

Research Article

Factors Affecting Patient Safety Culture among Health Professionals in Ilu Aba-Bora Zone, South West Ethiopia: A Mixed Method Study

Collage of health sciences, Mettu University Ethiopia

¹Department of Nursing, University of Pretoria, South Africa

²Department of health studies, University of South Africa, South Africa

***Corresponding author**

Worke Yismaw (Assistant professor); Affiliation: Lecturer at Mettu University, Collage of health sciences, Mettu, Ethiopia

Submitted: 28 March 2023

Accepted: 26 April 2023

Published: 29 April 2023

ISSN: 2379-9501

Copyright

© 2023 Yismaw W, et al.

Keywords

- Patient safety
- Culture
- Health professionals
- Ilubabor zone

Abstract

Introduction: Unsafe medical care is a major source of morbidity and mortality throughout the world. In Ethiopian health system, the information about patient safety culture is limited in scope. The aim of this study is to assess patient safety culture and associated factors among Health professionals in public health facilities of Ilu Aba-bare zone, southwest Ethiopia.

Methods: Institution based mixed method study was used to conduct the study. It was conducted from February 1-19, 2019. Ilu Ababora is one of the zones of the Oromia regional state. There are two Public Hospitals and thirty nine health centers in the zone. All Health professionals in the public health facilities of Ilu Aba-bore zone were considered as a study population and those on sick and maternity leave were excluded. A pretested semi-structured self-administered questionnaire was used to collect the required information. The data were entered using Epi data version 3.1 statistical software and analyzed using SPSS version 21. Significant independent predictor was declared at 95% confidence interval and P-value of less than 0.05; thematic analysis was done to the qualitative data.

Results: The overall level of positive patient safety culture was 40 %. Job satisfaction of health professionals, positive perception of health professionals regarding patient, Teamwork among health professionals within their working unit and Organizational learning were factors significantly associated with positive patient safety culture. Interviews' thematic analysis revealed three main themes including management factors, health care professional factors and patient factors themes.

Conclusion: The overall level of positive patient safety culture was low. Therefore, interventions of systemic approach through facilitating opportunities for communication openness, cooperation and exchange of ideas between healthcare workers which will build team work sprit and promoting the knowledge and practice of health care providers are needed to improve the level of patient safety culture.

INTRODUCTION

Patient safety culture (PSC) is the collection of common values about what is important, beliefs about how things work, and engagement with organizational structures that together produce organizational behavioral norms that support safety [1].

The effect of unsafe practice in the process of medical care is share a major source of morbidity and mortality globally [2]. Tens of millions of patients worldwide suffer disabling injuries or death every year due to unsafe medical practices. One in ten is injured while receiving health care in well-funded and technologically advanced hospital settings [3]. Even more importantly, there is very little evidence about the burden of unsafe care in developing countries, where there is likely to be an even greater risk of harm to patients due to limitations in infrastructure, technologies, and human resources [4]. Even though evidences are limited, the possibility of patients being harmed in hospitals when receiving medical care is known to be large in African health systems [4].

Identifying and reducing the occurrence of these errors and improving the safety and quality of health care needs to be brought forward as a priority issue for health services around the world [5, 6]. Previous effort has been on improving the structures and processes of healthcare delivery, whereas recent attention has focused on the PSC of an organization and its impact on patient outcomes [7]. PSC is widely recognized as a significant driver in changing behavior and expectations to increase and emphasize safety within organizations [8, 9]. Previous studies showed that, hours worked per week, level of staffing, teamwork within hospital, good communication, reporting an event, exchange of feedback about error and participation in patient safety program, work area, position, patient safety management and resources were found to be significantly associated with the PSC [10,11]. Assessing PSC and associated factors among health professionals in public health facilities in Ilu Aba-bora zone will serve as initiation for further research in the area of patient safety and provide valuable information related to PSC, and indicates areas

of success, areas for follow-up, and metrics to monitor changes in the public health facilities. So, the aim of this study is to assess the level of PSC and its associated factors.

METHODS

Study Design and Setting

Institution based cross sectional study was conducted in Ilu Aba-bora zone from February 1-19/2019. Ilu Ababora is one of the zones of the Oromia regional state. Based on the 2012 Census conducted by the CSA of Ethiopia, this zone has a total population of 1, 271,609, of whom 636,986 are men and 634,623 women. Mettu is the capital city of the zone and is 600 km away from Addis Ababa. There are two Public Hospitals and thirty nine health centers in the zone.

Study Population and Eligibility criteria

All Health professionals working in the public health facilities of Ilu Aba-bora zone were considered as a study population and those on sick and maternity leave were excluded.

Sample size determination and sampling technique

The sample size was calculated using single population proportion formula considering prevalence of the study done previously [13], which was 46.7% with the assumption of 95% confidence level and 5% marginal error was considered, it resulted in final sample size of 439. The qualitative study sample included twelve (12) health professionals purposively sampled while the saturation of information decide our final sample. With the assumptions of heterogeneity of patient safety culture across public health facilities in Ilu Aba-bora zone was stratified and Eight(8) woredas (i.e. eight health facilities) in the zone was included and sample to be taken was allocated for each facilities to the size of the population they had and study subject was drawn using simple random sampling technique. We have included health centers since patient safety issue is equally crucial in both health centers and hospitals; help us to get new factors affecting PSC which was not considered and seen by previously done studies on this topic. Our first intention and priority area is assessing the gap in the public health facilities by considering the time and budgetary issues.

Operational Definition

If respondents overall score for the PSC dimensions questions and PSC is:

A score value of mean and above is considered as Positive PSC

A score value of below mean is considered as negative PSC

Data collection procedure and quality control procedure

A pretested semi-structured self-administered questionnaire was used to collect the required information. The tools used in

the questionnaire were a standardized questionnaire used by WHO world Patient Safety Alliance member states of developed countries (HSOPSC). The tool was designed to assess staff opinions about PSC. Most items use the 5-point likert response scale of agreement (strongly disagree, disagree, neutral, agree, strongly agree) or frequency (never to always [14]. It includes 42 items that measure 14 dimensions or composites of PSC, the dimensions includes; **dimensions of patient safety culture (six in number)**; supervisor/head expectations and actions promoting patient safety, organizational learning and continuous improvement, Non punitive response to error, staffing, teamwork across hospital units, hospital handoffs and transitions) and **factor composites related information(eight in number)**; overall perceptions of safety, job satisfaction, event reporting trend, overall patient safety grade, teamwork within units, communication openness, feedback and communication about error and hospital management support for patient safety)[19,21]. Internal consistency/reliability/ was checked by calculating Cronbach's alpha for each of the composite to ensure that items with in each composite were consistent. In this study the Cronbach's alpha for the composites ranged from 0.62 to 0.78 and its 0.76 for the entire questionnaires. For the qualitative study, before conducting the interview, we selected suitable environment which is a room free of disturbance and the time is when they are free. We just asked the consent before engaging into the interview and the confidentiality issues also maintained. Then we recorded the interview using tape recorder after that we transcribe and coded it. We used semi-structured questionnaires. Two days' training was given for supervisors and data collectors on the basic technique of data collection, approaches and on the issue of confidentiality and privacy.

Statistical Analysis

After data collection, filled questionnaires were coded. The data was entered using Epi data version 3.1 statistical software and analyzed using SPSS version 21. Data cleaning was performed to check for frequencies, accuracy, and consistencies and missed values. The descriptive analysis such as proportions, percentages, means, and measures of dispersion and tables used to describe the data. Both bivariate and Multivariable logistic regression was used to assess the association between outcome and explanatory variables. Significant independent predictor was declared at 95% confidence interval and P-value of less than 0.05 as cut off Point; the qualitative data was categorized into thematic area and then analyzed using thematic analysis.

RESULTS

Socio demographic characteristics of the respondents

A total of 395 Health care providers currently working in the eight public health facilities responded to the questionnaire, which yields a response rate of 89.98%. The mean age of the respondents was 28.38 years with ± 5.17 SD. Two hundred five (67.2%) of the professionals are from hospitals while 100(32.7%) of them are from health centers. Two hundred seven (52.4%)

of them are females and the mean age of the respondents was 32 years. Majority of the respondents (44.7%) were protestant by religion followed by Orthodox 27.5%. Two hundred thirty five (59.4%) respondents were Nurses in profession followed by health officer 36(9.1%). Concerning Level of education 203 (51.3%) of the respondents were Bachelor science first degree holders followed by Diploma 160(40.4 %) (Table 1).

Dimensions of patient safety culture

In this study, the overall PSC of Health care workers were determined based on 22 items level information gathered from HCWs and compiled in to the six dimensions of safety culture

Table 1: Distribution of Health care providers by their socio-demographic characteristics in public Health facilities of Ilubabor zone, Dec.2020

Characteristics	Frequency (N)	Percent (%)
Sex		
Female	207	52.4
Male	188	47.5
Age		
<=29	226	57.2
30-44	169	42.8
Religion		
Orthodox	109	27.6
Protestant	177	44.7
Muslim	90	22.7
Others*	19	4.8
Profession		
Nurse	235	59.5
Physician	25	6.3
Pharmacist	21	5.3
Laboratory tech.	28	7.1
Health Officer	36	9.1
Others**	17	4.3
Level of education		
Diploma	167	42.3
BSc	203	51.4
General practitioner	19	4.8
Specialist	6	1.5
Work experience in current health facility (years)		
<=5	159	40.3
6-10	116	29.4
>=11	120	30.3
Working Unit		
Medicine	44	11.1
Surgery	23	5.8
Pediatrics	37	9.4
Gynecology/Obstetrics	36	9.1
ICU	27	6.8
OR	39	9.8
Emergency	43	10.9
OPD	124	31.3
Others***	22	4.5

Others*: Catholic, Adventist, Waqefeta; others ** =Anesthetist, Optometry, Management; Others ***=PHCU director, Ophthalmology and dental clinic

composites (Table 2). As a result the overall mean positive PSC of the respondents working in the public Health facilities were 40%.

Sixty eight percent of the respondents did not report any event or zero in the past 12months period in their Hospital/health center. About 33.0% of the respondents were given an overall patient safety grade poor for their health facility working units and only 24(5.8%) of the respondents were given excellent score. This study revealed that only 66(16.7%) of the respondents had positive health facility handoffs and transitions. Health care providers working in health centers had the least positive score while Hospital respondents had the highest positive score. In this survey the overall mean positive response for health facility management support for patient safety composites were found 37.0%. Hospitals and health center workers had 37.8% and 24.5% positive response towards health facility management support for patient safety composites respectively. The overall positive PSC of HCWs in the nine public health facilities scores 40%. HCWs working in health centers had the least positive PSC (14.3%) while those working in hospitals had the highest overall positive PSC (21.6%) (Table 2).

Factor composites related information

More than half of the respondents 202(51.24%) have an overall positive perceptions of safety. Concerning level of job satisfaction 180(45.6%) had satisfied by their job. Only twenty percent of the respondents reported positive score for frequency of incident report in their work unit. Respondents over all patient safety grade positive score for their work units were 119 (30.12%) (Table 3).

Table 2: Patient safety culture composites among Health care providers in public Health facilities, Ilubabor Zone, Dec. 2020

Patient safety culture composites	Average positive frequency(N)	Average positive percent (%)
Supervisor/head expectations and actions promoting patient safety	150	38
Organizational learning and continuous improvement	168	42.5
Non punitive response to error	68	19.1
Staffing	179	45.1
Teamwork across hospital units	194	49.1
Hospital handoffs and transitions	69	16.7
Overall positive Patient safety culture	158	40.0

Table 3: Patient safety culture related factor composites among Health care providers in public Health facilities, Illubabor Zone, Dec.2020.

Factor composites b	Average positive frequency(N)	Average positive percent(%)
Overall perceptions of safety	202	51.24
Job satisfaction	180	45.6
Event reporting trend	79	20
Overall patient safety grade	119	30.12
Teamwork within Units	202	51.2
Communication openness	162	41.01
Feedback and communication about error	59	15
Hospital management support for patient safety	146	37.0

Factors associated with patient safety culture

Multivariate analysis: Multi-variable logistic regression revealed that, organizational learning/ continuous improvement, overall perceptions of safety, job satisfaction and teamwork within units were significantly associated with PSC (Table 4).

Finding from the qualitative study: We conducted interview, of whom interviewed, 4 were nurses in profession and others were from physicians, midwives, clinical pharmacy, laboratory technicians, PHCU directors and hospital CEO's. The factors influencing PSC as perceived by health care professionals were had three themes; management factors, health care professional factors and patient factors themes which are three themes.

Management factors

Respondents believed that weak monitoring and evaluation system from managers of all levels regarding PSC among health professionals in hospitals and health centers negatively affect PSC *"In our facility, no-one will talk about patient safety and there is no reporting system regarding patient safety issues in all professions & I think, this will be a big gap which affects the attention that should be given."* (A 20s nurse in ICU ward).

Participants described shortage of supply and equipment as the factors which hinder PSC. They highlighted shortage of water supply, lack of gloves, syringes, emergency drugs and cabinet shelves which seems simple but affecting the PSC strongly.

"Shortage of disposable gloves which seems simple were not found when we try to give medication since contagious cases like hepatitis are common in our wards." (A 30s nurse in medical ward)

Participants also described PSC issue was not included like others in their annual plan (e.g. EPI, delivery plan) and Leadership walk around have proven effective in bridging the gap between leadership and frontline staff, promoting culture change, identifying opportunities to improve safety, and educating staff on patient safety issues. *"Truly speaking, we only give attention to*

safety precaution for professionals still there is a big gap on safety of the patient." (A 20s PHCU director)

Lack of trainings and professional updates and poor attention given on safety issues had great influence on patient safety practice. *"I have served in this facility for the last five years, but I haven't seen any training, report or deal on patient safety culture."* (A 30s lab technician)

They recommended Leaders should acknowledge the healthcare environment is a high-risk environment and seek to align vision/mission, staff competency, and fiscal and human resources from the boardroom to the frontline.

Health care professional's factors

Respondents believed, decreased job satisfaction among health professionals, communication openness between professionals and poor teamwork between professionals negatively affect PSC.

"There is poor communication between us and physicians & every one gives his/her own suggestion regarding the patient treatment & I think this is due to existing poor attitude and attention." (A 30s midwife)

Other respondents also described, lack of professional trainings on patient safety, shortage of staff, work load and lack of professional autonomy are factors negatively affecting PSC. *"There will be at least six to ten cesarean delivery per day without including other gynecologic cases and this makes you tired off & the hospital doesn't consider this over load."* (A 30s gynecologist)

Patient factors

Patient perception about the health service provided and their interaction also influence the PSC according to the respondents thought. *"Most of the clients don't know who to ask for what and most of them ask everything every one wearing this white gown & especially not good when dealing with drugs."* (A late 20s druggist)

Table 4: Bivariate and Multivariate Logistic Regression results on factors associated with patient safety culture among HCWs in public Health facilities, Ilubabor Zone, Dec.2020.

Variables	Frequency of PSC		OR (95% CI)	OR (95% CI)	p-value
	Negative	Positive	Crude	Adjusted	
Organizational learning/ continuous improvement					
No	59(73.8%)	21(26.3%)	1*	1*	
Yes	276(87.6%)	39(12.4%)	2.18(1.46- 3.27)	2.34(1.75- 2.54)	0.02
Overall perception of safety					
Negative	335(84.5%)	60(15.2%)	1*	1*	
Positive	320(80%)	75(20%)	1.93(1.30 - 2.85)	2.53(1.76- 4.26).	0.01
Job satisfaction					
Unsatisfied	59(39%)	80(61%)	1*	1*	
Satisfied	156(74%)	100(26%)	2.77(1.86 - 4.14)	1.65(1.08- 3.13)	0.00
Team work with in units					
Negative	323(85.2%)	56(14.8%)	1*	1*	
Positive	12(75%)	4(25%)	1.21(1.32-2.16)	2.61(1.45- 4.68).	0.01

*Statistically significantly associated

DISCUSSION

In this study the overall level of positive PSC was found to be 40%. This result showed that, the health facilities had poor/low PSC and areas with the most potential for improvement and needs urgent improvements. It's almost consistent with a study done in Brazil (33). The result is lower than the study reported 46.7% in Jimma zone [13] & 76% in public hospitals of Ethiopia [24]. This difference is may be due to difference in the study setting in which our case included both health center and hospitals while the others only focus on public hospitals which have variation in structure and resource.

Our study also scored lower results when compared with the findings from other low and middle-income countries like China (65%) [25], Lebanon (61.5%) [26], Saudi Arabia (61%) [27], Palestine (63.5%) [28], Taiwan (64%) [29], and developed countries (e.g. the USA (65%) [30], the Netherlands (52.2%) [31] and Egypt 46.56%[35]). The variation could be due to difference in health care delivery structure, system and variation in infrastructure and difference in training opportunities for professionals regarding patient safety. Those countries might have better management values, organizational commitments, leadership and relationships within hospital staff. Other possible reasons might be due to early initiation of patient safety issue compared to our country.

Organizational learning/ Continuous improvement is strongly associated with PSC among health professionals working in public health facilities. Professionals having Organizational learning/ Continuous improvement opportunity were two times likely (AOR 2.34, CI, 1.75- 2.54) to have positive PSC as compared to their counterparts. The result of the qualitative study also elaborates on these issues that lack of trainings, professional updates and poor attention given on safety issues had great influence on patient safety practice. As a late 30s lab technician stated that "I have served in this facility for the last five years, but I haven't seen any training, report or deal on patient safety culture."

The same finding was shown in a study done at public hospitals of Ethiopia [24], Palestine [28], and Lebanon (61.5%) [26], Saudi Arabia [27] and China (36). This is may be the chance of learning from their mistake is high and they will try to improve their status by learning from their experiences.

Team-work with in unit was associated with PSC among health professionals working in public health facilities. Those having positive team work within their working units were two times more likely (AOR, 2.61, CI- 1.45- 4.68) to have positive PSC as compared to their counterparts. This resulted is supported by a result of a study done in Sweden as teamwork within units rated a highest culture dimensions (34). The finding was supported by the qualitative study and described poor teamwork between professionals negatively affects PSC. A late 30s nurse in ICU ward said that "Even though we are diploma holders, our professional role in the care of the patient is very crucial. However, the doctors

and patients do not consider as important in their care and this is an obstacle to team work sprit which in my thinking affects the issue of patient safety. Sorry for being emotional."

This finding is comparable with the finding in Jimma zone [13], Palestine [28], Lebanon [26], Taiwan [29], Saudi Arabia [27] and China (36). Having team work may increase involvement of all professionals with their respective responsibility and this may have a positive impact on the safety culture of the clients since everyone is equally responsible for the client.

Job satisfaction of health professionals was significantly associated with PSC among health professionals working in public health facilities. Those satisfied in their profession were two times AOR, 1.65 CI, (1.08- 3.13) more likely to have positive PSC as compared to those not satisfied. Decrease in job satisfaction among professionals due to lack of promotion (e.g. continues education, salary, lack of trainings and professional updates and poor professional associations movement (e.g. ENA)) were raised by participants in qualitative study.

As 30s midwife in the health center told as " Talking about satisfaction is difficult for me & just I am in this profession only to grow my children , started taking accounting course in private collage to change my profession since what you did not matched with what you get & no opportunity of getting chance to update yourself."

This could be due to the reason that job satisfaction in profession may increase their commitment which in-turn increase their concern regarding patient safety.

Positive perception of health professional's regarding patient safety was significantly associated with PSC. Professionals having overall positive perception for patient safety were three times more likely AOR- 2.53, CI(1.76- 4.26) as compared to those having negative perception of safety. This is may be, the perception and attitude that they have for patient safety may affect their culture of practice in their daily profession. Cross-sectional nature of the study made it difficult to assess the cause and effect relationship.

STRENGTHS AND LIMITATIONS OF THE STUDY

The strength of the study was it used appropriate tools. Whereas, cross-sectional nature of the study: the study used cross sectional study design; hence it is not possible to clearly establish cause-effect relationship between the variables was the limitation.

CONCLUSION

The finding of this study showed that, the overall level of PSC in Ilu-Aba-bora zone public health facilities were found to be low. Therefore, interventions of systemic approach through facilitating opportunities for communication openness, cooperation and exchange of ideas between healthcare workers which will build team work sprit and promoting the knowledge and practice of health care providers are needed to improve the level of PSC.

DECLARATIONS

Ethics approval and consent to participate

An ethical approval letter was obtained from IRB of Mettu University, collage of health sciences. The study was conducted in accordance with the Declaration of Helsinki. Written informed consent which assured anonymity in publication of the final result was taken after explaining the purpose, importance of the study and right not to participate and with draw to the participants. Confidentiality of the information was maintained throughout by excluding names as identification in the questionnaire.

Consent for publication: Not applicable

Availability of data and materials: The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request.

Funding

This research was funded by Mettu University; Award/Grant number is not applicable.

Authors' contributions

TT participated in proposal development and data entry, data analysis was done by WY, HP involved in manuscript preparation and lastly all authors were reviewed the prepared manuscript.

ACKNOWLEDGMENTS

We would like to thank the Mettu University for funding this research, data collectors and study participants. We are also grateful for our family and friends.

REFERENCES

- Singer, Lin, Falwell, Gaba, & Baker, 2009; 400.
- Advisory Committee on the Safety of Nuclear Installations). Sudbury, England: HSE Books; 1993
- Davis P, Lay-Yee R, Briant R. Adverse events in New Zealand public hospitals I: Occurrence and impact NZMJ. 2002; 1167.
- Wilson RM, Runciman WB, Gibberd RW, Harrison BT, Newby L, Hamilton JD. The Quality in Australian Healthcare Study. Med J Aust. 1995; 163: 458-471.
- Baker GR, Norton PG, Flintoft V, Blais R, Brown A, Cox J, et al. The Canadian Adverse Events Study: The incidence of adverse events among hospital patients in Canada. CMAJ. 2004; 170: 1678-16 86.
- Vincent C, Neale G, Woloshynowych M. Adverse events in British hospitals: preliminary retrospective record review. BMJ. 2001; 322: 517-519.
- Feng X, Bobey K. & Weiss M. Patient safety culture in nursing: a dimensional concept analysis. J Advanced Nursing in USA. 2008.
- Reason J. Achieving a safe culture: Theory and practice. Work and Stress. 1998; 12: 293-306.
- Gillian R, Mary S. Measuring the safety culture in a hospital setting. Journal of the New Zealand Medical Association. 2010; 123: 1314.
- Joann S & Veronica N. Hospital Survey on Patient Safety Culture. AHRQ. 2004: 04-0041.
- Kohn T, Corrigan M, Donaldson M. Institute of Medicine; to err is human: Building a safer health system. National Academy Press. 2000.
- Mekonnenetal.hospital survey on patient culture in public hospitals in Ethiopia. 2017; 3: 11
- Wami, Demsie AF, Wassie MM, Ahmed AN. Patient safety culture and associated factors : Aqualitative and quantitative study of health care workers view in Jimma zone Hospitals. 2016; 16: 495.
- Sorra J, Nieva V Hospital survey on patient safety culture. (Prepared by West at, under contract no. 290-96-0004). AHRQ publication no.04-0041.2004; Rockville:
- Fleming M. Patient safety culture measurement and improvement: A "how to" guide. Healthcare Quarterly. 2005. 8: 14-19.
- Institute for Healthcare Improvement. Patient Safety: General. 2009.
- GAO. A Cultural Perspective at Four Medical Facilities. Report to the Secretary of Veterans Affairs. 2004.
- Nieva V, Sorra J. Safety culture assessment. QSHC. 2003: 12: 17- 23.
- Study Group on Human Factors. Organizing for Safety. ACSNI: Third Report. 1993.
- A Focus on Patient Safety. Enhance Quality and Strengthen Patient Safety. Canadian Health Accreditation. 2009.
- WHO; Working Group meeting Report. Patient Safety: Rapid Assessment Methods for Estimating Hazards. WHO. 2003.
- European Society for Quality in Healthcare. Patient Safety Indicators. ESQH. 2009.
- Health Professionals Call for Priority on Patient Safety. World Health Professions Alliance Fact Sheet. 2002.
- Nie YL, Mao XY, Cui H, He S, Li J, Zhang M. Hospital survey on patient safety culture in China. BMC Health Serv Res. 2013; 13: 228.
- El-Jardali F, Jaafar M, Dimassi H, Jamal D, Hamdan R. The current state of patient safety culture in Lebanese hospitals: a study at baseline. Int J Qual Health Care. 2010; 22: 386-395.
- Alahmadi HA. Assessment of patient safety culture in Saudi Arabian hospitals. QualSaf Health Care. 2010; 19: e17.
- Hamdan M, Salem AA. Assessment of patient safety culture in Palestinian public hospitals. Int J Qual Health Care. 2013; 25: 167-175.
- Chen IC, Li HH. Measuring patient safety culture in Taiwan using the hospital survey on patient safety culture (HSOPSC). BMC Health Serv Res. 2010; 10: 152
- Famolaro T, Yount N, Burns W, Flashner E, Liu H. Hospital survey on patient safety culture 2016 user comparative database report. (Prepared by Westat, Rockville, MD, under contract no. HHS 290201300003C). Rockville: Agency for Health care Research and Quality; 2016. AHRQ Publication No. 16-0021-EF
- Wagner C, Smits M, Sorra J, Huang CC. Assessing patient safety culture in hospitals across countries. Int J Qual Health Care. 2013; 25: 213-221.
- CSA E. Population projection of Ethiopia for all regions at wereda level from 2014-2017. Central Statistical Agency of Ethiopia. 2013.
- Carvalho PA, Amorim FF, Casulari LA, Gottens LBD. Safety culture in the perception of public-hospital health professionals Rev Saude Publica. 2021; 55: 56.
- Danielsson M, Nilsen P, Rutberg H, Årestedt K. A National Study of Patient Safety Culture in Hospitals in Sweden. J Patient Saf. 2019; 15: 328-333
- Naglaa A. El-Sherbiny, Eman H. Ibrahim, Wafaa Y. Abdel-Wahed. Assessment of patient safety culture among paramedical personnel at general and district hospitals, Fayoum Governorate, Egypt
- Wang M, Tao H. How Does Patient Safety Culture in the Surgical Departments Compare to the Rest of the County Hospitals in Xiaogan City of China? Int J Environ Res Public Health. 2017; 26: 1123.