Risk Management and Healthcare Policy

Dovepress
open access to scientific and medical research

Open Access Full Text Article

ORIGINAL RESEARCH

Status and Factors Affecting Patient Safety Culture at Dilla University Teaching Hospital: A Mixed-Method Cross-Sectional Study

Abel Afework[1], Aiggan Tamene[2], Amanuel Tesfaye[1], Abera Tafa[1], Sisay Gemede[1]

[1]Infection Prevention and Control Department, Dilla University, Dilla, Ethiopia; [2]Department of Environmental Health, Wachemo University, Hosanna, Ethiopia

Correspondence: Abel Afework, Email agziabel@gmail.com

Background: Patient safety culture is now at the forefront of the global health agenda and has been designated as a human right. Assessing safety culture is seen to be a prerequisite for improving safety culture in health-care organizations. However, no research has been conducted to examine the current study setup. Therefore, this study aims at assessing the status and factors influencing patient safety culture at Dilla University Teaching Hospital.

Methods: This cross-sectional institutional-based study was conducted from February to March 2022 at Dilla University Hospital. The study used both qualitative and quantitative methods. A total of 272 health professionals were included in the survey. The qualitative data was collected using Key Informant Interviews and In-depth Interviews and 10 health professionals were selected purposively to meet the study objective.

Results: The overall composite positive patient safety culture response rate in the current study hospital was 37% (95% CI: 35.3, 38.8). Out of the 12 dimensions, teamwork within hospital units was the highest (75.3%), while frequency of event reporting was the lowest (20.7%) positive percentage response. Only two of the 12 dimensions scored above 50%. Factors affecting patient safety culture majorly at organizational and individual level were poor/low attitude of health professionals, poor documentation practice, and poor cooperation by clients, lack of training and continuous education, lack of standard operating procedure, Staff shortage and high work load.

Conclusion: This study revealed that the overall composite positive patient safety culture response rate within the surveyed facility was alarmingly low compared to other hospitals in various countries. The results indicate that there is a need for improvement in areas such as event reporting, documentation, health-care workers' attitude, and staff training. Hospitals must prioritize patient safety by cultivating a strong safety culture through effective leadership, adequate staffing, and education to enhance overall patient care.

Keywords: patient safety culture, event reporting, patient harm, healthcare quality, incidence reporting

Introduction

Patient Safety Culture is a set of organized actions that create values, beliefs, and behaviors that shape how health-care settings operate and prioritize patient safety in health-care facilities, for lowering the occurrence of avoidable harm and the impact of injury when it does occur to patients and the health-care worker.[1,2] Hence, the World Health Organization has declared patient safety as a fundamental human right and adopted the Global Patient Safety Action Plan 2021–2030 aiming at improving patient safety around the world.[3]

Globally, patient harm attributed to unsafe healthcare delivery is one of the major contributor for the global burden of disease ranking fourteen.[4] In lower- and middle-income countries, unsafe healthcare delivery alone is responsible for 134 million adverse events within hospitals.[5] These patient safety incidents can range from medication errors, falls, surgical complications, and infections acquired during hospitalization.[6] The patient harm can result in prolonged hospitalization, and increased health-care costs. In addition, they can have a significant impact on the reputation of the hospital, health-care professionals, and the healthcare system as a whole.[7]

Received: 4 May 2023
Accepted: 21 June 2023
Published: 26 June 2023

Patient safety is one of the core components that determine the quality of care provided and the adverse event prevention capacity of health-care facilities.[8] Several studies are conducted to assess patient safety culture in different regions of the world and reported an overall composite score of patient safety culture ranging from 10% to 48% showing a need for improvement.[9,10] In Ethiopia, the lowest and highest positive response rate of patient safety culture among health professionals was reported at 44% at Addis Abeba hospitals and 49.2% at Western Hospitals.[11,12]

Studies have shown that patient safety culture is influenced by several factors, including organizational culture, leadership commitment to patient safety, staff education and training, communication among health-care professionals, patient involvement, and reporting and learning from adverse events.[6,13,14] Furthermore, factors such as workload, staffing levels, and the availability of resources can also influence patient safety culture.[15,16]

Assessing these factors is essential to understanding the patient safety culture at a hospital and identifying areas that require improvement. A comprehensive assessment of patient safety culture can provide valuable insights into the perceptions and behaviors of health-care professionals in relation to patient safety, identify strengths and weaknesses of the current patient safety culture, and guide the development of strategies to improve patient safety culture.[7,17]

The assessment of patient safety culture is not only essential for improving patient safety outcomes but also for enhancing the quality of care delivered to patients. It is a fundamental responsibility of health-care organizations to provide safe and effective care to patients, and the assessment of patient safety culture is a critical step towards achieving this goal.[18]

In Ethiopia, Patient Safety is acknowledged in the current decade and little is known about the status and factors that influence safety culture in the health-care sector. Dilla University teaching hospital is one of the few teaching hospitals in the country that serves millions of people, yet no study has been conducted to evaluate the level and bottlenecks for patient safety culture within the facility. Therefore, the problem addressed by this study is to assess the factors that affect patient safety culture at a University Hospital and identify areas for improvement. Specifically, this study aims to explore the perceptions and behaviors of health-care professionals in relation to patient safety, the leadership commitment to patient safety, staff education and training, communication among health-care professionals, patient involvement, and reporting and learning from adverse events. This study will provide valuable insights into the patient safety culture at the Hospital and guide the development of strategies to improve patient safety culture.

Methods

Study Area and Design

A cross-sectional institutional-based study was conducted from February to March 2022. The study used both qualitative and quantitative methods. The study was conducted at Dilla University teaching hospital. The hospital is found in Dilla Town, Gedeo Zone, Southern Nations and Nationalities Regional State of Ethiopia. The hospital provides inpatient and outpatient services in different specialties including Internal medicine, Gynaecology and obstetrics, Radiology, Surgery, Orthopaedics, Maternal and child health, Paediatrics, Psychiatry, Dentistry, ophthalmology, and so on. The hospital also serves as a teaching hospital for the practical attachment of more than eight department students.

Populations of the Study

The source population for this study was all health professionals working at Dilla University teaching hospital. The study population was all health-care professionals who had served six months in the hospital.

Inclusion Criteria

All health professionals who have worked for six months within the hospital before the data collection period are willing to participate in the study.

Exclusion Criteria

Health professionals who were on education, maternal, and sick leave during the data collection period.

Sample Size and Sampling

To find study participants, a hospital-wide survey was carried out. There were 342 health-care professionals across 17 departments, according to the census. In order to increase the study's precision or accuracy, all 342 workers were included and 297 fulfilled the inclusion criteria. It was also highlighted that since 342 was not an unreasonably large sample, data quality, practicality, and resource availability would not be compromised.

The authors sought to represent workers along the normal patient trajectory by including as many staff members as they could in the qualitative study. To collect the qualitative data, in literature reviews, as a general rule, a sample size of ten practitioners is considered sufficient for this type of study and purposive sampling was used to select the health practitioners.[19] Proportional to the number professional available in the organization 3 nurses, 3 medical doctors, 2 midwifes and 2 Anastasia professionals were included for interview in the study.

Data Collection Method and Tool

The data was collected using a structured self-administered questionnaire. The instrument used to collect the data was Hospital Survey on Patient Safety Culture (HSOPSC) which is developed by Agency for Healthcare Research and Quality (AHRQ). The HSOPSC questionnaire is arranged in 12 dimensions consisting 42 items/questions measuring patient safety culture as a composite and the response to each question/item was measured using a five-point Likert scale. The instrument also consists of other items/questions measuring event/medical error reporting practice, overall patient safety grading, and items/questions capturing background information of the participants.[20]

The qualitative data was collected via Key Informant Interviews using a key informant interview topic guide prepared to meet the objectives of the study by reviewing different kinds of literature (Additional File 1). Each interview was given an average of 40 to 60 minutes to complete.

Data Management and Analysis

The collected data were coded and entered into Epi Info version 7.2 using a data entry template. The entered data was cleaned and transported to SPSS version 20 for further cleaning and analysis. Descriptive statistics are displayed using tables, frequencies, percentages, and graphs. Cronbach's alpha statistics were used to measure reliability among the 42 survey items and the overall value was 0.80.

The HSOPSC instrument consisted of 42 items with 5 points Likert scale agreement from "Strongly Agree" to "Strongly Disagree" or frequencies from "Always" and "Never". Therefore, the composite Patient Safety Culture (PSC) level was considered as the average positive response rate. The positive response rate was calculated considering "Strongly Agree" and "Agree" as well as "Always" and "Most of the times" as positive responses for positively worded items and items asking frequency, respectively; and considering "Strongly Disagree" and "Disagree" as positive responses for negatively worded items.

The linear regression model was used to determine predictors for PSC and variables with a p-value <0.2 during the bivariate analysis were entered into multivariable analysis to predict the strength of association and variables with a p-value less than 0.05 were considered statistically significant.

The researchers translated the Amharic transcriptions into English for the qualitative investigation once they had taped the interviews. To assist with coding and analysis, the translated data were exported into Open Code 4.03 software. The study objectives were used to code a priori topics, while emergent themes were identified using participant narratives. Two researchers analyzed each data set, which increased the analysis's reliability. The entire study team went through each data set methodically, giving each data point the complete and equal attention it deserved. Each data extract was coded using as many distinct themes as it was considered appropriate for.

Throughout the coding process, biweekly research sessions were held to allow for peer debriefing and to aid the research team in examining how their ideas and thoughts were developing as they spent more time with the data. To provide an audit trail and to keep track of changing opinions about the meaning of the data and how it linked to other data, meeting minutes were kept. All discrepancies were then resolved through negotiation. When presenting the data, related verbatim quotes are utilized to assist in the interpretation of the data.

Ethical Consideration

Before the data collection ethical approval and clearance were obtained from Institutional Review Board (IRB) of Dilla University College of Medicine and Health science with approval number DUIRB/0032/22/A1. Participants were provided with a written consent form that outlines the purpose of the research, what is expected of them as participants, any potential risks or benefits of participating, and how their responses will be handled anonymously for presentation and publication purpose and the written consent was obtained from each study participant before data collection.

Result

Background Characteristics of Participants

From the total distributed 297 survey questionnaires, 272 (91.6%) were valid and included in the study. Of the total study participants, 163 (59.9%) of them were male. The majority (62.5%) of the study participants were 29 years of age and less. Almost Half (52.2) of the study participants were married. Of the total study participants, 106 (39%) were nurses and 11 (4%) were pharmacy professionals (Table 1).

Event Reporting Practice and Patient Safety Grade

Of the total study participants, 250 (91.9%) did not report any incidence in the last 12 months, while only 3 (1.1%) of the study participants reported 5 events (Table 2).

In the study, only 7.4% and 16.9% of the study participants graded the hospital patient safety grade as excellent and very good, respectively. Almost half (48.2%) of the study participants graded the hospital patient safety grade as poor (Table 3).

Patient Safety Culture

The overall composite positive response of Patient Safety Culture in the study was 37% (95% CI: 35.3, 38.8). Out of the 12 dimensions, teamwork within hospital units was the highest (75.3%), while frequency of event reporting was the lowest (20.7%) positive percentage response. Only two of the dimensions scored above 50% (Table 4).

Table 1 Background Characters of Health Professional Working in Dilla University Teaching Hospital, Dilla, Ethiopia, 2022

Variables	Categories	Frequency	Percent (%)
Sex	Male	163	59.9
	Female	109	41.1
Age	≤29	170	62.5
	30–35	83	30.5
	≥36	19	7
Marital Status	Married	142	52.2
	Single	123	45.2
	Divorced/Widowed	7	2.6
Educational status	Specialist	9	3.3
	General practitioner	50	18.4
	MSc/MPH	46	16.9
	BSc	153	56.3
	Diploma/others	14	5.1

(*Continued*)

Table 1 (Continued).

Variables	Categories	Frequency	Percent (%)
Profession	Physician	59	21.8
	Nurse	106	39
	Midwife	18	6.6
	Laboratory	15	5.5
	Pharmacy	11	4
	Public health	11	4
	Anaesthesia	18	6.6
	Psychiatry	13	4.8
	Other[a]	21	7.7
Working unit	Internal medicine	16	5.9
	General ICU	19	7
	Gynaecology/Obstetric	18	6.6
	Operation Room	15	5.5
	Surgery/Orthopaedic	25	9.2
	Paediatrics	21	7.7
	Neonatal ICU	17	6.3
	Emergency	19	7
	Psychiatry	12	4.4
	Out Patient Department	24	8.8
	Anastasia	17	6.3
	Other [b]	74	27.2
Monthly income	≤7000	74	27.2
	7001–10,000	107	39.3
	≥10,001	91	33.5
Hours worked per week	40–80	162	59.5
	81–100	50	18.4
	≥101	60	22.1
Experience in current hospital	<1	39	14.3
	1–5	142	52.2
	6–10	75	27.6
	≥11	16	5.9

(*Continued*)

Table 1 (Continued).

Variables	Categories	Frequency	Percent (%)
Experience in current department	<1	50	18.4
	1–5	174	64
	6–10	48	17.6
Experience in current profession	<1	35	12.9
	1–5	166	61
	6–10	66	24.3
	≥11	5	1.8
Direct contact with patient	Yes	250	91.9
	No	22	8.1
Ever received PS training	Yes	23	8.5
	No	249	91.5

Notes: Other[a] Environmental health, Health informatics, ophthalmic nurse, Other[b] Infection prevention and control unit, Liaison, Health Management Information System, Dental clinic, ophthalmic clinic, Anti-Retroviral Treatment clinic, Expanded Program of Immunization, Maternal and Child Health.
Abbreviations: MSC, Masters of Science; MPH, Masters of Public Health; BSC, Bachelor of Science; ICU, Intensive Care Unit; PS, Patient Safety.

Table 2 Self-Reported Events in the Last 12 Months by Health Professional, Dilla, Ethiopia, 2022

Event Reported in the Last 12 Month	Frequency	Percentage (%)
No	250	91.9
1	6	2.2
2	6	2.2
4	7	2.6
5	3	1.1

Table 3 Participants Overall Grade on Patient Safety Dilla, Ethiopia, 2022

Overall Patient Safety Grade	Frequency	Percentage (%)
Excellent	20	7.4
Very good	46	16.9
Acceptable	61	22.4
Poor	131	48.2
Failing	14	5.1

Table 4 Patient Safety Culture Composite Level Results Among Health Professional Working at Dilla University Hospital, Dilla, Ethiopia, 2022

	Dimensions	Cronbach's α	Average % Positive	95% CI
1	Teamwork within hospital units	0.85	75.3	70.9–79.4
2	Organizational learning – Continuous improvement	0.73	62.2	57.5–66.6
3	Non-punitive response to error	0.76	31.7	28.5–34.9
4	Staffing	0.65	29.1	26–32.3
5	Overall perception of safety	0.63	35	31.9–38.1
6	Supervisor/manager expectations and actions promoting safety	0.77	34.6	31.6–37.7
7	Hospital management support for patient safety	0.65	24.1	20.5–27.6
8	Teamwork across hospital unit	0.69	40.6	36.8–44.3
9	Hospital handoffs and transitions	0.78	26.5	22.7–30.6
10	Frequency of event reporting	0.84	20.7	17–24.7
11	Communication openness	0.60	30.7	27.2–34.3
12	Feedback and communication about error	0.80	27.5	23.1–31.7
	Overall level of patient safety culture	0.80	37.0	35.3, 38.8

Factors Affecting Patient Safety Culture

The key informant interview was analysed thematically and two main themes with different factors were reported to be factors affecting the patient safety culture (Table 5).

Table 5 Factors Affecting Patient Safety Culture in Main Theme, Categories and Code

Main Theme	Sub Theme (Category)	Sub Categories/Codes
Individual level factors	Low/poor attitude	Low or poor attitude regarding patient safety culture
	Poor documentation practice	The presence poor documentation practice
	Poor cooperation	Some patients and attendants are not cooperative
Organization level factors	Poor professional development program	Lack of harmonized continuous professional development program
	Unorganized client education program	The hospitals patient and attendants health education program is weak.
	Lack of standard operation procedures and polices	Lack of facility level policies and Standard Operation Procedures on patient safety
	Lack of even reporting system	Unavailability of event reporting mechanism
	Poor communication	Poor inter and intra departmental communication
	Shortage of equipment	Shortage of Personal Protective Equipment
		Shortage of patient care medical devices and equipment
	Poorly designed healthcare infrastructure	The hospital buildings and internal grounds are poorly designed
	High work load	Staff are over loaded in some units
	Staff shortage	Shortage of health professionals especially nurse at some units

Individual Level Factors

Low/Poor Attitude

The study participants noted that poor attitude of health professionals regarding issues related to patient safety culture is one of the major factors affecting the patient safety culture

> I can definitely say that despite the knowledge gap among professional regarding patient safety and safety measures that should be taken during managing patients, professionals had low/poor attitude regarding the impact of patient safety and safety measures on patient outcome and they usually perform activities carelessly (KI 04)

Poor Documentation Practice

The documentation practice in the hospital was unsatisfying to the participants, and the poor documentation practice is believed to be one factor contributing to patient safety malpractices and poor patient outcomes.

> There is a poor documentation practice almost all over the service units, as an example you can pick one patient folder or one medication prescription paper and check the poor documentation practice

Poor Cooperation

Facility level effective patient safety program requires full cooperation and engagement of patients and attendants/patient families, despite that fact some patients and attendants are unwilling to cooperate during their stay within the hospital and this poses risk to the patients and patient families.

> …. I believe that patients and attendants had also a role in patient safety and to my understanding, patient safety culture can't be achieved without full cooperation and engagement of patients and attendants

Organizational Level Factors

Poor Professional Development Program

The participants mentioned that professional development program is essential to provide a quality health service and to maintain professional competency on progress. However, there is poor professional development program within the facility, and on job trainings are rarely organized due to different reasons.

> …. There is knowledge as well as practice gap regarding patient safety among the health professional due to many reasons, however our hospital lacks a harmonized continuous professional development program that tries to identify and fill the knowledge and practice gap through on job and off job short and long term training *(KI 06)*

Unorganized Client Education Program

Respondents also stressed that there was an unorganized client education system on patient safety within the organization. This is responsible for poor patient safety culture in the hospital.

> …. A strong client education program on patient safety can help patients and attendants to play their role in improving patient safety culture; and the prevention and reduction of adverse events occurring among patients, however, the hospital health education system is unorganized and lacks topics related to patient safety (KI 02)

Lack of Standard Operation Procedures and Polices

Study participants highlighted the unavailability of health facility-level policies and standard operation procedures (SOPs) on many procedures and activities as one of the factors affecting patient safety culture.

> ……Standard Operation Procedures (SOPs) and policies that direct healthcare procedures and activities are a cornerstone for having uniform work standards and patient safety standards, even though many medical procedures and processes performed in the hospital lack customized facility level SPOs and policies

Lack of Even Reporting System

Interviewee also mentioned that the hospital also lacks a system for reporting and discussing issues related to patient safety culture including events/incidents systems.

> … Also we do face some patient safety-related issues like events and wanted to report them, there is no mechanism to report them to the responsible body and even we don't have clear information about who is responsible for receiving reports and taking measures on issues regarding patient safety and events/incidents. (KI 02)

Poor Communication

Participants believed that despite the difference in the magnitude from department to department, there was poor intra-departmental communication whenever there are things that require multiple department involvement.

> … Beside other factors poor intra-departmental communication is a problem within the hospital and most of the time major actors are not involved whenever there are issues specially during patient transfer and whenever consultations are required (KI 04)

Shortage of Equipment

The participants also asserted that sometimes they face a shortage of prominent single-use personal protective equipment and single-use patient equipment which forced them to malpractices against the standard safety measures.

> … Sometimes we are forced to use a single disposable glove to multiple patients sanitizing the gloved hands with alcohol or hand sanitizer; which is not a recommended practice and poses risk to the patients and the healthcare worker (KI 01)

Another informant also asserted that a shortage of non-reusable items

> ……While we recognize the risks involved in reusing such materials, especially in the COVID-19 era sometimes we face a shortage of nasal prongs/cannulas and we reuse them for multiple patients by trying to reduce the risk by cleaning and disinfection (KI 07)

Poorly Designed Healthcare Infrastructure

Well maintained and properly designed healthcare environment had a vital importance on patient safety culture. However, the participants mentioned that the hospital environment is one of the factors which significantly impair the service delivery and putting pressure on patient safety.

> ….Generally, the hospital is constructed 40 to 50 years ago, and is dilapidated and not well maintained; the hospital rooms are poorly ventilated, the floors are not well maintained and the walks are also full of cracks, the toilets are poorly designed and are not safe and comfortable for clients

Work Load and Staffing

Staff shortage in some departments was believed to be one of the major risk factors for poor patient safety practice within the hospital. They also mentioned that the presence of a high workload especially in units like Intensive care units, emergency, laboratory, and delivery units might play a critical role in committing errors/malpractice.

> ……When all beds are occupied and there is no option to relocate patients to other units, personnel may burn out and breach safety procedures focusing on saving patient lives. (KI 03)

Other participants mentioned that

> In some departments, sufficient number of professionals are not assigned as per the guideline due to shortage of professionals and the high patient to staff ratio is contributing to poor patient safety practice (KI 06)

Discussion

The survey result showed that the overall patient safety culture within the facility was 37% (95% CI: 35.3, 38.8). This result is slightly lower than studies conducted in different regions of the country, ranging from 44% in both studies conducted in Addis Ababa and Bale to 49.2% in a study conducted in East Wollega Zone.[11,12,21–23] This result is also lower as compared to studies conducted in Tunisia (40.73%), Iran (44.82%) and Brazil (51.06%), India (58%), and Nigeria (66.86%).[24–28] The difference is justifiable given that, patient safety culture is influenced by several factors that vary among hospitals. Hospitals with strong safety cultures prioritize patient safety, have strong leadership commitment, provide staff education and training, encourage open communication, involve patients in their care, have established reporting and learning systems, and ensure adequate staffing levels and manageable workloads.[18]

In this study of the 12 dimensions, Teamwork within the hospital units (75.3%) and Organizational learning – Continuous improvement (62.2%) was with the highest average positive response rate. The finding is comparable with the study conducted in Bale Zone and Gondar, Ethiopia, as well as a systematic review conducted in European hospitals.[12,14,15] This result shows that ten out of the 12 patient safety dimensions are areas for improvement (scored less than 50%), and the situation in the hospital is alarming.

The lowest positive response rate was recorded in "Frequency of event reporting" scoring 20.7% average positive response rate and events were reported by 8.9% of the study participants. The qualitative study supported this result, and the root causes for poor event reporting practice are briefly discussed as the absence of an event reporting system within the organization and poor documentation practice by health professionals. Accordingly, findings in a study revealed that the lack of a standardized reporting system is a major impeding factor for poor event reporting culture.[29] The shortage of staffs and poor staff development program of the study facility might also play a vital role on the poor event reporting practice. A study findings showed that poor adverse event reporting was associated with inadequate staffing and lack of training.[30] Furthermore, a lack of event reporting mechanisms and poor documentation can have a significant impact on patient safety as it may lead to medical errors going unnoticed, maximize the inability to learn from mistakes, and normalization of unsafe practices which can result in harm to patients.[31]

Health-care workers' perception plays a crucial role in patient outcomes and safety culture within health-care settings.[32] The current analysis highlighted poor attitude as a roadblock to enhancing patient safety culture. Similarly, another study conducted in South Africa found that a negative attitude among health professionals was responsible for the organization's poor patient safety culture.[33] This unfavourable attitude can lead to poor communication, lack of teamwork, and a decreased focus on patient-centered care, thus compromising the overall patient safety and quality of care provided to patients.[34]

Poor cooperation of clients and their families affects patient safety culture in various ways, ranging from reduced adherence to treatment, miscommunication, and mistrust, to inadequate monitoring and follow-up.[35–37] Similarly, in the current study, poor cooperation by patients and their families was believed to be one of the factors affecting patient safety culture within the study facilities.

According to this study, the lack of proper staff training and ongoing education has a detrimental impact on patient safety culture. The finding is consistent with a review of qualitative research that concluded a lack of staff training and continuing education was to blame for hospitals' poor patient safety culture.[38] It is evident that staff training and continuous education play a crucial role in fostering a patient safety culture within health-care organizations. Hence, the absence of adequate staff training and continuous education negatively affects patient safety culture, leading to an increased risk of errors, adverse events, and patient harm.[39]

Patients' lack of understanding about the importance of their role in their own care as a result of an inadequate client education program contributes significantly to poor patient safety. Similarly, research conducted in Gonder, Ethiopia, discovered that the lack of systematic client education was also to blame for the organization's poor patient safety culture.[22] Patients who are not educated about their health conditions, treatment options, or how to properly take medication and safety precautions may be more likely to experience adverse events, such as medication errors or hospital-acquired infections.

Lack of facility level Standard Operation Procedures (SOP) and policies was pointed out as the main reason for inconsistency in patient care practices. Another similar study raised the same argument as lack of SOP and guideline was responsible for poor patient safety.[29] The absence of guidelines can lead to inconsistencies in care, decreased efficiency, miscommunication, and failure to adequately learn from errors.

Participants in this study pointed out shortage of personal protective equipment (PPE) was putting patient safety at risk. The shortage of PPE may contribute to increasing stress levels in health-care workers due to feelings of vulnerability, fear of infecting patients and family members, and ethical dilemmas concerning rationing of essential resources. Consequently, overwhelmed and anxious health-care workers may be less equipped to provide safe, quality care.[40]

Staff shortage and high work load affect patient safety culture in several ways. This study also pointed out those challenges for improving patient safety culture were high work load and staff shortage. The finding is also supported in studies conducted among hospital managers,[33] as well among health professionals actually involved in patient care.[41] Whenever health-care staff is understaffed and overworked, they may suffer from fatigue and burnout. This is a critical aspect of patient safety culture, as exhausted and burned-out health-care workers are more likely to rush clinical care that may lead to errors in patient care and decision-making.[42]

Patient safety culture had been given due consideration in recent years and it is believed that assessing the overall patient safety culture within the organizations is basic prerequisite for improving patient safety culture, but still there is a research gap.[2,43] Therefore, this study will help to fill the research gap and serves as a baseline within the organization and contributes to the global metadata on patient safety culture.

Strength and Limitation

The study used both qualitative and quantitative methods to assess the status and barriers to patient safety culture which we considered as a potential strength that most studies failed to do so. Therefore, the findings of the qualitative study are supported by qualitative data, providing deeper insights into the reasons behind the low scores in certain dimensions of patient safety culture. The study's cross-sectional design limits its ability to determine changes in patient safety culture over time. The study is also limited to one facility, and the results may not be generalizable to other facilities or regions. The study does not establish causal relationships between the factors identified and patient safety culture. Further research employing more rigorous study designs may provide stronger evidence for causality. In addition, the study focuses on the perceptions of health-care workers, but does not include the perspectives of other stakeholders involved in patient safety, such as patients and their families, administrators, or policymakers.

Conclusion

This study revealed that the overall patient safety culture within the surveyed facility was alarmingly low compared to other hospitals in various countries. The results indicate that there is a need for improvement in areas such as event reporting, documentation, health-care workers' attitude, and staff training. Hospitals must prioritize patient safety by cultivating a strong safety culture through effective leadership, adequate staffing, and education to enhance overall patient care. Furthermore, involving patients in their care and addressing potential barriers such as poor cooperation and mistrust can significantly improve patient outcomes. This study not only highlights the importance of patient safety within health-care settings, but it also emphasizes that a multi-dimensional approach is essential for creating a culture that puts patient safety at the forefront of all practices. By implementing strategies to address these areas of concern, health-care organizations can ensure high-quality care for their patients and prevent avoidable harm. The study also identifies several technical implications regarding Dilla University Teaching Hospital. These implications include evaluating infrastructure and facilities, assessing communication and information systems, considering medical equipment and technology, analyzing health-care workflow and processes, and examining quality assurance and incident reporting systems. Recommendations include addressing deficiencies, implementing regular maintenance and training programs, standardizing protocols, and enhancing incident reporting processes.

Abbreviations

AHRQ, Agency for Healthcare Research and Quality; AOR, Adjusted Odds Ratio; COR, Crude Odds Ratio; HSOPSC, Hospital Survey on Patient Safety Culture; PPE, Personal Protective Equipment; PSC, Patient Safety Culture; SOP, Standard Operation Procedures; WHO, World Health Organization.

Data Sharing Statement

All the relevant data for the quantitative study are included in this paper. The qualitative datasets are not publicly accessible and cannot be shared because of participant confidentiality. However, both the qualitative and quantitative datasets may be available on reasonable request from the corresponding author (agziabel@gmail.com).

Acknowledgment

The authors would like to acknowledge all the study participants for their valuable contribution. We would also like to thank the data collectors.

Disclosure

The authors declare no conflicts of interest in this work.

References

1. Canadian Patient Safety Institute. *The Safety Competencies: Enhancing Patient Safety Across the Health Professions*. 2nd ed. Edmonton, Alberta: Canadian Patient Safety Institute; 2020.
2. Nieva VF, Sorra J. Safety culture assessment: a tool for improving patient safety in healthcare organizations. *Qual Saf Health Care*. 2003;12 (90002):17–23. doi:10.1136/qhc.12.suppl_2.ii17
3. World Health Organization. *Global Patient Safety Action Plan 2021–2030: Towards Eliminating Avoidable Harm in Health Care*. World Health Organization; 2021.
4. Slawomirski L, Auraaen A, Klazinga N. The economy of patient safety: strengthening a value-based approach to reducing patient harm at national level. *OECD*. 2017;2017:1.
5. National Academies of Sciences. *Engineering, and Medicine. Crossing the Global Quality Chasm: Improving Health Care Worldwide*. Washington, DC: The National Academies Press; 2018:334.
6. Lee Y-C, Huang C-H, Wu C-F, Hsueh,H-W, Wu -H-H. A longitudinal study of identifying critical variables influencing patient safety culture from nurses' viewpoints in Taiwan. *J Test Eval*. 2019;47(5):20180060–20180098. doi:10.1520/JTE20180060
7. Singla A, Kitch B, Weissman J, Campbell E. Assessing patient safety culture: a review and synthesis of the measurement tools. *J Patient Saf*. 2006;2:105–115. doi:10.1097/01.jps.0000235388.39149.5a
8. Yu A, Flott K, Chainani N, Fontana G, Darzi A. *Patient Safety 2030*. London, UK: NIHR Imperial Patient Safety Translational Research Centre; 2019.
9. Camacho-Rodríguez DE, Carrasquilla-Baza DA, Dominguez-Cancino KA, Palmieri PA. Patient safety culture in Latin American hospitals: a systematic review with meta-analysis. *IJERPH*. 2022;19(21):14380. doi:10.3390/ijerph192114380
10. Konlan KD, Shin J. The status and the factors that influence patient safety in health care institutions in Africa: a systematic review. *PLOS Glob Public Health*. 2022;2(12):e0001085. doi:10.1371/journal.pgph.0001085
11. Mulugeta TT. Patient safety culture among health workers in Addis Ababa regional hospitals, Ethiopia. *TIJPH*. 2019;7(2):153–166. doi:10.21522/TIJPH.2013.07.02.Art017
12. Garuma M, Woldie M, Kebene FG. Areas of potential improvement for hospitals' patient-safety culture in Western Ethiopia. *DHPS*. 2020;12:113–123. doi:10.2147/DHPS.S254949
13. Kim J, An K, Kim M, Yoon S. Nurses' perception of error reporting and patient safety culture in Korea. *West J Nurs Res*. 2007;29(7):827–844. doi:10.1177/0193945906297370
14. Abdou HA, Saber KM. *A Baseline Assessment of Patient Safety Culture Among Nurses at*. Student University Hospital; 2011.
15. Rizalar S, Topcu SY. The patient safety culture perception of Turkish nurses who work in operating room and intensive care unit. *Pak J Med Sci*. 2017;33:374–379. doi:10.12669/pjms.332.11727
16. Ammouri A, Tailakh A, Muliira J, Geethakrishnan R, Al Kindi S. Patient safety culture among nurses. *Int Nurs Rev*. 2015;62(1):102–110. doi:10.1111/inr.12159
17. Fleming M. Patient safety culture measurement and improvement: a "How To" Guide. *Healthc Q*. 2005;8:14–19. doi:10.12927/hcq.2005.17656
18. Silva PL, Gouveia MT, Magalhães RL, Borges BV, Rocha RC, Guimarães TMM. Patient safety culture from the perspective of the nursing team in a public maternity hospital. *Enfermería Global*. 2020;60:452–462.
19. Al-Mugheed K, Dikmen BT, Bayrakta N, Abdelaliem SMF, Alsenany SA. Nursing care and barriers for prevention of venous thromboembolism in total knee and hip arthroplasty patients: a qualitative study. *J Multidiscip Healthc*. 2023;16:547–556. doi:10.2147/JMDH.S403383
20. Reis C, Pavia S, Sousa P. The patient safety culture: a systematic review by characteristics of Hospital Survey on Patient Safety Culture dimensions. *Int J Qual Health Care*. 2018;30(9):660–667. doi:10.1093/intqhc/mzy080
21. Kumbi M, Hussen A, Lette A, Nuriye S, Morka G. Patient safety culture and associated factors among health care providers in Bale Zone Hospitals, Southeast Ethiopia: an Institutional based cross-sectional study. *DHPS*. 2020;12:1–14. doi:10.2147/DHPS.S198146

22. Ayisa A, Getahun Y, Yesuf N. Patient safety culture and associated factors among health-care providers in the University of Gondar comprehensive specialized hospital, Northwest Ethiopia. *DHPS*. 2021;13:141–150. doi:10.2147/DHPS.S291012
23. Wami SD, Demssie AF, Wassie MM, Ahmed AN. Patient safety culture and associated factors: a quantitative and qualitative study of healthcare workers' view in Jimma zone Hospitals, Southwest Ethiopia. *BMC Health Serv Res*. 2016;16(1):495. doi:10.1186/s12913-016-1757-z
24. Merzougui L, Shgaier S, Radaoui N, et al. Patient safety culture among health care providers in a Tunisian university hospital. *Int J Infect Control*. 2019;15(3). doi:10.3396/ijic.v15i3.011.19
25. Chegini Z, Janati A, Afkhami M, Behjat M, Islam MS. A comparative study on patient safety culture among emergency nurses in the public and private hospitals of Tabriz, Iran. *Nurs Open*. 2020;7:768–775. doi:10.1002/nop2.449
26. Silva-Batalha EM, Melleiro MM. Patient safety culture in a teaching hospital: differences in perception existing in the different scenarios of this institution. *Texto Contexto*. 2015;24(2):432–441. doi:10.1590/0104-07072015000192014
27. Rajalatchumi A, Ravikumar TS, Muruganandham K, et al. Perception of patient safety culture among health-care providers in a tertiary care hospital, South India. *J Nat Sc Biol Med*. 2018;9(14):14. doi:10.4103/jnsbm.JNSBM_86_17
28. Kaware MS, Ibrahim MI, Shafei MN, Mohd Hairon S, Abdullahi AU. Patient safety culture and its associated factors: a situational analysis among nurses in katsina public hospitals, Northwest Nigeria. *IJERPH*. 2022;19(6):3305. doi:10.3390/ijerph19063305
29. Yali G, Nzala S. Healthcare providers' perspective on barriers to patient safety incident Reporting in Lusaka District. *JPRM*. 2022;4(1):44–52. doi:10.21617/jprm2022.417
30. Alzoubi MM, Al-Mahasneh A, Al-Mugheed K, Al Barmawi M, Alsenany SA, Abdelaliem SMF. Medication administration error perceptions among critical care nurses: a cross-sectional, descriptive study. *J Multidiscip Healthc*. 2023;16:1503–1512. doi:10.2147/JMDH.S411840
31. Jena AB, Chandra A, Lakdawalla D, Chandra A. Malpractice risk according to physician specialty. *N Engl J Med*. 2011;365:629–636. doi:10.1056/NEJMsa1012370
32. DiCuccio M. The relationship between perceptions of patient safety culture, nurse advocacy, and nurse sensitive patient outcomes; 2018.
33. Abraham V, Meyer JC, Godman B, Helberg E. Perceptions of managerial staff on the patient safety culture at a tertiary hospital in South Africa. *Int J Qual Stud Health Well-Being*. 2022;17:2066252. doi:10.1080/17482631.2022.2066252
34. Okuyama A, Wagner C, Bijnen B. Speaking up for patient safety by hospital-based health care professionals: a literature review. *BMC Health Serv Res*. 2014;14:61. doi:10.1186/1472-6963-14-61
35. Rathert C, Brandt J, Williams ES. Putting the 'patient' in patient safety: a qualitative study of consumer experiences: putting the 'patient' in patient safety. *Health Expect*. 2012;15(3):327–336. doi:10.1111/j.1369-7625.2011.00685.x
36. DiMatteo MR. Variations in patients' adherence to medical recommendations: a quantitative review of 50 years of research. *Med Care*. 2004;42(3):200–209. doi:10.1097/01.mlr.0000114908.90348.f9
37. Alkhamees M, Lea J, Islam MS, et al. A qualitative investigation of factors affecting Saudi patients' communication experience with Non-Saudi physicians in Saudi Arabia. *Healthcare*. 2022;11(1):118. doi:10.3390/healthcare11010118
38. Alqattan H, Morrison Z, Cleland JA. A narrative synthesis of qualitative studies conducted to assess patient safety culture in hospital settings. *Sultan Qaboos Univ Med J*. 2019;19(2):e91–8. doi:10.18295/squmj.2019.19.02.002
39. Agency for Healthcare Research and Quality. Improving patient safety culture: a report of a multifaceted intervention. *J Patient Saf*. 2021;17(8):e1097–104. doi:10.1097/PTS.0000000000000470
40. Mehrotra P, Malani P, Yadav P. Personal protective equipment shortages during COVID-19—supply chain–related causes and mitigation strategies. *JAMA Health Forum*. 2020;1(5):e200553. doi:10.1001/jamahealthforum.2020.0553
41. Aouicha W, Tlili MA, Sahli J, et al. Patient safety culture as perceived by operating room professionals: a mixed-methods study. *BMC Health Serv Res*. 2022;22:799. doi:10.1186/s12913-022-08175-z
42. Carayon P, Wetterneck TB, Rivera-Rodriguez AJ, Hundt AS, Hoonakker PL. Human factors systems approach to healthcare quality and patient safety. *Appl Ergon*. 2014;45(1):14–25. doi:10.1016/j.apergo.2013.04.023
43. Shekelle P, Pronovost P, Wachter R, et al. The top patient safety strategies that can be encouraged for adoption now. *Ann Intern Med*. 2013;158:365–368. doi:10.7326/0003-4819-158-5-201303051-00001