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# Patient Safety Incident Reporting Behaviour and Associated Factors Among Nurses Working in Public Hospitals in Addis Ababa, Ethiopia (2024)

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***Abstract***

***Background:*** *Patient safety is essential to the quality of care given to patients, and it remains a challenge for countries at all stages of development. There appears to be a common acceptance of the necessity of building patient safety culture within health care organizations. Hospitals with a positive patient safety culture are transparent and fair with staff when incidents occur, learn from mistakes, and rather than blaming individuals, look at what went wrong in the system. Health care providers are willing to report the errors but, due to poor reporting system and culture of blame and shame, there exists struggle of disclosure of adverse events.*

***Objective:*** *This study aimed to assess incident reporting behavior and associated factors among Nurses working in Addis Ababa Public hospitals in Addis Ababa, Ethiopia, 2024.*

***Methods:*** *A cross-sectional institutional-based study was conducted with a total of 233 randomly selected participant samples drawn from six public hospitals in Addis Ababa, between July 16 and September 16, 2024. A structured interviewer-administered questionnaire and observational checklist based on previous studies were employed for data collection. Bivariate and multivariate analysis used a binary logistic regression model to determine the relationships between the dependent variables and the independent variables and the strength of association was calculated as Adjusted Odds Ratios (AOR), and 95% Confidence Interval (CI) at <0.05 p-value.*

***Result:*** *A total of 245 study subjects were recruited. 233 were interviewed yielding response rate of 95.8% of the 233 participants were female (162(69.5%)), and had a degree (145 (62%)). The largest group of study participants reported having 6-10 years of experience in the hospital (53.5%) and in the current unit (40%). Additionally, Degree nurse participants had 3.027 times greater odd of of reporting patient safety incident when compared to Diploma Nurse (AOR: 3.027; 95%CI: 1.736-5.279). Nurses that reported more than 5 years (31.7%) of experience had 1.71 times greater odd of reporting safety incidents compared to nurses that reported less than 5 years of experience (AOR: 1.71; 95%CI: 1.236- 2.379).*

***Conclusion:*** *Safety incident reporting culture score of participants was less than 70%. Training on patient safety and incident reporting positively affects reporting. Clear guidelines should be put on patient safety and incident reporting. Focus should be given to trainings.*

**Keywords:** Safety culture, Reporting, Among Nurse Addis Ababa.

## Introduction

### Background

The health care delivery system is a complicated, by design and prone to errors with many medical practices and risks in the system emerging as major challenges for patient safety by contributing significantly to the burden of harm due to unsafe care (1).

Patient safety which includes actions taken to avoid and lessen unfavorable outcomes that could endanger patients while they are receiving treatment is a basic component of the provision of healthcare. An essential tool for recognizing and resolving patient safety issues in healthcare settings is incident reporting. By reporting incidents, healthcare professionals contribute to the identification of system failures the implementation of corrective measures and the improvement of overall patient care quality (2).

Patient safety is defined as the reduction of risk of unnecessary harm associated with health care to an acceptably minimum degree. In contrast, a patient safety incident (PSI) is any event or situation that, via one way or another, may have caused or really did cause needless harm to a patient (3). The provision of high-quality healthcare is thought to be in extricably linked to patient safety, making it a fundamental and crucial component (4).

One of the top priorities for the global health community is for healthcare facilities to establish a patient safety culture, and incident reporting is regarded as a crucial component of this effort (1, 3). Evaluating the current patient safety culture is the first step towards creating a new one (4). Positive patient safety cultures in health organizations are predicted by a number of factors, including shared understanding of the value of patient safety, communication based on mutual trust, synchronized information flow, leadership commitment, and the absence of a punitive approach to incident reporting (4-6).

Depending on the level of injury the patient experiences, a safety incident can be categorized into one of three categories: harmful, which includes harm that results from a patient not receiving the intended or anticipated treatment. Adverse Events (AEs) and/or Sentinel Events are included in the definition of a harmful incident. An event falling under the PSI classification of "No Harm Incident" happens but does not cause harm to the patient (5).

Reporting previously occurring occurrences is one strategy to enhance patient safety. Learning from mistakes would be facilitated by an inclusive and methodical approach to event reporting. Health workers can trace and discuss a variety of errors and safety-related accidents through incident reporting, which enables the construction of preventive measures. The magnitude of underreporting, however, remains high in different countries (7,8)

In Ethiopia, as in many other low- and middle-income countries, the promotion of patient safety and the establishment of robust incident reporting systems are essential priorities for improving healthcare quality and reducing adverse events. However, little study has been done expressly on the incident reporting practices of Ethiopian nurses employed at public hospitals in Addis Ababa. The absence of sufficient knowledge impedes the development of focused treatments and policies that aim to improve patient safety within the local healthcare setting.

## Methods and Materials

### Study design, area and period

Addis Ababa is one of the highest capital cities in the world, rising about 2,400meters (7,900feet) above sea level. Geographically, the city is in the middle of the nation, which has shaped its growth into a major commercial, political, and cultural hub. With a population of over 8 million, Addis Ababa is Ethiopia's largest city.

The study was carried out in Addis Ababa City Administration Public Hospital in Addis Ababa, Ethiopia. Addis Ababais the capital city of Ethiopia, which holds13 Government Hospitals (6Federal Hospital and 6 under Addis Ababa Health Bureau 1 owned by the Police Force and 1owened by Armed Force).The 6 Hospitals under Addis Ababa Health Bureau administrations in Addis Ababa (36) and was conducted from July 16 to Sept 16, 2023 (Figure 1).

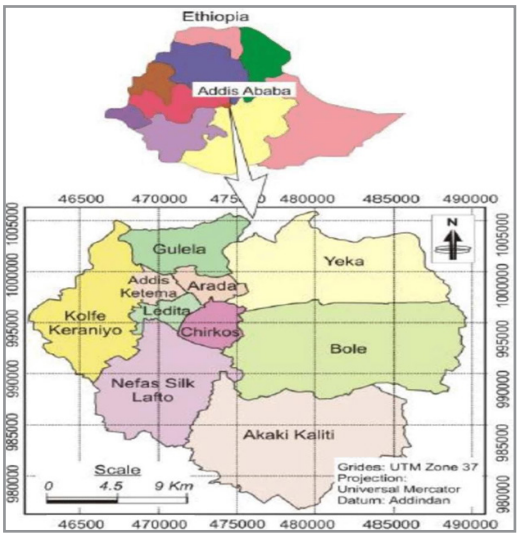


**Figure 1:** Map of Add is Ababa Sub-city, Addis Ababa Ethiopia (2025)

**Population**
All Nurses working in the Addis Ababa Health Bureau Public Hospital Addis Ababa, Ethiopia were the source population.

**Sample Size Determination and Sampling Procedure**
The single population proportion formula was used to determine the sample size with the following assumptions: The estimated proportion of respondents who reported incidents always is 25% (31) the margin of error 5%, confidence interval (CI) 95% and non-response rate 10%. The required sample size (n)was calculated as follow the estimated number of participants were proportionally recruited from the hospitals based on the respective number of nurses they have working in their Hospital. Nurse worker was selected to participate in the study as they are more directly involved inpatient care. The study Subjects was selected by using simple random sampling technique after obtaining a list of Nurse Staff from each hospital. Based on the proportional allocation formula the total sample size was allocated to the Addis Ababa Health Bureau Public hospitals based on the number of nurses they have in their Hospitals.

**Operational Definitions**
- **Safety Culture Composite/Dimension:** a collection of questions that that aim to assess a specific safety related feature of a hospital (37).
- **Safety culture items:** a single question in a composite that assesses specific safety related feature of a hospital (37).
- **Health care professionals:** Nurses with different qualifications; with bachelor degree, master's degree and diploma were considered health professionals in this study

Percent positive is the percentage of positive responses (Agree, strongly agree/ Most of the time, Always) to positively worded items or, (Disagree, strongly disagree/ Rarely, Never) to negatively worded items (37).
- **Area of strength:** To be considered as area of strength, an item must have positive responses by at least 75 % of the respondents (37, 38).
- **Area requiring improvement:** Items which had positive responses by less than 50%of the respondents (37,38).

**Data Collection Tools and Technique**
Data were collected from July 16 to Sept 16 2024 pre-test structured by using self- administered Amharic version questionnaire supplemented by observation. First it was modified in English and translated back into Amharic version and was translated back to English.Training was given to data collectors and supervisors prior to data collection. Two data Collectors (BSC health professionals) was selected training was given on clarification of some terms and assessment tools. The questionnaire was filled by healthcare providers.

The questionnaire was made up of 9 sections, including an observational checklist that covered several aspects of food hygiene:
1. **Socio-demographic section:** This included six questions aimed to obtain participants' socio- demographic characteristics.
2. **Food safety knowledge:** This consisted of ten closed-ended questions which determined participants' knowledge of food safety or safety issues surrounding food. Each question had two options: "yes", or "no". A score of one was given for each question the respondent answered correctly, and a zero score for anun answered question or incorrect response. The scores for all responses were summed up to generate a knowledge score.
3. **Waste management:** Four questions were included to assess participants' practices related to waste management.
4. **Hygienic practice:** This section included 21 questions (including observations) evaluating participants' hygienic practices. One score was given for every standard practice, while unsafe practices received a score of zero.
5. **Water supply:** Eight questions were included to gather information on the availability and quality of water supply.
6. **Food preparation and process:** This part comprised six questions focused on practices related to food preparation and processing.
7. **Transportation and food handling:** Four questions were included to assess participants' practices during transportation and handling of food.
8. **Vending unit and equipment:** Three questions aimed to gather information about the condition and cleanliness of vending units and equipment.
9. **Food safety regulation:** Three questions were included to assess participants' awareness of and compliance with food safety regulations.

Data were gathered via face-to-face interviewing and observation. For food hygiene knowledge, participants received a score based on their answers to the ten closed-ended questions. The same approach was provided for food handling practices, thus giving each participant a score based on their responses to the 21 questions where they received one point for every standard practice, and 0 points for any unsafe practices.

**Data Processing and Analysis**
After data collection, each questionnaire was checked for completeness and code was given during data collection. Data were cleaned and explored for outliers, missed values and any inconsistencies. Where entered and analyzed using SPSS version 25 Descriptive statistics was used to describe participants' socio-demographic and professional characteristics, patient safety culture composites and incident reporting behavior. So Demographic and professional characteristics of participants which had association with frequency of PSI reporting by bivariate analysis (scored P- value less than or equal to 0.25) were entered in to multivariable analysis and p–value of less than 0.05 in 95% CI have been considered to have statistical significance. The results are presented in the form of statements, figures, tables, graphs, and chart

**Ethical Considerations**
The Findings of the study was submitted to Yekatit 12 Hospital Medical College. Department of public health Quality department Addis Ababa city administration health bureau, Federal Ministry of Health (FMoH) hospitals that were included in the study and those who were interested in the subject matter Oral presentation was made in different conferences and workshops. Since it is said that scientific work is incomplete until published, the work was also be published in peer reviewed journal.

## Result

### Socio-Demographic and Professional Characteristics of Participants

Out of the total 245 study participants recruited, 233 were interviewed yielding response rate of 95.8% off them162 (69.5%) were female and145 (62%) were degree. Majority (53.5%) of the study participants had 6-10 years of experience in the hospital, and in the current unit (40%) (Table 1).

**Table 1: Socio-demographic and processional profile of participants**

| NO | Variables | Category | Frequency | Percentage |
|---|---|---|---|---|
| 1 | Age | 20-29Yrs | 110 | 47.2 |
| | | 30-39Yrs | 97 | 41.6 |
| | | 40-49 yrs | 25 | 10.7 |
| | | >50yrs | 1 | 0.4 |
| 2 | Sex | Male | 71 | 30.5 |
| | | Female | 162 | 69.5 |
| 3 | Educational status | Diploma | 23 | 10 |
| | | BSc | 145 | 62 |
| | | MSc | 65 | 28 |
| 4 | Work experience in the hospital in years | 1to5 | 79 | 40 |
| | | 6to10 | 125 | 53.5 |
| | | 11to15 | 22 | 9.4 |
| | | 16to20 | 7 | 3 |
| 5 | Work experience in current profession/specialty in years | <1 | 20 | 8.6 |
| | | 1to5 | 93 | 40 |
| | | 6to10 | 80 | 34.3 |
| | | 11to15 | 40 | 17.1 |
| 6 | Workhours/week | <20 | 0 | 0 |
| | | 20to39 | 30 | 12.8 |
| | | 40to59 | 29 | 12.4 |
| | | 60to79 | 125 | 53.6 |
| | | 80to99 | 40 | 17.1 |
| | | 100ormore | 9 | 3.8 |

### Patient Safety Culture Dimensions

The percentage of positive reactions for the chosen 8 patient safety culture measurements extended from 53to 71%. And the mean positive reactions for all measurements computed were 63%. The least scoring measurement was Communication openness and input approximately learning nonstop scoring 50.8% and52.9% respectively. While measurement group work with in unit scored the highest positive response rate (70.1%) and in general recognition of patient safety. The rest of the safety culture measurements but for organization all earning – continuous improvement (67.6%) all had scores underneath 60% (Figure 3).

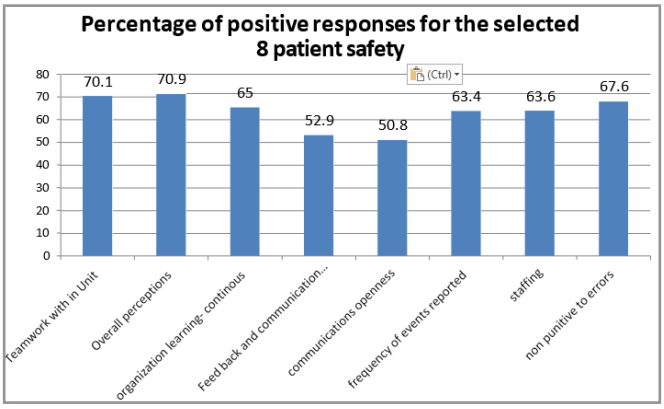


**Figure 3:** Percentage of positive responses scores of eight safety culture dimensions in Addis Ababa city Administration Public hospitals in Addis Ababa, Ethiopian, 2024.

**Patient Safety Culture Items**

Whereas computing the positive reaction rate for each of the things of the safety culture measurements, scores extended from 49 to 75%. 'We are effectively doing things to move forward or improve patient safety (75%) In this unit individuals treat each other with regard had the highest (75%) positive reaction rate. We work in 'crisis mode attempting to do as well much, as well quickly.' And when an occasion is reported, it feels just like the individual is being composed up, not the problem." scored 49%, which makes them as things with the most reduced lowest positive reaction rate. In total there were 18 safety culture things within the 26things of the eight culture dimensions/composites with less than50% normal positive score (Table 2).

**Table 2: Percent of average positive response for items in composite**

| Composite Items | Score % (a) | Mean (SD) (b) |
|---|---|---|
| Team Work with in Units | | |
| A1. People support one another in this unit. | 69.3 | 4.16(1.082) |
| A2. When a lot of work needs to be done quickly, we work together as a team to get the work done. | 69.1 | 4.01(1.068) |
| A3. In this unit, people treat each other with respect. | 75 | 3.79(1.06) |
| A4. When one area in this unit gets really busy, others help out | 67 | 3.66(1.171) |
| Organization all Earning–Continuous Improvement | | |
| A6. We are actively doing things to improve patient safety. A8. Mistakes have led to positive changes here. | 71.6 | 3.96(1.062) |
| A12.After we make changes to improve patient safety, we evaluate them effectiveness. | 72.9 | 4.03(1.023) |
| Over all Perceptions of Patient Safety | 68.3 | 3.97(1.072) |
| A14.Patient safety is never sacrificed to get more work done. | 68.8 | 3.96(1.074) |
| A17. Our procedures and systems are good at preventing errors from happening. A9. It is just by chance that more serious mistakes don't happen around here. | 58.8 | 3.79(1.084) |
| A16.We have patient safety problems in this unit. | 67.9 | 3.95(1.078) |
| Feed Back and Communication About Error | 64.8 | 3.96(1.029) |
| C1. We are given feedback about changes put into place based on event reports. | 54.5 | 3.73(1.074) |
| C3. We are informed about errors that happen in this unit. | 51.1 | 3.70(1.093) |
| C5. In this unit, we discuss way stop revent errors from happening again. | 53.2 | 3.68(1.084) |
| Communication Openness | 52.3 | 3.73(1.055) |
| C2. Staff will freely speak up if they see something that may negatively affect patient care. | 49 | 3.66(1.060) |
| C4. Staff feel free to question the decisions or actions of those with more authority. C6. Staff are afraid to ask questions when something does not seem right. | 51.1 | 3.70(1.072) |
| Frequency of Events Reported | 64 | 3.89(1.055) |
| D1. When a mistake is made ,but is caught and corrected before affecting the patient, how often is this reported? | | |
| D2. When a mistake is made, but has no potential to harm the patient, how often is this reported? | 65.3 | 3.92(1.058) |
| D3. When a mistake is made that could harm the patient, but does not, how often Is this reported? | 60.9 | 3.88(1.093) |
| Staffing | | |
| A2. We have enough staff to handle the work load. | 56.7 | 3.56(1.26) |
| A5. Staff in this unit work longer hours than is best for patient care A14.We work in "crisis mode "trying to do too much, too quickly. | 67.8 | 3.91(1.061) |
| Non-Punitive Response to Error | 66.5 | 3.93(1.106) |
| A8. Staff feel like their mistakes are held against them. | 72.9 | 4.00(1.040) |
| A12. When an event is reported, it feels like the person is being written up, not the problem. | 64.8 | 3.94(1.089) |
| A16.Staff worry that mistakes they make are kept in their personnel file. | 65.2 | 3.90(1.020) |

- Percentage of positive responses calculated according to AHRQ instructions for every safety culture item in the composites.
- Mean and standard deviation of responses calculated by computing the mean and standard deviation of all (both positive and negative) responses.

**Incident Reporting Behaviors of the Participant.**
The proportion of health professionals who believed PSI were reported in all situations was 39%. This was done by summation of all 'Always' responses to all three situations or patient condition after error took place (Table 3).

**Table 3: Frequency of events reported (in%) by health professionals in Addis Ababa city Administration Public hospitals in Addis Ababa, Ethiopia, 2024**

| Situation | Always | Most of the time | Sometimes | Rarely | Never |
|---|---|---|---|---|---|
| D1 | 37.8 | 26.2 | 24 | 11.6 | 0.4 |
| D2 | 39.1 | 26.2 | 22.7 | 11.6 | 0.4 |
| D3 | 39.9 | 21 | 26.6 | 11.6 | 0.9 |

- **D1.**When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?
- **D2.** When a mistake is made, but has no potential to harm the patient, how often is this reported? D3. When mistake is made that could harm the patient, but does not, how often is this reported?

N.B The proportion of health care professionals who believed that incidents were reported 'Always' and 'Most of the Time' are 73.4%. This was computed by calculating the positive response rate of the three situations as shown in the table below (Table 4).

**Table 3: Frequency of events reported (in%) by health professionals in Addis Ababa city Administration Public hospitals in Addis Ababa, Ethiopia, 2024**

| Three Items Measuring Frequency of Events Reported | Number Of "Always' Or "Most Of The Time" Responses | Total number of Responses to Item (Excluding Missing Responses) | %Positive Response to Item |
|---|---|---|---|
| D1 | 149 | 233 | 149*100=63.9% 233 |
| D2 | 152 | 233 | 152*100=65.2% 233 |
| D3 | 142 | 233 | 142*100=60.9% 233 |
| Average% positive response across the 3 items = 63.9 + 65.2 + 60.9 3 = 63.3% | | | |

- **D1.**When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?
- **D2.** When a mistake is made, but has no potential to harm the patient, how often is this reported? D3.When a mistake is made that could harm the patient, but does not, how often is this reported?.

**Training on Patient Safety and Incident Reporting**
Anothercomponentthatwasincludedinthestudyiswhetherornot-participantseverinvolvedina training related to patient safety and incident reporting. Accordinglyonly45.5%weretrained.

**Number of Events Reported**
The233participantswereaskedthenumber of reports they filled and submitted to the incident officers in their work unit within the past 12 months. 142 (60.9%) of the study participants said they had not reported any. Whereas 47 (20.2%) have reported1to 2PSIwith in the past 12 months (Figure 4).

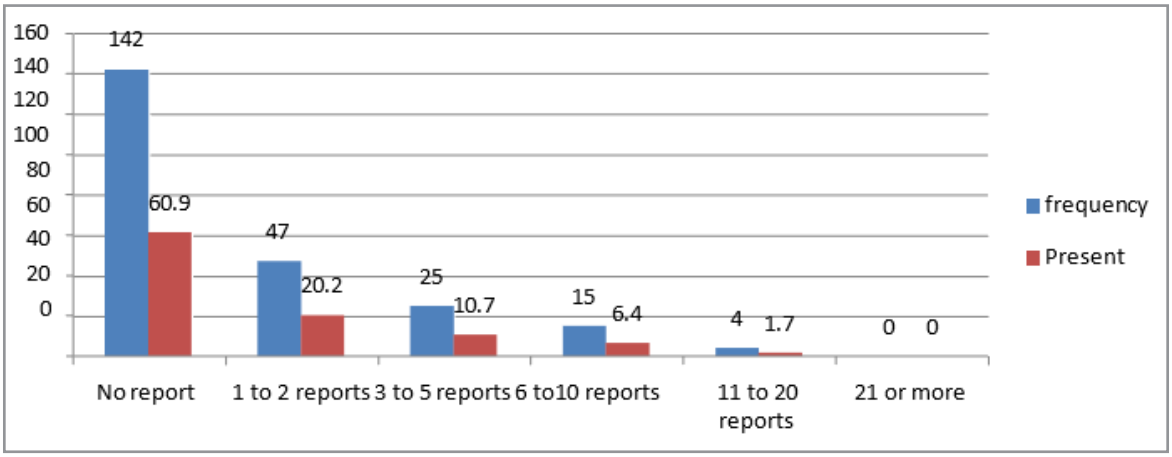


**Figure 4:** Number of reports submitted in the past 12 months by health professionals working in Addis Ababa city Administration public hospitals in Addis Ababa, Ethiopia, 2024

**Safety Grade**

When asked to grade the hospital they work in with regard to patient safety, 34.5% graded the hospitals as having a poor safety. (Figure 5).

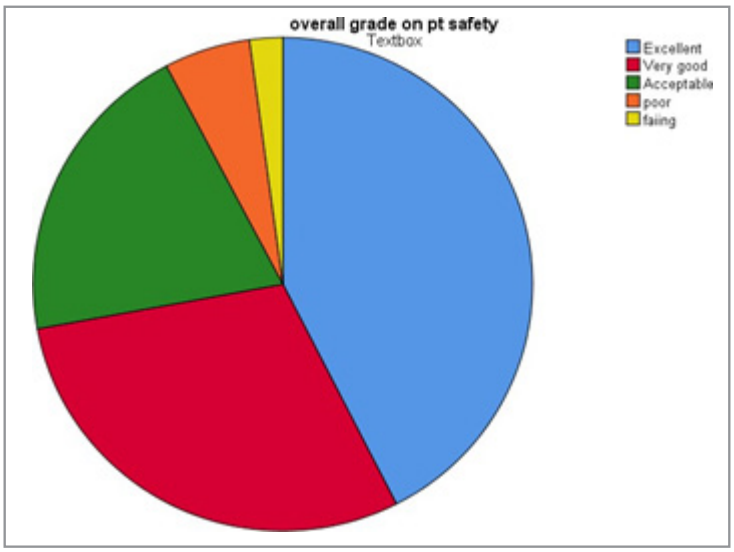


**Figure 5:** patient safety grade of Addis Ababa City Administration public Hospital in Addis Ababa, Ethiopia, 2024.

**Associated Factors to Reporting Behaviour of Participants**

Socio demographic and professional characteristics of participants were tested for possible association with number of incidents reported by participants. Results from the bivariate analysis have shown that having training and position of the study participants had statistically significant association with the level of patient safety incident reporting behavior (reporting at least 1 incident in the past 12 months). Although their association is not significant, study participants with female gender, main working area at acute care units, working experience in the current units 1-5 years, and greater than 5 years, and work experience in current profession/ specialty greater than 5 years had higher probability of reporting at least 1 incident compared to their compartments (Table 5).

Five variables including sex and other four variables fulfilled for the multiple logistic regression analysis using P-value 0.25 as cut point for further analysis. Three variables were retained as significantly associated factors of patient safety incident reporting behavior among participants. The results confirmed that those who had training had near to two times higher odd sof reporting patient safety incident compared to those who had no training (AOR: 7.719; 95% CI: 3.59-16.64).

Similarly, Degree nurse study participants had 3.027 times odder to report patient safety incident compared to Diploma Nurse (AOR: 3.027; 95%CI: 1.736-5.279). and work experience more than 5 years' experience had a 1.71 times more reported safety incidence compared to Nurse work experience less than 5 Years' experience (AOR: 1.71; 95%CI: 1.236-2.379). However, the remaining two variables were not significantly associated with the dependent variable (Table 6).

**Table 5: Bivariate analysis on factors associated with patient safety incident reporting behavior among health care professionals working in Addis Ababa city Administration Public hospitals in Addis Ababa Ethiopia,2024 (n = 233)**

| Variables | Category | PSI Report Status | | Crude Odds Ratio (95%CI) |
|---|---|---|---|---|
| | | No | Yes | |
| Sex | Female | 39(24) | 123(76) | 0.66(0.35-1.223) |
| | Male | 23(32.3) | 48(67.6) | 1 |
| Training | Yes | 44(25.) | 127(74.2) | 7.719(3.59-16.64) |
| | No | 9(14.5) | 53(85.5) | 1 |
| Experience in the current hospital in years | ≤5 | 26(35.6) | 47(64.3) | 1 |
| | >5 | 35(21.8) | 125(78.1) | 3.027(1.74-5.27) |
| Working hours per week | <40 | 4(25) | 12(75) | 1.625(0.132-9.9) |
| | 40-79 | 8(23.5) | 26(76.4) | 1.33(0.67-6.42) |
| | >=80 | 37(20.2) | 146(79.8) | 1 |

| | | | | |
|---|---|---|---|---|
| Work experience in current profession/ specialty in years | <1 | 6(30) | 14(70) | 1 |
| | 1to5 | 28(30.4) | 64(69.5) | 1.08(0.31-3.74) |
| | >5 | 20(16.5) | 101(83.47) | 4.24(1.530-11.778) |

**Table 6: Multivariate analysis on factors associated with patient safety incident reporting behavior among health care professionals working in Addis Ababa city administration Public hospitals in Addis Ababa Ethiopia,2024 (n = 233)**

| Variables | Category | Adjusted Odds Ratio (95%CI) |
|---|---|---|
| Sex | Female | 1.135(0.53-2.421) |
| | Male | 1.00 |
| Training | Yes | 5.869(2.62-13.21) |
| | No | 1.00 |
| Working hours per week | <40 | 1.53(0.41-7.75) |
| | 40-79 | 0.63(0.25-1.58) |
| | >=80 | 1.00 |
| Educational Level | Diploma | 1.574(0.773-3.202) |
| | Degree | 1.00 |
| Work experience in current profession/ specialty in years | <1 | 1.00 |
| | 1to5 | 1.24(0.80-1.93) |
| | >5 | 0.94(0.69-5.39) |

## Discussion

Improving patient safety culture in health care organization is the first step in reducing medical errors and improving patient safety (39). Tools that assess patient safety cultures, such as the HSOPSC, give a standard and solid understanding of the issues associated with patient safety. They are also being increasingly used to follow the changes in culture over time (39,40).

This study investigated the current status of patient safety culture in the of Addis Ababa public Hospital among Nurse, with special focus on the culture of reporting patient safety incidents.

The results showed that the overall positive response rate for all measurements of the HSOPSC study was (63%) which is in line with the findings from other clinic-based study within the city and within the country. One of these studies assessed the patient safety culture in public hospitals of Addis Ababa and the other one in Jimma Zone. Their findings were that ,the overall mean score for the positive perception of patient safety culture dimension was below 50%with 46% and 36.77%, respectively (41).As these studies involved all units in the hospitals, this can be an implication that, the safety culture in among the nurse working in Addis Ababa hospitals isn't significantly different from other units.

Even though the finding of this study is consistent with other studies done in the county, higher figures have been recorded in other low- and middle-income countries; China(65%), Iran(65.5%), Oman(58%), South India (58%), Saudi Arabia(61%), Taiwan(64%), And Yemen 67% (35, 42). This can be due to the difference in safety policies adapted by countries and the socioeconomic difference between them.

As per HSOPSC's recommendation, of all the patient safety culture composites, none fit the criteria for areas of strength. Which was also the case in other hospital based study in the country (43,44).This is not surprising as past addressing the need of universal coverage, the safety and quality of health care is only a recent area of focus in the country.

This study has identified multiple areas that need change for the better. For instance, the two dimensions that received the highest positive response but yet need improvement were 'Teamwork within units and Organizational learning–continuous improvement' with scores, 70.1%and 65% respectively. Even though these scores were the highest, they are still below the HSOPSC's requirement to be considered as an area of strength which is at least 75%.These dimensions were also the highest rated in other studies but were areas of strength in hospitals across many countries, including China with(84% &88%)( 42)Taiwan (94% and 84%) (45).

In contrast, the dimension that had the lowest score was communications openness (50.8%) and Feedback and communication about error (52.9%), showing that staff is afraid to report incidents due to fear of being criticized for their errors. A study conducted in Bale zone also stated 'Non-Punitive Response to Error' as one of the dimensions with lowest average scores (31.2%) (43). Similar results were also observed about 'Frequency of Events Reported' in studies conducted in Jimma zone with score (28.32%) (41) , south India (41.2%) (46), Public hospitals in Iran (23.5%) (35).

Regarding safety grade the hospital they work in, 27.3% graded the nurse working in hospitals as having a poor safety, 42.5% rated it Excellent and29.6% rated it Very Good. This is a close finding to a hospital-based survey done in Bale zone with 29% Poor and 38.3% Very Good+ Excellent ratings (43). The ratings are also consistent with a study done in public hospitals of Addis Ababa which stated 37% said theirhospitalswereeitherEx-

cellentorVerygoodwhenitcomestopatientsafety(44). As these are hospital-based studies, it shows, acute care units are somehow similar to another unit's safety wise.

An Nurse working in ED in Iran was also rated as excellent or very good by34.2%(47).A study done in US however showed a different figure with a 76% rating of very good and excellent (48).

One fundamental point aim of this study was to assess incident reporting behavior and associated factors among health care professionals Nurse working in hospitals in Addis Ababa. As incident reporting and learning from previous experiences takes a big part in patient safety improvement (49).

When asked for the number of reports they filed in the past 12 months, half of the participants said they haven't reported any incident. This is lower than a finding of a study done in public hospitals of Addis Ababa which reported two third have reported at least one incident (44).

However, is almost equal to findings from USA in 2016 (46) And higher than the findings among emergency nurses in Iran which showed 78% didn't file any report (49).

The study identified that training on incident reporting was significantly associated with participant's like LaHood to report an incident. Ideally Nurse trained to be transparent and ultimately responsible for the patient they are caring for including any errors that may occur. In the traditional "blame and shame" culture of medicine errors was wrongly associated with incompetence laziness or something that would only happen to an irresponsible person so physicians and other health care professionals are often devastated when errors occur (50).

Staff usually feel guilty frustrated, and often fearful of legal consequences that follow reporting incidents. Evenifmosthealthcareprofessionalswanttotalktopatientsandfamiliesandreport what happened, few have been trained how to disclose unanticipated outcomes or medical errors appropriately and freely. Worse yet there are evidences showing some health care professionals continue to be trained to avoid talking about adverse events (51).

The results confirmed that those who had training had near to two times higher odds of reporting patient safety incident compared to those who had no training. It is supported by a local hospital-based study done on nurses (43). Another study in japan also confirmed this (35).

There is ever increasing evidence that suggests education and trainings help improve patient safety and healthcare quality. In most areas of the world Safety curricula are generally popular among trainees and have resulted in increased knowledge of safety and quality in the health care processes (51).

Another professional characteristic that showed a significant association with incident reporting behavior of participants was staff role/position. The studies revealed a degree nurse were2. 37timesmore likely to report patient safety incidents compared to that of staff diploma nurse in training. Other inter disciplinary studies done in Jordan on nurses and physicians also showed that nurses were significantly more likely to know of the local reporting system and to have recently completed a report than physicians (49). The physicians were seen to be less likely to report any incident in their work units on 50% of more of occasions(49).Ananonymousstudyonthisdisciplinesdoneinsix South-Australianhospitals revealed that when compared to Physicians nurses were two times more likely to know how to access a report, two times more likely to have ever had completed a report and more likely to know what to do with the completed report(51). Another study done in two USA hospitals on rate and type of events reported found that 89%ofincidents were reported by nurses while only 1.9% was reported by physicians (46). Similar findings have been uncovered among health professionals working a general surgical department in United Kingdom. In the study, nurses were significantly more likely to know the reporting system and to have recently completed a report than doctors (52).

## Conclusion

When compared with the bench mark put by the AHRQ (Agency of Health Care Research and Quality) the overall patient safety score and all average safety culture composite scores were low. The trend of reporting adverse events or errors among Nurse working in Addis Ababa city Administration public hospitals is poor and health professionals are afraid of the punitive response to error. There is a higher odd of reporting incidents among those who were trained on patient safety and those who were degree nurses than diploma nurses.

### Limitation and Strength of the Study

Limitation of the study Using English version may make the study participants to misunderstand some questions. The study included only diploma nurses and above working in the Addis Ababa city administration in the public hospitals. It would have been more ideal to include other health care staff in these units. A cross- sectional study design was applied making causal relationship between variables difficult to ascertain.

Finally, the study was based on self-reported information that maybe pro neto reporting bias. Strength of the study to the knowledge of the Patient safety Incidence reporting this is the first study among Nursing professional in Addis Ababa Ethiopia.

A standardized assessment tool was used to collect the data. There commendations and guides on how to use the tool and how to analyze the data were carefully followed.

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## Author Contributions

Solomon Negewo conceptualized the study, drafted the initial manuscript, analyzed data, and finalized the manuscript. Alemu Kibret analyzed data, contributed to manuscript writing, and finalized the manuscript.

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## Availability of Data and Materials
The data sets used and analyzed during the current study are available from the corresponding author on reasonable request.

## Declarations
### Ethical Approval and Consent to Participate
Ethical clearance was obtained from the Research Ethical Review Board of Yekatit 12 Hospital Medical colleges department of public health quality health care. Additionally, permission to conduct the study was obtained from the Addis Ababa City Administration Health Bureau and the all Hospitals. Prior to participation, participants were provided with information about the study, and each participant was asked to provide informed, written consent. For illiterate participants, informed consent was obtained from their legally authorized representatives.

## Competing Interests
The authors declare that they have no competing interests.

## Consent for Publication
Not applicable

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