

Patient Safety Culture among Nurses in Hafar Al-Batin

Ali Flah Al Harbi¹, Nawaf Benian Alenzi¹, Rashed Al Mutiri¹, Anwar Alruwaili¹, Mukhlid Alshamri², Mshary Benian Alenzi^{3*}

¹Ministry of Health, Saudi Arabia

²Department of Nursing and Midwifery, University of Newcastle, Australia

³Department of Nursing, Majmmah University, KSA.

Corresponding Author*

Mshary Benian Alenzi
Department of Nursing, Majmmah University, Saudi Arabia
E-mail: mmu19802@gmail.com
Phone- +966 50 786 5137

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Abstract

Background: Patient safety is a critical component of healthcare quality, and it is one of the most closely evaluated metrics by all healthcare institutions throughout the world. Because of the nature of their profession, nurses play a critical role in ensuring and promoting patient safety.

Objective: This study was aimed for identifying the nurse's perception of patient safety culture and assesses the impact of nurse's demographic data on the perception of patient safety culture in Hafar Al-batin, Saudi Arabia.

Methods: The study used a descriptive and cross-sectional design. The Hospital Survey on Patient Safety Culture was used to study the patient safety culture of 367 registered nurses working in four governmental hospitals in Hafar Al-batin. General linear regression and Descriptive statistics were used to examine the relationship between demographic variables and patient safety culture.

Result: From 12 domination of the HOSPC, the highest positive response was teamwork with unit following organizational learning-continuous improvement on another hand area that require improvement of No punitive Response to Errors followed by staffing then Communication Openness. From the perspective of nurses, regression analysis revealed that factors such as age, gender, and language influenced patients' safety culture in Saudi hospitals.

Keywords: Patient safety • Culture nurses • Hospitals

Introduction

This chapter reviewed the introduction and background for this research including the background of nurses' patient safety culture perception, research questions, research aims and significance of the study.

Nurses perception of patients safety culture

Patient safety is the ability of a patient to be free from harm and other risks that may be deemed unnecessary associated with health care [1]. Therefore, when a health facility set values and guidelines commonly shared in enhancing the safety of the patients, the facility is said to have a patient's safety culture. Patient safety is critical to health care quality as it can directly or indirectly threaten patients. Patient safety can be influenced by many factors, including cultural background. One of the common reasons for medical errors was the diversity of cultural perception of patient safety. Culture is widely used by all service providers in ensuring that the patients feel safe and protected from harm; hence, boosts their confidence in the operation of the organization. The patients' image and attitude to the facility is a determinant of the adoption of the safety standards as part of the facility's culture.

The effectiveness of organizational culture was reliant on the acceptance of the culture. Therefore, a patient's safety culture should be embraced and accepted by the nurses to impact. If the nurses were not in agreement with the policy, the patients' safety would be compromised. The nurses were the

lead implementers of some of the cultural practices in ensuring the patients' safety. For example, team training and inter-disciplinary rounding were the interventions that help in promoting the safety of the patients. Nurses have a vital role in monitoring patients' progress, for any deterioration was detected. The nurses were required to monitor the patients and ensure their recovery closely. The safety of the patients was reliant on the workload of the nurses. Studies suggested that nurses can effectively perform their tasks with an adequate number of functions. If the institution's values were not central to the patients' safety, the nurses would have a considerable workload; hence, reducing the time in monitoring patients. Therefore, in any emergency, the patients would be vulnerable and exposed to various risks. Thus, the institutions needed to promote the efficiency of the nurses in caring for their patients, hence improving the effectiveness of the adopted patient's safety cultures.

According to Ibrahim et al., there was an increasing pressure to progress the safety of the patients in the kingdom of Saudi Arabia (KSA) due to increased stress amongst patients on their safety [2]. There were numerous complaints about the issues surrounding a patient's safety with the nurses in Saudi Arabia. Hence, research suggested that nurses' job satisfaction may be related to the nurses' low services. In collaboration, many organizations had no clear policies on personal and patient safety amongst the nurses. There was ignorance amongst institutions that have seen the risk of increased exposure of the patients to the various risks. Enhancing the collaboration of the organization's commitment to setting put the policies accompanied by other personal initiatives to follow the set procedures would help in solving the problem. The patients were also required to identify the barriers related to executing the safety measures to the patients. Some of the obstacles include lack of job satisfaction amongst the nurses as well as poor attitudes to follow the set policies.

Despite that, there was research in a country like Saudi Arabia regarding the nurse's perception of patient safety culture [3]. This research mostly was conducted in big cities in the central area of (KSA) such as Riyadh city. However, there was no study investigating nurses' perception of patient safety culture in Hafar Al-batin city (KSA). Given that the popularity of the nursing workforce was expatriate nurses had cultural diversity [4]. This study employed a quantitative approach to investigate this area. The paper main aim was to perform quantitative research on the area and establish the adoption of patient's safety cultures and the impact it had on the patients. Hence, establishing clear statistics and knowledge on the policies adoption was necessary for the institutions in enhancing their services to the patients.

Research questions

The previous literature review guided us to formulate the research questions as following:-

- What is the nurses' patient safety culture perception in Hafar Al-batin city, Saudi Arabia?
- What is the influence of the personal demographical variables of nurses on patients' safety culture perception?

Research objectives

Objectives of this study were as the following:-

- To identify nurses' perception about patient safety culture in Hafar Al-batin city, Saudi Arabia.
- To measure the influence of nurse's demographical data on the perception of patients' safety culture.

Null hypothesis

No significant relationship between the demographical data of the nurses to their patient safety culture views.

Significance of study

The following benefits resulted from this study

Patients: The patients would be the direct beneficiary of the results of the study since they were the recipient of the care provided by staff nurses.

Sufficient staffing had been demonstrated to prevent untoward outcomes. Recommendations from this study would be inputted to quality improvement and patient safety.

Staff nurses: Nurses could also benefit from this study. Nurses would be refrained from committing errors. They would also be prevented from the omission of nursing care provisions. They would have refrained from potential legal concerns and burnout. Furthermore, they would have more time to provide health teachings and nurse-patient interactions. This would lead to better nursing assessment, and thus able to distinguish concerns promptly, plan appropriately, and provide swift nursing interventions.

Nurse managers: The results of this study indicated the great utility to nurse managers since it was a good input in determining the correct staffing process. The results may become part of the specification in determining the staff size per shift per unit. When the input was based on evidence, then the current process would be potentially corrected that eventually resulting in a positive outcome (quality and patient safety). Using the DMAIC process, this study may be considered as part of the Define, Measure and Analyse phases, which eventually be the basis for the Improvement and Control phases.

Hospital: Unfortunate outcomes result in harm to the patient which would then be translated into inconvenient hospital costs [5]. When the correct staffing stratagem was deployed, recommendations would be made to the hospitals for consideration. This would eventually defer potential cost from potential legal concerns, and other miscellaneous or wastage costs brought about by inadequate staffing.

Regulatory bodies: The Ministry of Health (MOH), Saudi Patient Safety Centre (SPSC), Saudi Central Board for Accreditation of Healthcare Institutions (CBAHI) Saudi Patient Safety Centre, and Saudi Commission for Health Specialties may benefit from the recommendations of this study. Guidelines may be provided by (MOH) and (SPSC) after recommendations of the study were considered. Audits from (CBAHI) may consider the inputs of recommendations of this study as part of the clauses under the Human Resource and Nurse-Patient Ratio.

Researchers and future researcher: The researcher benefited from the partial completion of the requirement for the graduate program. Future researchers may use the result of this study as mother literature, or part of the review of related literature.

Study variables

The demographical data like age, marital status, gender, education, experience, nationality, place of work and language were used as independent variables. Patient safety cultures were used as the dependent variable. In addition, the study investigated patient safety culture 12 dimensions (variables) collaboration between each other.

Definitions of terms

Patient safety: It is referred to the ability of a patient to be free from harm and other risks that may be deemed unnecessary associated with health care.

Safety culture: It is defined as the outcome of people or group values, attitudes, perceptions, competencies, and behaviour that controlled the commitment to, style and proficiency of the health and safety management organization.

Patient safety culture: It is referred to the belief, norms, values proper action, and appropriate attitudes in a workgroup environment [7].

The number of events reported: It is defined as the self-reporting of error events that the healthcare provider was filling out and submitting in 12 months [8].

Non-punitive response to the error: It is referred to the healthcare provider's perception of action taken by the management of the healthcare system on reported error occurrence.

Feedback and communication about errors: It is the healthcare provider perception of how much information was shared regarding occurrence and follow-up process in the healthcare system.

Organizational learning: It is referred to the healthcare worker perception of organizational effort to productively check, evaluate, engage in quality and safety improvement based upon error events in the healthcare system.

Teamwork across hospital units: It is referred to the healthcare worker perception of the capability of the institution to cooperate while delivering

care to the patient.

Literature review

This chapter provided the related literature that has been conducted about nurse's perception of patient safety. In addition, this chapter included a rich description of the results of previous research (related studies) which have been conducted in different countries as well as Saudi Arabia. Finally, an explanation of the research gap was provided at the end of the chapter.

For decades, healthcare providers and consumers have seen a demand for excellence increase. When excellence was not achieved, provider's competence leads to debates, complaints, and root cause investigations [9-10]. In European countries and several countries in the Middle East, healthcare has advanced. Still, it results in adverse events in hospitals, such as medical errors and hospital-acquired infections. For instance, in Australia, approximately 12 per cent of hospitalized patients suffered from adverse events. Patient safety called for organizational and multidisciplinary strategy, where nursing was fundamental. As Graban reported, providers had a value that enhanced them to work better. In nursing, values were critical in developing a culture of patient safety. Thus, this literature focused on nurse's perception of patient safety culture.

Existing evidence proposed that nurses could develop a patient safety culture that eventually helped them to prevent avoidable adverse events. However, in a study conducted by, the researchers reported that this could only happen in health systems that promote, generate, and preserve a culture of patient safety [12]. This primary issued that presented itself of how nurses perceive a principle of patient safety. In their review, reported that the culture of patient safety in hospitals was not a coherent vision among healthcare professionals, because they all had different perspectives. In a review of 11 articles, the authors discovered that nurses had poor awareness of patient safety culture [13]. Similarly, Farokhzadian et al, in their research, indicated that nursing has a long way to go regarding their perception of patient culture because of poor leadership, organizational substructure, and insufficient efforts to keep up with national and global values on patient safety [14].

Furthermore, nurses helped to enforce a culture of safety, especially with a support system in place [15]. Empirical evidence indicated that nurses need an open line of communication with other healthcare teams to enable them to assess their peers' personal and professional work habits and behaviours that fostered patient safety in the clinical area of practice. In their research, Rigobello et al. investigated nursing perceptions towards patient safety culture [16]. The subjects reported that they were satisfied with their jobs but dissatisfied with how management addressed safety issues within different facilities. The same was reported in different studies by Eiras, Wami, Okuyama et al., which all reported that despite nurses embracing a culture of patient safety, the general climate of the issue was hostile [17-19].

Notably, nurses' perception regarding patient safety climate, especially in primary care and emergency care, aids in assessing safety culture, contributed to enhanced healthcare and minimizes adverse events. Thus, organizations directed their efforts towards improving the quality of care. In Saudi Arabia, existing evidence indicated that nurses consider patient safety culture to be a critical component of care. However, their focus was on teamwork within units and organizational learning [20-22]. Evidence from the country indicated that a strong safety culture of leadership committed to learning from mistakes, storing and enhancing patient safety, and encouraging teamwork among nurses was critical. Alonzi et al. reported that nurses get a more positive perception of patient safety than other providers inside the country. Thus, through leadership, health systems identified potential hazards and incorporated nurses and other staff to develop a culture of patient safety.

Related studies

Globally, Patient safety culture was critical because it directly affected patient health and wellbeing. Despite that, research was limited in some countries and therefore, the responses of countries regarding this issue were different based on how big their problem was.

In Turkey, a study within a sample of 554 Registered nurses who have been requested to complete (HSOPSC) survey in four hospitals. The result showed that patient safety culture highest score on teamwork within units, followed by organizational learning/continuous improvement whereas the lowest score was on non-punitive response to an error with an overall negative perception of Turkish nurses on patient safety culture. This issue may be because nurses who work in Turkish hospitals were lacking effective leadership. Managers of nurse's requirement created a positive safety culture through effective communication [23].

Another study was carried out in the Philippines for a sample of 292

registered nurses from three governmental hospitals across all hospitals departments. The study also showed a positive response for the teamwork within units and organizational learning/continuous improvement as an important aspect of patient safety culture. The non-punitive response to error was an area that requires improvements [24].

In Iran, the study showed slightly different responses in some categories. Although it showed the same strong response at first part such as organizational learning/continuous as well as teamwork within units, it showed different in weak response for communication concerning errors and non-punitive response to error. Thinking differently believed to be due to cultural and linguistic diversity of nurses. In particular, some cultural background did not report some mistakes because they fear disciplinary action from hospital management [25]. One important feature was missing here regarding effective leadership which can build a patient safety culture.

In KSA, a study in the same year by Alharbi et al. was conducted in one facility oncology centre in Riyadh. The study was conducted for different healthcare providers including nurses and found that the majority of nurses who responded to the questionnaire in all departments reported negative responses in some dimensions including communication. Feedback and communication about errors and teamwork in units were significant predictor's factors to patient safety culture. Therefore, more research may be needed to ascertain these findings in different cities in Saudi Arabia as well as more than one healthcare facility.

In addition, Alquwez et al. conducted a study at three hospitals in Riyadh city (KSA) to measure the influence of demographical characteristics on patient safety perception [26]. The study found that the nurse's length of service, nationality, education and work area were significant predictors to patient safety culture perception. The study also found that teamwork with the unit, organization learning continuous, communication and frequency and event report was significantly related to patient safety culture. Specifically, two areas identified strengths of teamwork within the unit as well as organizational continuous learning whereas the rest factors were identified as a weakness.

Alquwez et al. also stated that communication and active responsiveness amongst the staff would progress the patient's safety culture. The study indicated that direct and frequent patient contact with the care provider enhanced the quality of care given as well as the execution of the organizational culture towards patient's safety. Hence, the patient's safety in Saudi Arabia was still under development, and many of the loops were covered through further studies and culture adoption.

The literature review suggested that there were communication issues that impact patient safety culture. In addition, different culture had a different perception of safety. The literature review also suggested that effective leadership and management supported patient safety. All studies that have been conducted in Saudi Arabia were focused on Riyadh city only. Based on the literature, the focus of future study should be on the patient safety culture perception of nurses in other Saudi cities. Future studies should concentrate on the patient safety perception of nurses in more than three healthcare facilities and all hospitals departments.

Related Studies that used the instrument

Table 1 illustrated the studies that used the HSOPSC questionnaire

Table 1. Summary of studies that used the HSOPSC instrument

Year/author	Design	Sampling / Setting	Instrument	Key findings	Limitation
(Güneş et al., 2016)	Cross-sectional	Convivence Four hospitals	HSOPSC	Positive teamwork within units and organizational learning/continuous	The instrument was not tested in Turkey.
(Ramos & Calidgid, 2018)	Cross-sectional	Convivence (One hospital)	HSOPSC	Positive teamwork within units and organizational learning/continuous.	One hospital only and small sample size.
(Raeissi et al., 2018)	Cross-sectional	Convivence One hospital	HSOPSC	Some nurses reported positive perception. Lowest score was communication.	The instrument was not tested in Iran. One hospital only and small sample size.
(Alquwez et al., 2018)	Cross-sectional	Convivence (Three hospitals)	HSOPSC	Teamwork within the unit and organizational continuous learning identified as strengths.	90% of participants are female.
(Alharbi et al., 2018)	Cross-sectional	Convivence One facility	HSOPSC	Area of weakness were reporting of events, non-punitive response to error and communication.	Small sample size (127) One hospital and one department (Oncology).

among different healthcare settings in the world including year and author, design, sample and settings, instrument, key findings and limitations.

Theoretical Framework

Social system theory: Social system theory can be defined as "an organized boundaries system of social roles, behaviours, and practices developed to maintain values and the mechanisms to regulate the practice and rules". This theory has a robust effect on people as they grew from childhood to adulthood. The social system theory covered six concepts: organization, power, authority, decision-making, status and control, as well as concepts from interpersonal systems and personal (King, 1981). In this research, the social systems theory or concepts of power, organization, and status would be used as abstracted by the support of leadership for error reporting, patient safety, and nursing staffing.

Organization was defined as "human beings with prescribed roles and positions who used resources to accomplish personal and organizational goals". King suggested four components for organization: human value, behaviour pattern, needs, and goal and expectation; natural environments in which materials and human resources were always essential when achieving the goal; employer and employee, or parent and child, who initiated groups that cooperatively interact to attain the goal; and technologies which enable goal accomplishment. Operational leadership support referred to the activity accomplished by the healthcare organization administrator to assist nurses to keep safe practice for patients that they care on. According to King, status can be defined as "the position individual in a group or a group concerning other groups in an organization" as well as "it was related to who you are, what you do, who you know, what you have achieved". The operational for nursing staff was defined as how work was arranged, how staffing was organised, and who played what role in the patients care dynamic.

King has defined Power in a variety of ways

First, power was defined as the capability to use resources in organizations to attain targets or goals. Another definition was that it was the process that one or more humans influenced other humans in a situation. Another definition was that it was the capability or capacity of a people or group of people to attain the goal that occurs in any aspect of life and each person has possible power determined by individual resources as well as the environmental force encountered. Power, on the other hand, was a social force that arranged and kept or maintained society. Power meant the ability to employ and activate resources to reach targets. The operational definition for the error reported the real action occupied by organizations when the error occurred. While every of King's thoughts were designated as application of a specific system, King suggested that the concept was arbitrarily placed in any of the three systems and can be employed inter-changeably through systems (King, 1992). Figure 1 showed the conceptual framework for patient safety culture based on King's social system theory.

Research methods

Research design

This chapter reviewed the research methods which would be conducted in Hafar Al-batin, Saudi Arabia including research methods, sampling and sample size, settings, data collection, analysis, recruitment, and ethical considerations.

The study used a quantitative approach to explore the Patient safety

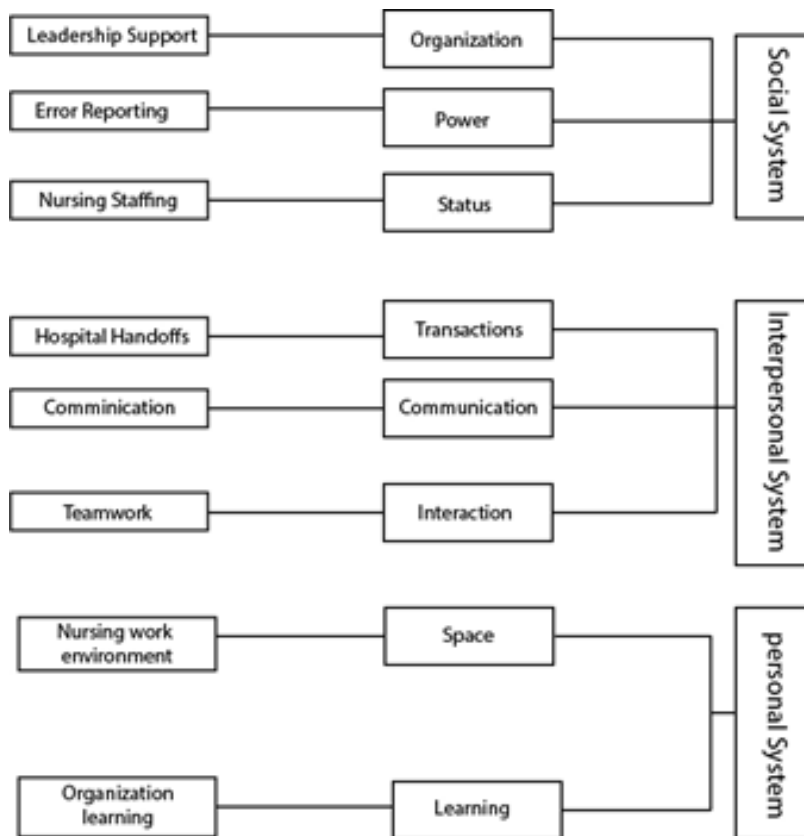


Figure 1. Patient Safety Culture conceptual framework based on King's Conceptual System.

culture perception among registered nurses in Hafar Al-batin, Saudi Arabia. Similarly, a quantitative approach to measure the influence of demographical factors of nurses working in different hospitals in Hafar Al-batin, Saudi Arabia. In particular, research aimed at measuring the influence of demographical factors of nurses working in different hospitals whereas research aim two explored patient safety culture perception in Hafar Al-batin, Saudi Arabia. The study also used a cross-sectional design using Google Survey Platforms and used for both aims in this study. This design was chosen to help researchers to understand the influence of personal demographical characteristics on Patient safety culture perception as well as exploring the Patient safety culture awareness among registered nurses [27]. The demographic questions in this research included socio-cultural, demographic characteristics. In particular, the participant's demographic data included questions about age, gender, marital status, level of education, years of experience, nationality, working department and language/s that participants speak. In addition, the study explored nurses' perceptions of patient safety culture in Hafar Al-batin.

Study participants and setting

The eligible participants participated in this research according to inclusion and exclusion criteria. The inclusion and exclusion criteria of the participants were described below:-

Inclusion Criteria

- Male or female.
- Nurse practitioner.
- Currently working in any of Hafar Al-batin targeting facilities.
- 18 years old and above.

Exclusion Criteria

- Other healthcare providers.
- Working in a different city.
- Working in different hospitals than targeting hospitals.
- Less than 18 years old.

The study was conducted at four healthcare facilities at the secondary level. In particular, the study was conducted at four hospitals in Hafar Al-batin including Central Hospital, King Khalid General Hospital Maternity Hospital, Hafar Al-batin Mental Hospital. These four hospitals were selected

from general hospitals that provided different services for several conditions and they are rich in registered nurses working in different departments.

Sampling

367 nurses among 700 nurses were participated in this study from four hospitals in Hafer Albatin region. Sample size calculation illustrated that to have approximately 5% error and around 90% confidence level the total sample size, 249 registered nurses were calculated as the minimum sample size of this study. Sample size was calculated by Thompson's equation as seen in Table 2. [28]. A convenience sample was used to perform inferential analysis of the quantitative data. The demographic data questions and HSOPSC instrument were sent to the eligible participants via electronic email using the google survey platform. A strategy to enhance the response rate was utilized during data collection.

$$n = \frac{N \times p(1 - p)}{\left[\{N - 1 \times (d^2 \div z^2)\} + p(1 - p) \right]}$$

Data collection

Data gathering procedure: The data collection process was held at the four nominated in Hafar Al-batin. Data collection was expected to last for approximately one to two months. After obtaining ethical approval from the Ministry of Health (MoH), Saudi Arabia conducted the study; the researchers explained the study details including the eligibility criteria to the administration of the targeting healthcare facilities. The researcher also discussed the study details with the nursing educator. Following that, an e-mail or WhatsApp message was sent to the eligible participants asking them to respond to the questions. The e-mail or WhatsApp message included the participants' information statement (PIS) which was an explanation of all the study aim, nature and the potential risk. Then, there was a question at the end of the first page asking participants about their consent to participate. After that, the participants started part A and Part B of the questionnaire. This exercise was repeated in all the health facilities until the sample size was attained.

Instrument: The study used the Hospital Survey on Patient Safety Culture (HSOPSC) questionnaire which was developed in the United States. This questionnaire was validated and was widely used across many health settings. The reliability score in these studies showed a Cronbach alpha of a value higher than 0.7 which was accepted [29]. In addition, it had been psychometrical tested in Saudi culture which was a valid and reliable

Table 2: Sample size calculation of this study.

Input Values		Output Values	
N	Population size = 700		
z	Confidence level at 95% = 1.96	n	sample size = 249
d	Error proportion = 0.05		
p	Probability value = 0.50		

*The minimum recommended sample size of this study.

instrument to be used in Saudi Arabia with a Cronbach alpha of 0.88. The questionnaire consisted of 42 items asking nurses regarding their perception of patient safety. Most of these items had several five responses ranging from strongly disagree to strongly agree as well as never to always. A higher number indicated a positive response whereas a lower number indicated a negative response. The questionnaire had two main parts with a total of 50 items. The first part consisted of eight items regarding demographical data. The second part consisted of 42 HSOPSC items about patient safety culture perception among registered nurses. Filling the questionnaire may approximately take up to 15 to 20 minutes to complete. The study used the Statistical Analysis program Statistical Package for Social Sciences (SPSS).

Data analysis

To achieve the study aims represented in measuring the influence of demographical factors of nurses working in different hospitals in Hafar Al-batin, Saudi Arabia on patient safety culture which explored their perception; the researchers used a descriptive and inferential analysis. The descriptive statistics summarized the demographic characteristics of the survey respondents. The statistics involved frequency distribution, mean, standard deviations and median [30]. The inferential analysis used the linear regression model to identify the most predictive factors to patient safety culture perception among registered nurses. In particular, research aim one aimed at measuring the demographical factors that correlated with patient safety culture perception on nurses. The second aim aimed at measuring the most predictor factors from patient safety culture instrument dimensions. As shown in Appendix 1, the study aims, method, data collection instrument, sample and data analysis were provided.

Calculate item and composite percent positive scores

It can be useful to calculate an overall score for items within a composite. To calculate hospital's score on a particular safety culture composite, average the per cent positive responses on all items included in the composite.

To calculate percent positive scores, need to reverse code negatively worded items. Disagreeing or responding Never to a negatively worded item indicated a positive response. Negatively worded items were identified in the document Hospital Survey on Patient Safety Culture: Composites and Items.

Use the following guidelines for reverse coding negatively worded items:

- If respondents answered "strongly disagree" or "never" to a negatively worded item, answers should be recorded from 1 to 5?
- If respondents answered "Disagree or rarely" to a negatively worded item, answers should be recorded from 2 to 4.
- The neutral response categories neither agree nor disagree and sometimes were not affected by negatively worded items and would always be coded as 3.
- If respondents answered "Most of the time or Agree" to a negatively worded item, answers should be recorded from 4 to 2.
- If respondents answered "Always or strongly agree" to a negatively worded item, answers should be recorded from 5 to 1.

Then items were dichotomised/classified into "positive" and "negative", so 5 and 4 were classified as positive and coded 1, and 3,2 and 1 were classified as negative and coded as zero, then the targeted positive score (percentage) as the achieved score divided by the total responses*100 excluded the missing values.

Ethical considerations

The study utilized instrument (HSOPSC) which is common used. Furthermore, the study obtained ethical approval from the Ethical Committee of the directorate of health affairs in Hafar Albatin city, numbered H-05-FT-083 and dated 25/3/2021. Then the researcher obtained approval from the administration of each healthcare facility. The researcher ensured that there was no harm to participating in this project. Assurance of autonomy

participating was provided in the email and WhatsApp. For the anonymous questionnaire, consent was implied if the email was completed and submitted. The researcher maintained the confidentiality of the data. After ethical approval from both facilities, the researcher went to each hospital and met the management of nursing as well as nursing education staff. The researcher explained to them all the study details. The researcher provided participants with an information statement that contained all details about study participation, the aim of the study, potential risks of participation and who participated in this study. Following that the researcher ensured that every participant agreed to participate by answering a confirmation question after reading the participant's information statement. The participant's information statement confirmed that the participant can withdraw at any time before completing and submitting the questionnaire. Then the eligible participant responded to the questions of the survey. Participants who want more clarification, /can contact the researcher at any time to clarify an unclear point as a researcher was providing his contact details at the participant's information statement.

Results

The data was collected using Google forms service, coded inspected and processed using Microsoft Excel and then exported to the Software Statistical Package for the Social Science (SPSS) version 23 for analysis. The internal consistency method was used to test the validation of the scale. Descriptive statistics including frequencies, percentages were used to describe the items and the study variables. Linear regression was conducted to test the influence of demographic factors on Patient safety culture. The p values at 0.05 were considered statistically significant.

Demographic factors

As shown in Table 1, a total of 367 nursing staff participated in the study including 28.1% male and 71.9% female, just above a half aged 31–40 years old, and more than two-thirds were married. 64.3% were Saudi and 35.7% were non-Saudi. 45.25 held bachelor degrees while 33% got a diploma. A half spoke the Arabic language while 44.36% spoke English. 34.6% had experienced 5 to 10 years, 43.7% worked in King Khalid Hospital, and worked in more than 6 departments with an advantage for emergency (34.3%).

Que. 1) what is the nurse's patient safety culture perception in Hafar Al-Batin?

Patient Safety Culture description: As shown in Table 3 the perception of Patient Safety Culture was presented. The overall average score of the nurse's patient safety culture perception in Hafar Al-Batin was moderate (44.17%). Teamwork had the highest positive score across the dimensions with 64.31%, followed by Organizational Learning—Continuous Improvement with 63.03% then Frequency of Events Reported (51.95%) then Management Support for Patient Safety (47.23%). While the lowest score was Nonpunitive Response to Errors (20.35%), followed by staffing (23.43%) then Communication Openness (37.42%), the rest dimensions were in the 40s.

Work area/unit in the hospital and overall: As shown in Table 3 participants were asked about their perception of their work area/unit in this hospital and overall, they score $M=3.74$, $SD=0.99$ with a very good level.

Background information: As shown in Table 4, the background information was presented, more than a half were Registered Nurses, and 88.9% typically had direct interaction or contact with patients, 47.1% had no event reports while 28.1% had 1 to 2 event reports, 43.6% had worked in this hospital for 1 to 10 years and half of the nurses worked in the current hospital work area/unit, 67.3% had worked 40 to 59 hours per week in the hospital.

As shown in Table 5 the linear regression was conducted to test the relationship/prediction of personal demographical variables of nurses on patient safety culture perception in Hafar Al-Batin, the significant value of path estimation (β) was examined based on the t value ($p < 0.05$), ($F=4.47$, $p < 0.05$), R^2 is a function of the influence of independent variables on the dependent variable, so R^2 of independent variables (predictors variables) = 0.11. This value meant that only 11% of the influence was made by independent variables (demographical variables) on the dependent variable (nurses on patient safety culture perception). Gender had a relationship with patient safety culture perception with advantage for females ($\beta = -0.59$, $t = -2.35$, $p < 0.05$). Age had a relationship with patient safety culture perception with advantage for older nurses ($\beta = 2.89$, $t = 3.34$, $p < 0.05$), the spoken language had an influence on patient safety culture perception with advantage for spoken less number of language ($\beta = -1.88$, $t = -2.58$, $p < 0.05$).

Null hypothesis

There was no significant relationship between the personal demographical variables of nurses to patient safety culture perception.

Table 3. Demographic factors (N=367)

	Factor	N	%
Gender	Male	103	28.10%
	Female	264	71.90%
Age	20-30	151	41.10%
	31-40	189	51.50%
	41-50	23	6.30%
	51-60	4	1.10%
Marital statue	Single	80	21.80%
	Married	273	74.40%
	Divorced	13	3.50%
	Widow	1	0.30%
Nationality	Saudi	236	64.30%
	Non-Saudi	131	35.70%
Education	Diploma	121	33.00%
	Bachelor	166	45.20%
	Graduate Certificate	58	15.80%
	Masters	22	6.00%
Spoken language	Arabic	258	50.19%
	English	228	44.36%
	Other	28	5.45%
Experience	Less than 2 years	43	11.70%
	2 to 5 years	86	23.40%
	5 to 10 years	127	34.60%
	10 to 15 year	83	22.60%
	More than 15 years	28	7.60%
Hospital	King Khalid Hospital	145	43.70%
	Mental	46	13.90%
	Central Hospital	95	28.60%
	Maternity and Children	46	13.90%
Department	Medical	29	7.90%
	Surgical	45	12.30%
	Emergency	126	34.30%
	Intensive care	10	2.70%
	Critical Care	4	1.10%
	Other	153	41.70%

Table 4. Patient Safety Culture description (N=367)

Statement	N/%	SDS/ Never	DA/ rarely	N/ sometimes	A/often	SD/Always	Achieved score	Positive %
People support one another in this unit	N	17	24	84	172	70	242	65.94%
	%	4.6	6.5	22.9	46.9	19.1		
When a lot of work needs to be done quickly, we work together as a team together the work done	N	23	28	89	156	71	227	61.85%
	%	6.3	7.6	24.3	42.5	19.3		
In this unit, people treat each other with respect	N	12	32	77	172	74	246	67.03%
	%	3.3	8.7	21	46.9	20.2		
When one area in this unit gets really busy, others help out	N	25	34	79	168	61	229	62.40%
	%	6.8	9.3	21.5	45.8	16.6		
Teamwork Within Units								64.31%
My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	N	34	45	82	150	56	206	56.13%
	%	9.3	12.3	22.3	40.9	15.3		
My supervisor/manager seriously considers staff suggestions for improving patient safety	N	39	50	91	134	53	187	50.95%
	%	10.6	13.6	24.8	36.5	14.4		

Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts (R)	N	47	77	120	96	27	124	33.79%
	%	12.8	21	32.7	26.2	7.4		
My supervisor/manager overlooks patient safety problems that happen over and over (R)	N	28	48	104	133	54	76	20.71%
	%	7.6	13.1	28.3	36.2	14.7		
Supervisor/Manager Expectations & Actions Promoting Patient Safety								40.40%
We are actively doing things to improve patient safety	N	12	22	53	186	94	280	76.29%
	%	3.3	6	14.4	50.7	25.6		
Mistakes have led to positive changes here	N	31	35	113	152	36	188	51.23%
	%	8.4	9.5	30.8	41.4	9.8		
After we make changes to improve patient safety, we evaluate their effectiveness	N	18	23	100	182	44	226	61.58%
	%	4.9	6.3	27.2	49.6	12		
Organizational Learning—Continuous Improvement								63.03%
Hospital management provides a work climate that promotes patient safety.	N	20	46	117	142	42	184	50.14%
	%	5.4	12.5	31.9	38.7	11.4		
The actions of hospital management show that patient safety is a top priority	N	16	40	93	151	67	218	59.40%
	%	4.4	10.9	25.3	41.1	18.3		
Hospital management seems interested in patient safety only after an adverse event happens (R)	N	44	74	106	106	37	118	32.15%
	%	12	20.2	28.9	28.9	10.1		
Management Support for Patient Safety								47.23%
Patient safety is never sacrificed to get more work done	N	40	49	88	124	66	190	51.77%
	%	10.9	13.4	24	33.8	18		
Our procedures and systems are good at preventing errors from happening	N	18	29	92	171	57	228	62.13%
	%	4.9	7.9	25.1	46.6	15.5		
It is just by chance that more serious mistakes don't happen around here (R)	N	27	43	120	136	41	70	19.07%
	%	7.4	11.7	32.7	37.1	11.2		
We have patient safety problems in this unit (R)	N	50	90	98	93	36	140	38.15%
	%	13.6	24.5	26.7	25.3	9.8		
Overall Perceptions of Patient Safety								42.78%
We are given feedback about changes put into place based on event reports	N	25	58	149	108	27	135	36.78%
	%	6.8	15.8	40.6	29.4	7.4		
We are informed about errors that happen in this unit	N	15	45	114	130	63	193	52.59%
	%	4.1	12.3	31.1	35.4	17.2		
In this unit, we discuss ways to prevent errors from happening again	N	16	35	104	130	82	212	57.77%
	%	4.4	9.5	28.3	35.4	22.3		
Feedback & Communication About Error								49.05%
Staff will freely speak up if they see something that may negatively affect patient care	N	27	56	115	121	48	169	46.05%
	%	7.4	15.3	31.3	33	13.1		
Staff feel free to question the decisions or actions of those with more authority	N	59	66	101	107	34	141	38.42%
	%	16.1	18	27.5	29.2	9.3		
Staff are afraid to ask questions when something does not seem right (R)	N	46	56	128	108	29	102	27.79%
	%	12.5	15.3	34.9	29.4	7.9		
Communication Openness								37.42%
When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported? .	N	26	57	84	120	80	200	54.50%
	%	7.1	15.5	22.9	32.7	21.8		
When a mistake is made, but has no potential to harm the patient, how often is this reported?	N	30	62	96	113	66	179	48.77%
	%	8.2	16.9	26.2	30.8	18		
When a mistake is made that could harm the patient, but does not, how often is this reported?	N	33	53	88	116	77	193	52.59%
	%	9	14.4	24	31.6	21		
Frequency of Events Reported								51.95%
There is good cooperation among hospital units that need to work together	N	19	54	93	150	51	201	54.77%
	%	5.2	14.7	25.3	40.9	13.9		
Hospital units work well together to provide the best care for patients	N	17	45	103	154	48	202	55.04%
	%	4.6	12.3	28.1	42	13.1		

Hospital units do not coordinate well with each other (R)	N	35	88	122	97	25	123	33.51%
	%	9.5	24	33.2	26.4	6.8		
It is often unpleasant to work with staff from other hospital units(R)	N	34	114	122	82	15	148	40.33%
	%	9.3	31.1	33.2	22.3	4.1		
Feedback & Communication About Error								45.91%
We have enough staff to handle the workload	N	19	54	93	150	51	123	33.51%
	%	5.2	14.7	25.3	40.9	13.9		
Staff in this unit work longer hours than is best for patient care(R)	N	17	45	103	154	48	48	13.08%
	%	4.6	12.3	28.1	42	13.1		
We use more agency/temporary staff than is best for patient care(R)	N	35	88	122	97	25	119	32.43%
	%	9.5	24	33.2	26.4	6.8		
We work in "crisis mode" trying to do too much, too quickly (R)	N	34	114	122	82	15	54	14.71%
	%	9.3	31.1	33.2	22.3	4.1		
Staffing								23.43%
Things "fall between the cracks" when transferring patients from one unit to another (R)	N	49	119	98	84	17	168	45.78%
	%	13.4	32.4	26.7	22.9	4.6		
Important patient care information is often lost during shift changes (R)	N	66	124	89	74	14	190	51.77%
	%	18	33.8	24.3	20.2	3.8		
Problems often occur in the exchange of information across hospital units(R)	N	31	112	129	78	17	143	38.96%
	%	8.4	30.5	35.1	21.3	4.6		
Shift changes are problematic for patients in this hospital(R)	N	50	101	113	81	22	151	41.14%
	%	13.6	27.5	30.8	22.1	6		
Handoffs & Transitions								44.41%
Staff feel like their mistakes are held against them (R)	N	24	51	136	106	50	75	20.44%
	%	6.5	13.9	37.1	28.9	13.6		
When an event is reported, it feels like the person is being written up, not the problem(R)	N	27	56	120	122	42	83	22.62%
	%	7.4	15.3	32.7	33.2	11.4		
Staff worry that mistakes they make are kept in their personnel file (R)	N	19	47	99	136	66	66	17.98%
	%	5.2	12.8	27	37.1	18		
No punitive Response to Errors								20.35%
Overall Patient Safety Culture								44.19%

(R) = Reverse question

Table 5. Work area/unit in this hospital an overall (N=367)

	Failing	Poor	Acceptable	Very good	Excellent	Mean	SD	Level
N	9	26	110	130	92	3.74	0.99	Very good
%	2.5	7.1	30	35.4	25.1			

Table 6. Back ground information (N=367)

	Factor	N	%
Staff position	Registered Nurse	198	54.00%
	Physician Assistant/Nurse Practitioner	81	22.10%
	LVN/LPN	29	7.90%
	Patient Care Asst/Hospital Aide/Care Partner	29	7.90%
	Nurse	30	8.20%
In your staff position, do you typically have direct interaction or contact with patients?	YES, I typically have direct interaction or contact with patients.	319	88.90%
	NO, I typically do NOT have direct interaction or contact with patients.	40	11.10%
In the past 12 months, how many event reports have you filled out and submitted?	No event reports	173	47.10%
	1 to 2 event reports	103	28.10%
	3 to 5 event reports	47	12.80%
	6 to 10 event reports	23	6.30%
	11 to 20 event reports	8	2.20%
	21 event reports	21	3.50%

How long have you worked in this hospital?	Less than 1 year	48	13.10%
	1 to 5 years	160	43.60%
	6 to 10 years	92	25.10%
	11 to 15 years	51	13.90%
	16 to 20 years	12	3.30%
How long have you worked in your current hospital work area/unit?	21 years or more	4	1.10%
	Less than 1 year	68	18.50%
	1 to 5 years	182	49.60%
	6 to 10 years	85	23.20%
	11 to 15 years	24	6.50%
Typically, how many hours per week do you work in this hospital?	16 to 20 years	7	1.90%
	21 years or more	1	0.30%
	Less than 20 hours per week	29	7.90%
	20 to 39 hours per week	46	12.50%
	40 to 59 hours per week	249	67.80%
	60 to 79 hours per week	34	9.30%
	80 to 99 hours per week	6	1.60%
	100 hours per week or more	3	0.80%

Table 7. The prediction of demographical variables of nurses on patient safety culture perception (N=367)

Predictor variables	β	SE-b	Beta	t	p	95% CI	
						Lower	Upper
(Constant	23.72	3.38		7.01	0.00*	17.06	30.38
Age	2.89	0.86	0.24	3.34	0.00*	1.19	4.59
Gender	-0.59	0.25	-0.14	-2.35	0.02*	-1.08	-0.1
Marital statue	0.23	0.93	0.01	0.25	0.81	-1.61	2.06
Education	-0.11	0.5	-0.01	-0.22	0.83	-1.08	0.87
Nationality	-1.63	1.09	-0.1	-1.49	0.14	-3.78	0.52
Language	-1.88	0.73	-0.14	-2.58	0.01*	-3.32	-0.45
Experience	0.14	0.52	0.02	0.27	0.79	-0.88	1.16
Hospital	-0.09	0.38	-0.01	-0.24	0.81	-0.83	0.65
Department	-1.86	1.08	-0.11	-1.71	0.09	-3.99	0.27

Note: patient safety culture perception was the dependent variable. β is the unstandardized coefficients; SE-b is the Standard error.

R² =0.33; Adjusted R² =0.11.

F=4.47**

**Significant at 0.05 level

So, the above hypothesis was not supported for gender, age and spoked language on nurse's perception of patient safety culture Table 6, 7.

Discussion

The result of this research, which was shown at four hospitals in (KSA), explored the perception of patient safety among nurses and showed that the strength of high denomination was teamwork with in-unit followed by organization learning continue improvement and, on the other hand, weakness of lower dimension was nonpunitive response to errors, staffing and communication openness.

In the teamwork with unit dimension, it was found that staff nurses in departments had self-esteem and confidence, due to the presence of respect, unity, support, cooperation and collaboration among the nurses in the unit to attain safe, efficient, and excellent quality of urgent care within four hospitals (2018). On the other hand, in the organization learning, it was since governmental hospitals had their continuous education department that support and values the educational learning of staff [31].

The Ministry of Health Hospitals in Saudi Arabia with its mission and vision values a Continuous education of their staff updated the knowledge with the new trend, and were able to adapt to the sophisticated level of health care.

Similar recent research was carried out in Turkey and Philippines indicated that the highest positive dimension was teamwork with units across the dimension between 78.5% and 91.50% followed by organizational learning continued improvement between 67.6% and 86.89% which was considered a close result to my research finding. Also, numerous local studies in which we share similar culture-proven the teamwork within units and organizational learning continues improvement area as strengths [32].

In the weakness dimensions the lowest denomination score non punitive response to errors, Because of the severe fines and consequences, nurses may be afraid to report such incidents., which were led to get low score following hand Staffing factor showed that the shortage of staffing was a universal concern that harmed nurses because long hours of a heavy workload, which was an evident in the high score gotten by nurses working between 40 to 59 h per week in this study. Then Communication openness might be related to the nurses who continued work in the hospitals of the country they had a different culture. Communication and openness, that compromised by differences in religion, language, and cultural beliefs.

And by reviewing the previous studies which was done on nurses working in hospitals only and utilized Hospital of patient safety culture survey instrument (HOPSC) in Turkey, Jordan and in Saudi Arabia study the participant which was found the lowest dimension was in Nonpunitive Response to Errors followed by staffing then Communication Openness. That was similar to my result.

The current study indicated that there was no significant relationship between demographic variables on nurses to patient safety culture perception except on gender, age and speaking language.

Female staff provided a higher score to the patient safety culture than men, it might be related to the fact that females were associated with caring actions in our culture [33-35]. Older nurses' age evaluated more positively patient safety culture than young nurses' age. This may be associated to those who had more working experiences than a young nurse in hospitals. Non-Arabic-speaking nurses were more positive about the patient safety culture better than Arabic-speaking staff. The result was expected and similar to two studies conducted in Saudi Arabia.

Conclusion

This study results reviewed three demographic factors that affected how patient safety was perceived among nurses in Saudi Arabia. The majority of the participant were females who were more aware of patient safety than males, older nurses were conscious than young ones, and who speak less language were more observant than who didn't speak. These studies utilized (HSOPS) instrument to find two strength areas as teamwork with the unit and followed by orientation learning continue improvement. On the other hand, three weak areas were required Initiatives to improve staffing, communication and non-punitive response. Our study appeared to suggest that a culture of safety has yet to be created and developed in Saudi Arabia. Hospital administrators and nurse's managers made policies and initiatives that aimed at enhancing hospital patient safety culture.

Limitations and recommendations

Only four hospitals were studied, so to better include all hospitals to give more perception in Hafer Al Batin. Additionally, the study's sample was limited to nursing staff only in secondary care and not for all health care providers.

In light of study findings, The researcher recommended leaders in the health field in general to adopt initiatives that aim to improve the culture of patient safety, in addition to conduct further studies that include all health workers at all levels of health care in Hafer Al-batin. Furthermore, the researchers required to conduct a further research to cover all levels of health care and all health specialties

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