-related activities by staff nurses in the studied hospitals.

Key words: patient safety culture, nurses, Saudi Arabia

Introduction

1. Definition of Safety Culture

The safety philosophy of a hospital is the product of an interaction between individuals and group beliefs, behaviors, insights, and aptitudes that stipulate the pledge to, and the style and adeptness of, an organization's management of safety culture. Organizations with a positive safety culture are described by communications founded on mutual confidence, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measures (Westat, Rockville & Sorra, 2016).

The concept of safety culture originated outside of health care especially in studies of high trusted organizations, organizations that minimize adverse events in spite of executing intrinsically complicated and dangerous work. High trusted organizations have a commitment to safety at all levels from frontline providers to managers and executives. This commitment creates a "culture of safety" that encompasses the following properties: acknowledgment of the high-risk nature of an organization's activities and the specification to obtain safe operations; a blame free environment where people are able to report problems or near misses without fear of punishment; support of collaboration through ranks and disciplines to target solutions to patient safety obstacles, and organizational commitment of resources to address safety perspectives (Simon, Muller & Hasselhorn, 2010).

Patient safety is the first and most important step to enhance the quality of medical and health services and is an inseparable component of these services. This method became highly scrutinized by health scholars and professionals (Elmi, Babaie & Elmi, 2018).

Patient safety culture is a part of the organizational culture within health care. A dynamic and conscious definition of patient safety culture was introduced by the European Society for Quality in Health Care in 2006 and reveals safety culture as where actions are taken to decrease risk or harm to patients in the trajectory of care. It is considered as "An integrated pattern of individual and organizational behavior, dependent on shared beliefs and values that continuously try to minimize patient harm, which may result from the processes of care delivery (Westat, Rockville & Sorra, 2016).

Characteristic properties of patient safety culture have been defined as leadership acknowledging the health care environment as highly risky and specified transferring resources to the frontline staff, a collaborative spirit among staff, where relations are open, respectful and flexible, where the environment permits all health care staff to speak up on the patient's behalf, and where all staff value learning from mistakes as a method to enhance their performance. In addition, practice is dependent on evidence, errors are known as system failures rather than individual failures and simultaneously individuals are held responsible for their actions, and care is centered on the patient (Nordin, 2015).

2. Nursing practice obstacles in the work environment:

Nursing practice meets a lot of obstacles associated with problems in the work environment and integration of a culture of safety found that shortage of clear communication; shortage of evidence of work group co-operation; inadequate management of patient care problems, shortage of confidence among health care employers and conflict, culminate in nurses' job dissatisfaction and feelings of being overstressed. They supposed that the results influence nurses' capability to introduce quality, safe, and humane care. The lack of nursing staff is no secret to stakeholders and has become a great focus in the past decade leading to hospital administrators and nurse managers to become more conscious of the safety and quality of the staff work environment and its effects on the workforce (Fujita et al., 2013).

Patient safety should be recognized in the perspective of general highest quality. Since there are various factors acting in the health system, it should be examined through the adoption of clinical practices. Concentration is required to make obvious the responsibilities and roles of all experts working in health care. There is a need to strengthen the qualifications of professionals. Training is defined as an indispensable tool to ensure that safety and effective care is delivered at all times. In recent years, a lot of educational initiatives have been adapted, although in different ways. These experiences reflect on the need to establish a level of skills and knowledge that will enhance the development of strategies for introducing and ensuring safety for all patients (David et al., 2013).

Alahmadi's study (2010) presents an overall evaluation of safety perceptions among hospital staff in private and public institutions in Saudi Arabia. Results confirmed increased attention to patient safety and continuous improvement efforts. Although results also show that safety culture is yet to be developed, as there are several areas for improvement involving error reporting, communication, teamwork and leadership across hospital units and in response to errors. Efforts for developing and implementing effective strategies to enhance patient safety culture in Saudi Arabian hospitals are limited by leadership capacity to set up open communication and organizational learning.

Alswat (2017) discussed the findings of repeating the assessment of patient safety culture in a multisided Medical City in Riyadh, in KSA. Findings were compared with a previous assessment conducted in 2012. The research study established that the Medical City has attained important improvement in the patient safety culture aggregates although having features needful of further enhancement. Findings similarly revealed that ongoing periodical assessment can help hospitals to better envision and recognize changes needed to enhance their performance.

3 The six factors of creating a patient safety culture:

The Joint Commission's Center for Transforming Healthcare (2015) discussed the six aspects of maintaining a patient safety culture:

1. The culture of patient safety starts from the top management. It would be difficult to produce and maintain a patient safety culture if it was not inaugurated at the top managerial level of a healthcare organization. Leading boards, executives and supervisory management should inspire a safety culture and make their standards obvious to the rest of the organization. Healthcare administration has to encourage everyone to nurture patients' well-being as healthcare quality is the utmost priority in an organization's goal (Donabedian, 2012).

It is an attitude made by management, not a temporal matter, that patient safety is the top priority. Top management should reinforce the practice of patient safety culture in their healthcare organizations. Governing board members and managers must interact openly with healthcare teams including physicians, nurses and patients, making it obvious to the staff and patients that the top management's commitment to patient safety is an ongoing monitored process.

2. Healthcare management must create a vision that will guide the organization's practice and reinforcement of patient safety culture. Doing so necessitates administrators to conduct a gap exploration to distinguish where the organization stands in the continuum of safety and where it needs improvement.

3. Patient safety culture should entail all levels in the healthcare organization. When analyzing the gap is executed, administration of the organization can make efforts to boost and advance a patient safety culture.

4. Patient safety culture requires some evolution and some changes. Patient safety culture depends on many various conditions and environments. Healthcare organizations are multifaceted organizations, made up of many diverse parts with different requirements, diverse staff members and different patients.

5. Commitment to patient safety culture is consistent. One of the evident common liabilities that weakens the development of a patient safety culture is in the commitment of top managerial level. Additional common mistakes can be apparent in how management deals with malpractice issues. It is imperative that the top managerial level recognize that malpractice issues and medical errors are constantly the result of defects in the system, more than individual ineffectiveness. When medical errors occur, the management should look at ways to improve systematic processes to deter future adverse events from occurring, more than punishing the individual who created the problem. These discrepancies can make staff members more exhausted and less interested and concerned with patient safety efforts.

6. Patient safety culture ultimately transcends the leadership Patient safety culture exceeds management considerations; effective improvement of a patient safety culture must create a complete sphere. The significant gauge of whether an organization has attained this; is to understand how properly the organization's patient safety culture succeeds once there is a change in management. (Sorra et al., 2016)

4. The Self System in Reciprocal Determinism Model:

Human behaviors have preferred underlying models emphasizing environmental or inner fundamentals of behavior. In social learning theory, causal actions are categorized in terms of mutual determinism. In regard to this attitude, psychological standing includes constant mutual actions between cognitive, behavioral, and environmental influences. The basic argument between unidirectional and reciprocal models of human behavior focus on the issue of self-influences (De Wet and Johnson, 2014)

According to Bandura (1978) self-system in the structure of social learning theory involves cognitive structures and sub-functions for appreciating, assessing, and modifying behavior, not a psychic factor that regulates actions. The effective role of the self-system in mutual determinism is established by a mutual examination of self-regulatory operations. Mutual determinism is hypothesized as a chief principle for examining psychological events at the level of interpersonal development, interpersonal relations, and shared standing of social and organizational systems (Cooper, 2000, and Wood and Bandura, 1989).

5. A Model of Safety Culture

Safety culture is a part of organizational culture that affects members' behaviors concerning an organization's continuing health and safety transactions. Though the complex of descriptions of organizational 'culture' and 'safety culture' that proliferate in both the management and safety literature, presumes that the term of business-specific cultures is not straightforward. Placing such 'culture' concepts into a goal-setting model seems to lead to better transparency than has previously been the case. A mutual model of safety culture derived from Bandura's (1986) model of reciprocal determinism is the Reciprocal Safety Culture Model by Cooper (2000). This model is adopted in order to deliver both a theoretic and practical structure with which to ration, measure, analyze, and evaluate safety culture (Bandura, 1986, and Wood and Bandura, 1989). This Reciprocal Safety Culture Model promotes self-regulatory processes consistent to the definition of safety culture hitherto recognized as 'The result of joint values, beliefs, attitudes, and patterns of behavior established on a top down approach practices that are concerned with reducing the exposure to conditions considered risky or detrimental to the whole group members on a self-regulatory basis' (Faridah et al., 2011).

Study questions:

1. What are the main benefits of patient safety culture?
2. What are the major variables affecting patient safety culture in investigated hospitals?
3. Is patient safety culture familiar as a concept to nurses in these hospitals?
4. What are the main impacts of applying patient safety culture in the studied hospitals?

Methodology

The descriptive cross-sectional design was used in this research.

1. Participants

A participant in a study presents the entire group of interests. The aimed groups of interest were the staff nurses working in public hospitals in Saudi Arabia. The accessible population involved all nurses working in hospitals located in three cities in the northern region of Saudi Arabia with at least 100 beds capacity. The inclusion criteria included: those in active full time employment at the time data was gathered and willingness to voluntarily participate in the study. The only exclusion criterion was the non-willingness or refusal to voluntarily participate in the study

2. Sample size

In order to obtain a medium effect size of 0.15, statistical power of 0.95, and probability of error at 5% ($\alpha = 0.05$), a priori sample size was computed using G*Power version 3.1.9.2 software was 226.

3. Measures

The study method utilized in this study is the Hospital Survey on Patient Safety Culture by AHRQ publication (Sorra et al., 2016). This survey concentrated on patient safety and error and event reporting. There are 42 items grouped into 12 composite measures, or composites. Furthermore, the survey included two questions that asked participants to give a whole score on patient safety for their work area / unit and to specify the number of events they reported over the previous 12 months. In addition, participants were also asked to give background demographic information about themselves that involved hospital settings, number of years working in current hospital, number of years working in current assigned unit, staff position, number of hours worked per week in current hospital, whether they had direct contact or interaction with patients, number of years working as a registered nurse and assigned nursing units.

In this study, results were introduced depending on the calculation of the frequency of response for every survey item. The two lowest response categories were integrated (Strongly disagree / Disagree and Never / Rarely) and the two highest response categories were also combined (Strongly agree / Agree and Most of the

time / Always). The midpoints of the scales were reported as a separate category (Neither or Sometimes). About 17 missing responses were excluded when percentages of response to the survey items were displayed. In the calculation of hospital's score on a special safety culture composite, the average score of the percent positive responses on all items involved in the composite was calculated. In the calculation of percent positive scores, the responses were reversed in the negatively worded items. Disagreeing or responding Never to a negatively worded item referred was a positive response. Validity and reliability data have been reported on the subscales of the Hospital Survey on Patient Safety Culture by Ulrich & Kear (2014) from AHRQ (2004). The 12 components refer to the following Cronbach's alpha: group within units (0.83), supervisor/ manager expectations and actions supporting patient safety (0.75), organizational learning continuous enhancement (0.76), management support for patient safety (0.83), whole perceptions of patient safety (0.74), teamwork across units (0.80), staffing (0.63), handoffs and transitions (0.80), non-punitive response to error (0.79), communication openness (0.72), feedback and communication about error (0.78), and frequency of events reported (0.84).

4. Procedure and ethical considerations

Approval from the Institutional Review Board from the Office of the Ministry of Health General Directorate of Health Affairs in the Northern Border Region was achieved. Permission to conduct the study in the 6 hospital settings was achieved and granted. Permission to use the instrument was achieved through electronic mail from the instrument's author. The instruments were distributed to the hospitals according to the corresponding target sample size across all nursing departments. A cover letter requesting voluntary participation from the staff nurses, confirming anonymity of identities, confidentiality of responses, and possible publication of the study was attached to the instrument. The participants were not provided with any form of compensation for their participation in the study.

5. Data analysis

520 questionnaires were retrieved. Only 503 questionnaires were involved for further processing thereby obtaining a response rate of 73%. Components needing reverse-scoring were reverse coded before encoding in IBM SPSS version 21 software for further processing and analysis. Descriptive statistics was used and Pearson correlation coefficient was utilized in introducing and interpreting findings on which of the number of years working in hospital; staff position; number of hours worked per week, number of years working in current position, patient contact or interaction, patient safety grade, frequency of event reporting, number of events reported, teamwork within units; supervisor/manager expectations and actions promoting safety, management support for patient safety, organizational learning continuous enhancement, the whole perceptions of patient safety, communication openness, feedback and communication

about error, staffing; teamwork across units; hospital handoffs and transitions; and no punitive response to error, are associated with nurses' overall perceptions of patient safety in these six hospitals. Important findings were inferred for p -values < 0.05 .

Results

Profile of Participants

The majority of the participants have been working in their current hospital for five years or less (73%) and have been working in their current assigned unit for five years or less (80%). Most of the participants worked between 40-59 hours per week (64%). The majority (93%) are registered nurses and have direct patient contact or interaction (91%). Most were assigned to the emergency department (15%), intensive care unit (14%) and presumably rotated in different units (13%).

Results of Overall Patient Safety Culture

The strongly disagree/disagree responses and the agree/strongly agree responses were aggregated as suggested in the scoring guide. The scores of all items in each of the 12 dimensions were further averaged to come up with the dimension's average rating. The average ratings of the 12 dimensions were aggregated to come up with the overall patient safety culture.

About 77.5% ($n = 390$) of the participants rated the overall teamwork within units positively with an aggregated mean score of 3.80 ± 0.73 suggesting an overall response of agreement. Supervisor/manager expectations and actions promoting patient safety were rated neutrally ($n = 283$; 56%) with an aggregated mean score of 3.17 ± 0.50 suggesting an overall neutral response. Organizational learning - continuous improvement was rated positively ($n = 406$; 81%) with an aggregated mean score of 3.93 ± 0.61 suggesting an overall response of agreement. Management Support for Patient Safety was rated neutrally as a whole ($n = 213$; 42%) with an aggregate rating of 3.33 ± 0.68 suggesting neutral response. The overall perceptions of patient safety was rated neutrally ($n = 287$; 57%) with an aggregate mean rating of 3.32 ± 0.56 also suggesting neutral response. Feedback and communication about error was positively rated ($n = 334$; 66%) with an aggregated mean rating of 3.71 ± 0.80 suggesting agreement. Communication openness was rated neutrally ($n = 229$; 45%) with an aggregated mean rating of 3.38 ± 0.78 suggesting that the participants neither disagree nor agree. Half of the participants rated teamwork across units positively ($n = 256$; 51%). Overall, teamwork across units was rated neutrally with an aggregate mean rating of 3.39 ± 0.61 . Staffing had an overall negative rating ($n = 281$; 56%) with an aggregated mean rating of 2.60 ± 0.55 suggesting disagreement. The rating however is considered positive since the item was worded negatively. Handoffs and transitions had an overall positive rating ($n = 201$; 40%) with an aggregated mean rating of 3.09 ± 0.75 suggesting a neutral rating. Non-punitive response to errors had a negative rating ($n = 285$; 57%) with an aggregated mean rating of 2.48 ± 0.72 suggesting disagreement. When taken

as a whole, patient safety culture was rated neutrally ($n = 317$; %) with an aggregated mean rating of 3.29 ± 0.32 . Overall, the participants neither disagree nor agree on the level of patient safety culture that they have in their hospital of employment or assigned unit.

The Association between Nurses' Entire Perception and the 12 Dimensions of Patient Safety Culture

Pearson correlation coefficient was used to test the association between nurses' entire perception of patient safety culture and the 12 dimensions of patient safety culture. Results are presented in Table 1 (next page).

There were 16 independent variables that were statistically and significantly associated with the overall patient safety culture ranging between $r = .034$ and $r = .715$. The following variables were statistically and significantly associated (with p -values < 0.001) and have large effect size ($r > .5$) with the overall patient safety culture: Teamwork within Units ($r = 0.613$); Organizational Learning—Continuous improvement ($r = .512$); Management Support for Patient Safety ($r = .549$); Feedback and Communication about Error ($r = .715$); Communication Openness ($r = .571$); and Teamwork across units ($r = .613$). These variables will likely explain a large part of the variances in the overall patient safety culture.

Discussion

The results of this study revealed collective increase in ratings in the overall patient safety culture as perceived by the staff nurses. Contrary to the findings of a large study in 2014, managers perceived patient safety culture more positively than other staff positions or frontline workers (Sorra et al., 2014; Hickner et al., 2014). Having many of the participants working in the emergency department (ED) and intensive care unit (ICU) suggested a result of increase in patient safety culture rating with similar findings in another study of a patient-centered transfer process stating increase in patient satisfaction ratings and weighty decrease in transfer event errors reported improved patient safety in an emergency department (Cronin-Waelde & Sbardella, 2013).

In this study, the patient safety grade is rated as very good by the participants when taken on a whole. The result is similar to the study also conducted in the kingdom, although high in rating, it still suggested a need to improve and maintain a culture of safety (Alahmadi, 2010).

In this study, the areas of strength identified are teamwork within units, organizational learning-continuous improvement, feedback and communication about error, staffing, and non-punitive response to errors. Several studies have similar results as documented in the literature (Onge & Parnell, 2015; and Vifladt et al., 2016). The results suggest a sense of agreement among staff nurses that people support one another and treat each other with respect to their nursing unit in the hospital organization. Contrary to the study of Fujita et al. (2013), lack of evidence of teamwork and collaboration, lack of mutual trust among

Table 1: Results of testing the association between nurses' entire perception of patient safety culture and the 12 dimensions of patient safety culture

Patient Safety Culture Dimensions	<i>r</i>	<i>p</i> - Value
Overall Patient Safety Culture	1.000	
Number of years working in hospital	-.059	0.092
Number of years working in assigned unit	-.207	<0.001
Number of hours worked per week	.116	0.005
Staff position	-.165	<0.001
Number of years working in current profession	-.112	0.006
Patient contact or interaction	-.034	0.225
Patient safety grade	-.332	<0.001
Number of events reported	-.054	0.111
Frequency of Event Reporting	.441	<0.001
Teamwork Within Units	.613	<0.001
Supervisor/manager expectations & actions promoting safety	.497	<0.001
Organizational Learning Continuous improvement	.512	<0.001
Management Support for Patient Safety	.549	<0.001
Overall perceptions of patient safety	.384	<0.001
Feedback and Communication About Error	.715	<0.001
Communication Openness	.571	<0.001
Teamwork Across Units	.613	<0.001
Staffing	.094	0.018
Handoffs & Transitions	.430	<0.001
No punitive Response To Error	-.020	0.330

health care workers, and conflict contributed to nurses' job dissatisfaction and feelings of being overstressed at work that could affect negatively on patient safety culture at the workplace which plays a role in underdeveloped healthcare safety culture (AHRQ, 2017). Participants also reported to be actively doing things to improve patient safety. In this manner, facilitating a just and trusting culture contributes to organizational learning and improvement in patient safety (Aboshaiqah & Baker, 2013; and Kirwan et al., 2013). It has been suggested, based on the findings of the study that ensuring appropriate nurse staffing and working hours are considered as important factors in enhancing the quality and safety of care and to decrease the care left undone in hospitals. Such findings are congruent with similar studies that have been conducted in Western countries (Cho et al., 2016). The areas for improvement identified in this study included supervisor/

manager expectations and actions promoting patient safety, management support for patient safety, overall perceptions of patient safety, communication openness, teamwork across units, handoffs and transitions, and the overall patient safety culture that were rated neither disagree or agree on the level of patient safety culture in their hospital of employment. Contrary results from many studies have been acknowledged in the literature, such as that manager support and actions, shared perception/expectation of the importance of safety, established reporting system of adverse events, and open communication among nurses resulted in a more positive patient safety culture (Hickner et al., 2015; Hessels & Larson, 2016; Wang et al., 2016; Hamaideh, 2016; Gunes et al., 2016). The concern on hospital handoffs and transitions in the current study is similar to the findings of AHRQ (2016). Thus, there is a need to study handoffs and

transitions practices in order to formulate strategies that will improve the procedure and thereby improve patient safety.

As for the association of independent variables with overall patient safety culture in this research study, there are 16 independent variables that were statistically and significantly associated with the overall patient safety culture with a collective large effect size ($r > 0.5$) on the overall patient safety culture namely: teamwork within units; organizational learning-continuous improvement; management support for patient safety; feedback and communication about error; communication openness; and teamwork across units. The association of these variables explained the large part of the variances in the overall patient safety culture. Hospital management support for patient safety and organizational learning has been identified as areas of strength with positive response rates. Furthermore, the latter has been identified to significantly improve patient safety culture that is consistent with the findings of other studies (Aboshaiqah & Baker, 2013). Patient safety culture rating is significantly improved by about 20 percent when there is communication openness and management support for patient safety, more so than other components (Hickner et al., 2015). It has been positively pointed out that presence of teamwork among staff within and across units fosters development of a strong safety culture in an organization (AHRQ, 2016; Hessels & Larson et al., 2016).

Conclusion

Enhancing patient safety culture depends on the organizational learning-continuous improvement, work group in units, feedback and communication, staffing, and non-punitive reply to mistakes which are vital assets. Though manager expectations and activities supporting patient safety, management apt for patient safety, communication candidness, work group through units, and handoffs and shifts need to be given significance for improving culture of patient safety. When taken as a whole, the results of this research reveal that patient safety should be emphasized as a priority when improving health care-related actions. Results of this study actually show that there is a need to substitute traditional culture of shame and blame to non-punitive culture. The findings of the current study will work as a starting point to better understand patient safety. Upcoming research in patient safety culture and nursing may produce new thoughts to the body of literature.

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