

Organizational patient safety Practice and its Associated Factors in Gambella region health centers, South West Ethiopia, 2014

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A research thesis to be submitted to Jimma University; College of Public Health and Medical Sciences, department of Health Services Management in Partial Fulfillment for the Requirement for Masters of Public Health in Health Services Management.

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Abstract

Introduction Patient safety is the absence of avoidable harm to patients during the process of health care. Every year, tens of millions of patients worldwide suffer disabling injuries or death due to unsafe medical care. Study findings imply the system factors are the most important factors in patient safety problems and causes of medical errors in health facility.

Objective The aim of this study is to assess organization patient safety practice and its associated factors in Gambella region health centers.

Methodology Cross sectional study design with both quantitative and qualitative research methods were used. Structured, pre-tested, self administered questionnaire and observational checklist and in-depth guide were used. 227 health professionals in 12 health centers which are selected by simple random by lottery method using a self-administered Hospital Survey on Patient Safety Culture adapted questionnaire. Purposive 8 in-depth interviews and observational study conducted using in-depth guide and structured observational checklist.

Result: Organizational patient safety practice status was 49.3% as rated by the health professionals. The statistically significant predictors for organizational patient safety practice were communication openness, non-punitive response to error, frequency of event reporting, health center management support for patient safety, Supervisor/manager expectations & actions promoting safety and Teamwork Across health center

Conclusion and recommendation: Organizational patient safety practice status was poor in the health centers. We suggest that the predictors found to affect the Organizational patient safety practice in this study be used as basic materials for future research and be incorporated into promotion programs on patient safety practice.

Patient safety should be a top priority for the health care organizations and its leaders. There should be blame-free system for identifying threats to patient safety and learning from events

Key words; organizational practice, health professional and patient safety

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Acronyms and Abbreviations

AHRQ Agency for health care research and quality

EHO : Environmental health officer

HCW Health Care Workers

HSOPSC hospital survey of patient safety culture

MCH maternal and child health

OPD outpatient department

PHC primary health care

U.S.A unites states America

WHO world health organization

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Chapter one: Introduction

1.1. Background

Safety is a fundamental principle of patient care and a critical component of quality of care. Its improvement demands a complex system-wide effort, involving a wide range of actions in performance improvement, environmental safety and risk management (1). Patient safety is the absence of avoidable harm to patients during the process of health care. Every year, tens of millions of patients worldwide suffer disabling injuries or death due to unsafe medical care. Estimates show that in developed countries as many as one in 10 patients is harmed while receiving health care. The harm can be caused by a range of errors or adverse events (2). Error is a preventable event leading to an adverse outcome being either an act of commission (doing something wrong) or omission (failing to do the right thing) that can lead to an undesirable outcome. Some errors can result in adverse events which are defined as an incident that results in harm to a patient, these adverse events can also be preventable or non-preventable (3, 4 5).

Some preventable adverse events can be characterized as negligent; these events fall below a professional level of care. Errors can also result in near misses. Which is an incident that did not reach the patient but important to learn for the future errors can happen (3, 6).

WHO estimates that millions of patients worldwide suffer disabling injuries or death every year due to unsafe medical practices and care (7). There is little evidence about the burden of unsafe care in developing countries, where the risk of patient harm may be high due to limitations in infrastructure, technology and human resources, either in hospital or in primary care and community settings (8).

For the vast majority of patients, the treatment they receive is a positive experience. However, an unacceptable number of patients are harmed as a result of their treatment (9). To prevent this many safety oriented organizations develop and foster a patient safety culture that is defined as the set of shared values, attitudes, perceptions, beliefs and behaviors that support safe practices among individuals in healthcare organizations(10).

1.2 Statement of the problem

The problem of patient safety and patient harm inflicted by the health care system is long standing, but has for long remained largely neglected and trivialized. Health care delivery inherently contains the potential for a breach of patient safety (PS) (9).

Between 2.9% and 16.6% of hospitalized patients in developed countries are affected by adverse events such as *medication errors*, healthcare associated infections, or patient fall. More than one third of adverse events lead to temporary (34%) or permanent disability (6% - 9%) and between 3% and 20.8% of the patients experiencing an adverse event results in death (11, 12).

Although reports of the magnitude of the problem from developing countries are lacking, it is widely assumed that the situation in developing countries is worse. In fact , there is greater probability that adverse events (AE) are more frequent in developing countries where resources are lacking, information and technology are outdated and the health care system is not well-organized (9). The risk of health care-associated infection, for example, is 20 times higher in some developing countries than in developed nations (13). As thirty seven percent to seventy percent of all adverse events are considered preventable , Harmful impacts on patients, such as psychological trauma, impaired functionality or loss of trust in the healthcare system as well as socio-economic costs, could be avoided (14, 15,16).

Current conceptual thinking places prime responsibility for patient harm on faulty system design, organization or operation rather than on individual error (9). The majority of medical errors in health care is not the result of poorly performing individuals . More commonly, human errors are caused by faulty systems, whose processes depend on unreliable components of human performance, such as memory or vigilance and thus provide conditions that lead people to make mistakes or fail to prevent them. Examples include stressful environments and inadequate communication. The tasks that healthcare professionals perform , the technology they use, the environment in which they work, and the organizational decisions can impact their work activities. When organization factors and the sensory, behavioral, and cognitive characteristics of healthcare professionals are poorly matched, human errors and suboptimal patient outcomes are more likely to occur (17).

Study estimate that levels of adverse events in primary care may be as high as 8% and more subjective reports from patients and professionals suggest that up to one-quarter of consultations may include an error. And there is always potential for serious harm. Around 90% of all healthcare appointments take place in primary care and around 2% of primary care consultations may experience an adverse event. The rate of prescribing errors is thought to be about 11%. Communication, diagnostic and prescribing errors are thought to be most common. Although the proportion of harm is lower than the 10% commonly attributed to hospital care, the absolute number of people harmed might be just as large or greater than in hospital care. Despite the high prevalence and importance of patient safety in primary care, there has been relatively little empirical research in this field (18).

Research conducted in Jimma university specialized hospital, infection due to medical care, birth injury to the neonate, obstetric trauma to the mother were reported to happened (19). Another study on the same area shows that Medication errors at the administration phase were highly prevalent in the ICU of Jimma University Specialized Hospital (20). Efforts to acknowledge the magnitude of the problem and work on solutions have been veiled by a culture of blame and a potentially punitive error reporting procedure. One of the major challenges to patient safety is the avoidance of the culture of blame and the gradual establishment of a conducive environment in the health care organization built on transparency and willingness to change (9).

Achieving an acceptable standard of patient safety requires that all healthcare settings develop patient safety systems that include both a positive culture of safety and organizational support for safety processes (21). This will not be possible unless the behavior of the health care professionals and health facilities are positively managed and directed (22). So the aim of this study is to assess organizational patient safety practice and its associated factors in Gambella health centers, which are one of the most peripheral area in which patient safety research is not done before.

Chapter two: Literature review

During last decades, the idea that health care system is not sufficiently safe and need to improvement has been considered worldwide. On the other hand, advances in patient safety helped to health care organizations to recognize the risks and develop solution for them (23).

Patient safety incidents in primary health care can be associated with harm to the patient. The proportion of reported incidents associated with some level of patient harm varies considerably, based on factors such as the definitions and methodology used, and can range from 10% to 50% of reported incidents. The research indicates that patient safety incidents can be associated with all aspects of primary health care services, including the administration of a practice, the delivery of treatment, communicating with patients and other services. Patient safety in primary care is a relatively new area in the world. The evidence base and research methods regarding patient safety in primary health care are still developing, however, it is clear that there are significant patient safety risks in this field and those patients can be harmed from the delivery of health care in these settings (24). Safety culture assessment is an essential element of patient safety. Without the proper safety culture in place, it is almost impossible to identify fully the risks and hazards that can lead to health care associated injury (25).

Study in Iran primary health centers, a cross sectional study, from 21 health centers (15 urban, 6 rural) in the Shahr-e-Ray city, Iran, 16 centers(12 urban, 4 rural) were randomly selected. In each cluster 100% of head of centers and dentists and 50- 100%of health workers, midwives, and physicians were included in the study. Proportional to number of staffs in each center, 5 to 9 people were selected. From 120 questionnaires which were hand distributed, 100 staffs were eligible to take part in the survey. The majority of participants were health worker (48%). (Family health, occupational health, and vaccinator). The highest percentage of positive responses were in “teamwork cross unit” (77%),“ management support for patient safety” (75%), “teamwork within unit” (74%), “continuous organizational learning” (72%) and the lowest in “non punitive response to error” (17%) . The overall mean score for positive perception of patients safety culture was 57 ± 16.8 (95%CI: 55%- 59%). The highest of that score was for head of center (74%) which was significantly difference with the other staffs ($P<0.001$). No relationship was found between gender and total patients safely culture score ($P=0.37$, power=92.6%). In comparison to scores in safety culture dimensions, the lowest score belongs to

physicians in term of “non punitive response to error” (8.3%) . There was no relationship between working years in their present center or total work records and patients safely culture score ($P=0.45$, $P=0.59$ respectively). The dimensions showing the largest difference were as follows: "Staffing" (29%), "Nonpunitive response to error" (17%), "Feedback and communication about error" (44%) . Approximately, 67 % of staffs valuate the patient safety grade in employing center as “good” or “perfect”. The outpatient and health center had a poor potential for incidence of serious and life threatening medical errors; therefore. In the culture which staff found guilty and punished for their mistakes, they try to hide the errors instead of reporting them. Therefore, root cause analysis of errors rather than blaming individuals and try to learn from mistakes and prevent from the second incidence, a health center could promote the perception of safety. Patient safety culture in outpatient and health center services has been relatively neglected (26).

Study conducted among health care providers in primary healthcare in Kuwait shows that 53.4% of the surveyed staff rated patient safety grade in their work unit as very good and 32% as excellent and that 74.1% of the staff reported no events in the last 12 months, and nearly 13% reported only 1 to 2 events. Patient safety culture dimensions’ positivity at the unit level shows that three dimensions had less than 50% positivity, these dimensions are: Non- punitive response to error (24%) which is the first least positive dimension, staffing (41%) which is the third least positive dimension and communication openness (45%). This means that these dimensions need attention and corrective actions. In particular non punitive response to errors where only 33% of the staff gave positive response as regards feelings if their mistakes are held against them. And only 25% gave positive response as regards that when an event is reported, it is the person who is written up not the problem and at last only 13% gave responded positively regarding their worries that their mistakes being kept in their file. Open discussion with those with more authority has got the lowest positivity (37%) among all communication openness items and only 30% of the interviewed staff had positive response regarding supervisor’s instructions whenever pressure appears at work. Teamwork within center units and organizational learning continuous improvement were the two dimensions of highest description of safety culture dimensions at the unit level positivity (82% and 75% positivity respectively). Dimension’s positivity are moderate regarding team working across all PHC center units (63%) and management support for patient safety (67%) with special attention to items concerning working with staff from other units of the

same center (positive response of 49%) and that PHC center's management seems interested in patient safety only after an adverse event happens (positive response of 47%). Frequency of event reporting among all staff is the second worst patient safety dimension among all dimensions investigated by the HSOPSC, as it has an overall positivity of only 32%. All the items constituting this dimension have positive responses less than 50%, particularly for reporting mistakes that occur but yielded no potential harm to the patient (positive response of 24%). Overall perceptions of safety is moderate (dimension's positivity = 61%) (27).

Medical errors occur primarily as a result of system failure rather than the action of an individual. Such errors are grounded in shared activities, involving teamwork and communication, as opposed to profession-specific technical expertise.(28)

Ineffective communication is reported as a significant contributing factor in medical errors and inadvertent patient harm. Today, healthcare is ever more complex and improving communication among healthcare professionals is likely to support the safe delivery of patient care. The Joint Commission reports that investing to improve communication within the healthcare setting can lead to Improved safety, Improved quality of care and patient outcomes (29).

It has been reported that improved teamwork results in enhanced effectiveness, fewer and shorter patient delays, , increased efficiency, strong leadership are considered important factors facilitating the effective flow of high quality information and the sharing of knowledge.

Leadership support-Communication within the health service can be improved with an organisation providing strong leadership, through implementation of policies and procedures and identifying clinical leaders to drive improvements in patient safety (30). Team work can also help to drive the implementation of the patient safety system (31).

There is some evidence that culture within organizations may be a relevant factor in health care performance, yet articulating the nature of that relationship proves to be difficult (32).

According to research by AHRQ, the majority of medical errors result from the system of delivery. Frequently, a medical error is not the direct mistake of anybody involved in the patient's care. This is because many medication and diagnostic errors could have been avoided if there were safeguards built into the delivery system (33). Two important concepts affect the safety practice: error reporting and disclosure of errors. The means by which errors are identified, reported, and communicated to those involved or affected have much to do with how well safety is ingrained in the healthcare organization's culture (34).

Researchers in England examined patient safety events from five primary care practices obtained via a confidential but not anonymous reporting system. Reports were followed up with interviews, and events were analyzed for contributing factors. Seventy-eight reports relevant to patient safety were analyzed including 21 (27%) adverse events and 50 (64%) near misses. Serious patient consequences occurred in 16.7%, including a death, and 75.7% had the potential for serious patient harm. Most reports related to administrative errors (25.6%). The most frequent contributing factor was work organization, including excessive task demands (47%) and fragmentation (28%) (35).

Effective communication encourages successful collaboration and teamwork among healthcare professionals, helps to prevent errors, and promotes patient safety. Communication, collaboration, and teamwork may not always occur in clinical settings (36). Health care organizations that are reliably safe are characterized by a “culture of safety” fostered through strong senior leader (37). The primary responsibility for safe care lies with the leadership of health care systems and organizations and with the staff who deliver care. Systematic patient safety measurement and feedback are important not only for monitoring and guiding improvement within organizations, but also for holding organizations accountable. Evidence suggests that public reporting of performance results creates strong incentives for organizations to improve their performance (38).

2.2. Organizational inputs for patient safety practice

Health care-associated infections, injury due to the inadequate use of medical devices, and, adverse events due to medication errors, are common causes of preventable harm to patients (39). In the resource constrained settings like Ethiopia, it is difficult to control the infection rates of patients acquiring. Materials, trainings, policies and guidelines are needed to promote infection prevention practices.

It is believed that healthcare workers, program managers and all other stakeholder will use infection prevention Guideline effectively to prevent infections from occurring at health facilities. Proper infection prevention practices are fundamental to quality of care, and essential to protect patients and communities. Successful programs for preventing the spread of infectious disease by any route in healthcare facilities are based on understanding the prioritizing activities and effectively using available resources by making sure adequate supplies and equipments are

available before start-up to ensure compliance (40). Availability of alcohol-based hand rubs is critical to promote effective hand hygiene practices, in particular in settings without access to running water. Introduction of an alcohol-based hand rub has led to increased hand hygiene compliance among healthcare workers and decreased health care-associated infections (41). The physical environment and access to equipment can support and increase the efficiency and effectiveness of infection prevention and control practices (42).

The availability of sufficient and appropriate equipment and supplies necessary for the consistent adherence of Standard Precautions, including hand hygiene products, injection equipment, and personal protective equipment (e.g., gloves, gowns, face and eye protection) are essential.

Use of alcohol-based hand rub as the primary mode of hand hygiene in healthcare settings is recommended by the CDC and the World Health organization (43).

2.3. Conceptual framework

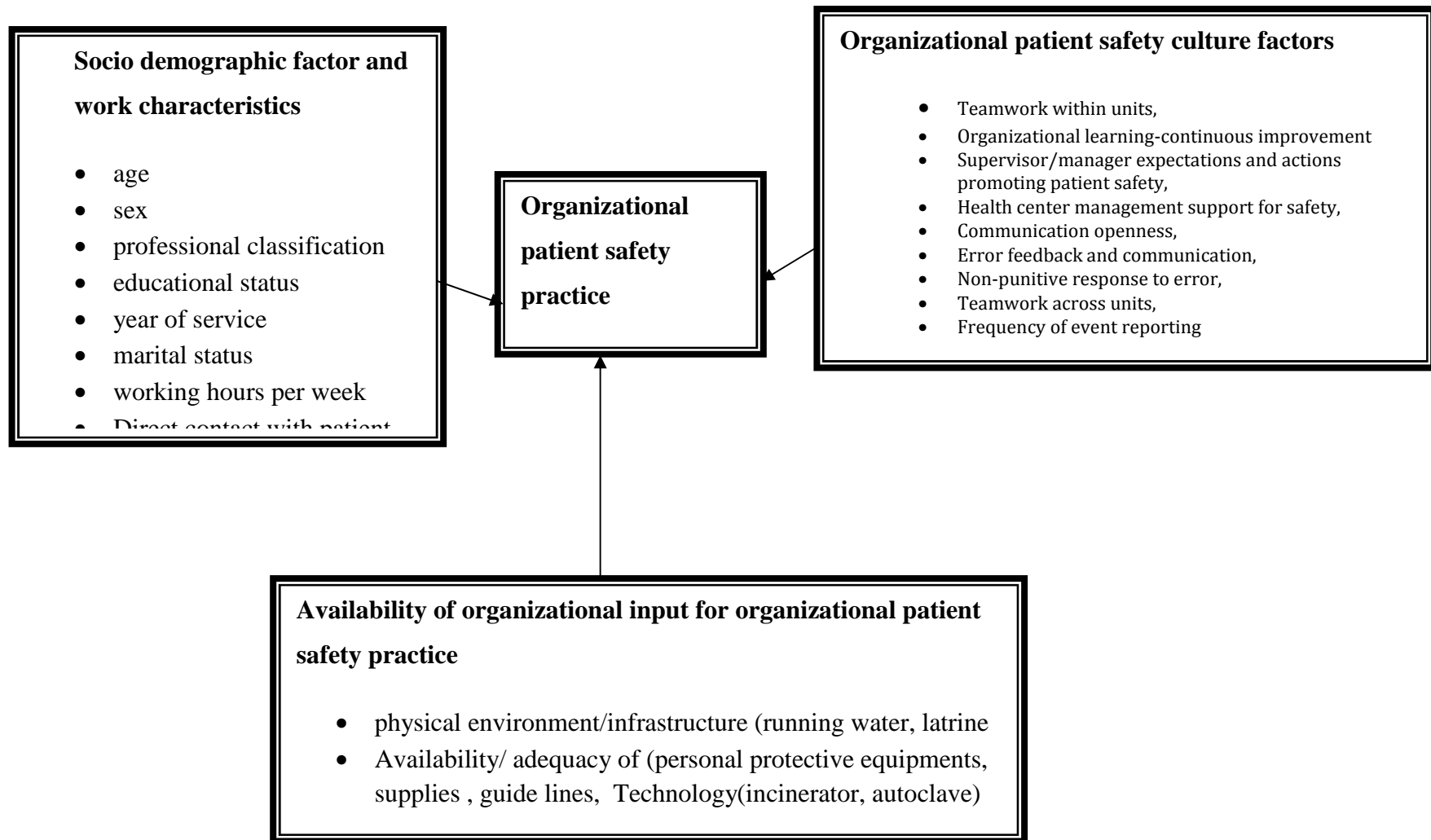


Figure 1: conceptual frame work for organizational patient safety practice developed from literatures, 201

2.4. Significance of the study

The need of this study to use it as base line for planning in the Gambella region health centers by health professionals and health managers. Since patient safety practice status is not known on the study area, this will be helpful for baseline data for Gambella regional health bureau, Gambella health centers and other stake holders who need patient safety related data. Improving patient safety in the health centers requires a new approach and new thinking that includes a greater emphasis on patient safety culture and prevention from harm by promoting safe patient safety practice. This study can also help identify areas for improvement, the potential of enhancing and using a safety culture survey provided an empirical measure of the concept that may help to guide proactive strategies to decrease errors and incidents in the health centers. This will provide a context for action and improvement in patient safety for the Gambella region health centers. Finally, this paper may be useful to other researchers as reference material while conducting further studies on patient safety related problems.

Chapter three: Objective

3.1. General objective

- ❖ To assess the level of organizational patient safety practice and its associated factors in Gambella region health centers, South West Ethiopia 2014

3.1.1. Specific objectives

- ❖ To assess level of organizational patient safety practice in Gambella region health centers
- ❖ to assess socio-demographic factors associated with organizational patient safety practice
- ❖ To assess patient safety culture associated with organizational patient safety practice in Gambella region health centers
- ❖ To assess availability of resource for infection prevention practice in Gambella region health centers

Chapter four Methods and Materials

4.1. Study Area and Period

The study was conducted in Gambella region from 20th March to 20th April 2014. Gambella town is located 777 Kms South West of Addis Ababa and it is the city of the Gambella regional state. Regional state is divided into 3 zone and one special Woreda and one town administration. Based on the 2007 Ethiopian national population and housing census (44), the population of the region was estimated to total population of 307,096. It is bounded by Oromia regional state in East, South Sudan and Sudan republic in West, Oromia region in North, Southern Nations Nationalities and peoples region and South Sudan in South. Concerned the health facilities, there are 28 governmental and 3 non-government health centers and one general hospital with total of 792 health professionals.

4.2. Study design

Facility based Cross sectional study design with both qualitative and quantitative data collection methods was used.

4.3. Population

4.3.1. Source population

All health professionals working in governmental health centers in Gambella regional state

All government health centers in Gambella regional state

4.3.2. Study population

Selected health professionals working in governmental health centers in Gambella regional state

Selected health centers in Gambella regional state

Sampled individuals in Gambella region for in-depth interview

4.4. Sampling unit

Individual

Health center

Study unit

Health professional

Health center units

4.5. Eligibility criteria

Inclusion criteria for quantitative study

Any health professionals who work in the health centers for at least 6 month before the data collection time

all selected health centers for observation

Inclusion criteria for qualitative study

Information rich key informants (head of health centers or supervisors from Woreda health offices) for qualitative data's.

Exclusion criteria

Health workers who were heads of health centers and Environmental and occupational health professionals were excluded since the study was at the unit level.

4.6. Sample size determination

249 health professionals who fulfilled eligibility criteria were included from selected 12 health centers.

Eight health centers from the 12 health centers those were included in the survey questionnaire.

For qualitative study,

Purposively 8 Individuals were selected to participate in to the in-depth interview 1 person from each health center

4.7. Sampling technique/ procedure

For Quantitative study

Health centers were selected by randomly by lottery method. Twelve (12) health centers were randomly selected from 28 governmental health centers. From the randomly selected health centers all health professionals who fulfilled the eligibility criteria were participated. Observation was conducted in unit and health center level in 8 of the 12 randomly selected health centers.

For qualitative study

For the in depth interview purposive sampling technique was used to identify the members. Before conducting the discussion, explanation and elaboration of the need to do the in-depth interview was made. The participants were asked their willingness to participate in the in-depth interview.

Sampling technique

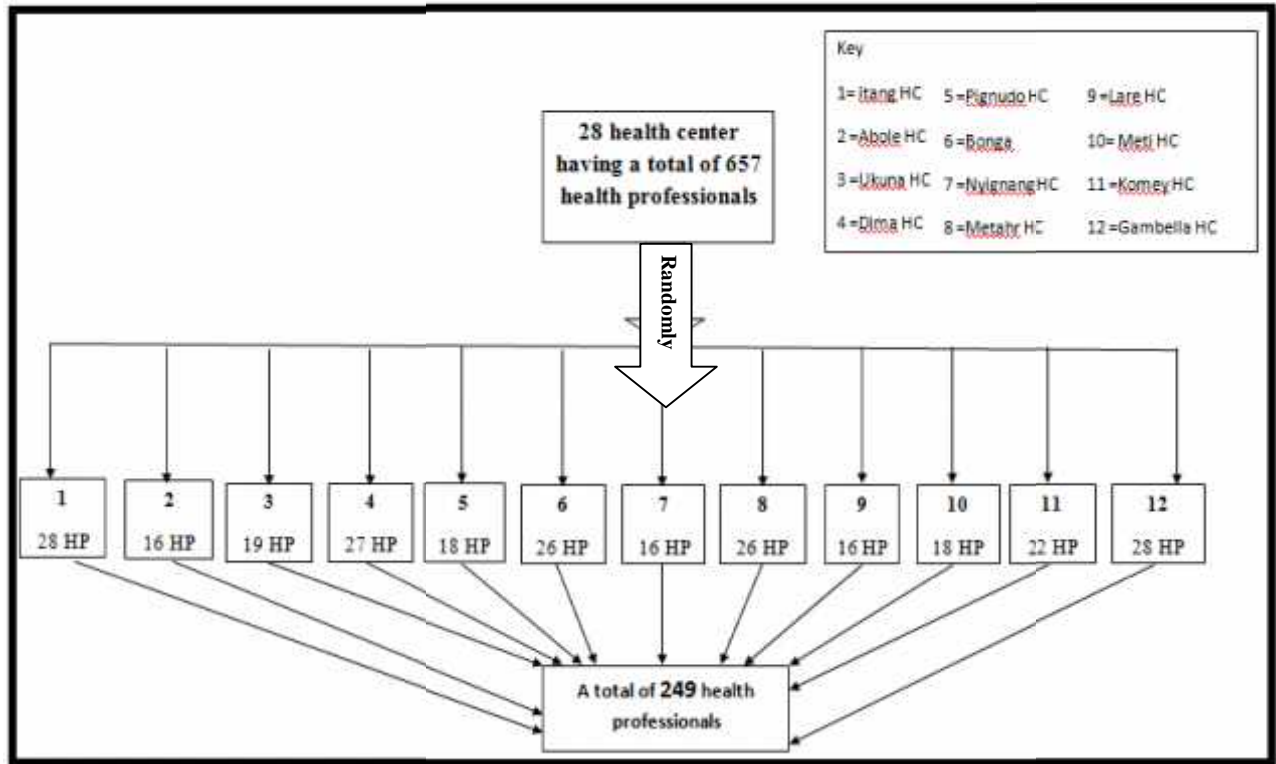


Figure 2: schematic presentation of sampling technique of health centers, 2014

4.8. Variables

4.8.1. Dependent variable

Organizational patient safety practice

4.8.2. Independent variables

Socio-demographic and working characteristics factors like (age, sex, marital status, profession category , educational status, working hours per week ,year of service in the health centers and whether directly affect patient care while on duty)

Organizational patient safety culture like (Teamwork within units, Organizational learning-continuous improvement Supervisor/head of center expectations and actions promoting patient safety, Health center management support for safety, Communication openness, Error feedback and communication, Non-punitive response to error, Teamwork across units and Frequency of event reporting)

Organizational inputs like (physical environment/infrastructure (running water, latrine, placental pit, Availability/ adequacy of resources (supplies, equipments, materials), clinical guideline, , infection prevention practice guideline) and technology(incinerator, autoclave)

4.9. Data collection Instrument and techniques

4.9.1. Data collection instrument

Different data collection tools were used to collect relevant information based on the study objectives. The structured self administered questionnaire, in depth interview guide and observational checklist were used to collect the data.

Data collection techniques

Quantitative data

A structured, pre-tested and self-administrated questionnaire was used for quantitative data collection.

The questionnaire had both closed and open-ended question which ask background information and work related characteristics organizational patient safety practices and its associated factors. The questionnaire is adapted from agency for health care research and quality U.S.A. and other literatures (32,45, 46).

The questionnaire was used to measure the organizational patient safety practice and its associated factors from health professionals perspective in their respective units and health

centers: Including maternal and child health (MCH), laboratory, pharmacy, outpatient department (OPD) . This tool had moderate-to-strong validity and reliability except from the staffing subscale (45).

Whereas, a modified version of this tool has been used in non-hospital settings such as nursing homes, it seems to be appropriate for health centers, so it is being used in this research (48).

Minor changes were made to use this instrument in health centers. For example, the word "hospital" was replaced by "health center" and " manager" with a "head of center" and " department" with " unit" and whereas the investigated health centers act in one shift working hours, so the dimension of Health center Handoffs & Transitions and also four related items was omitted.

Forty one items are scored on five point Likert-type response scales. Five response cells indicate extent of agreement (strongly disagree/disagree, neither, or agree/strongly agree) .

Five response cells require ratings of frequency (never/rarely, sometimes, or most of the time/always) in the dimensions of " frequency of event reporting", " communication openness " and "Feedback and Communication About Error" . The patient safety grade response categories ranged from lowest (failing) through highest (excellent); (Failing = 1, Poor = 2, Acceptable = 3, Very good = 4 and Excellent = 5) (45).

Four data collection facilitators who are diploma holders and two Bsc. holder supervisors were recruited for questionnaire administration and supervision, respectively. Two days orientation were given for data collection facilitators and supervisors, both before and after the pretest, on the objectives of the study, the contents of the questionnaire, issues related to the confidentiality of the responses and the rights of respondents. One week prior to data collection, a pretest was conducted on Fukedi health center that was not included in the main study, to ensure clarity and validity of questions. The result of the pretest was discussed and some correction and changes like: Ambiguous questions, logic and sequences were revised before the questionnaire was finalized. To ensure maximal response, respondents were assured that the information gathered was treated confidentially.

Observation was also conducted in the eight of the selected health centers. Pre tested observational checklist was used for units of the health centers to assess organizational inputs for organizational patient safety practice. Direct observation was done in 8 health centers after

quantitative data collection, from the 12 health centers purposively. During the direct observation, we used observational checklist to assess availability of supplies, equipments, guideline, infrastructures (latrine, running water, working incinerator and autoclave and placental pits), patient safety and infection prevention practice guidelines.

Qualitative

In order to support information collected through structured questionnaire an in depth interview were conducted immediately after the quantitative data collection. Interview guide was prepared for the in-depth interview. Eight (8) in depth interviews were conducted with purposively selected key informants (heads of health centers or supervisors from Woreda health office) 1 person from each health center to assess factors associated with organizational patient safety practice.

Data quality assurance

In order to assure the quality of data the following measures were taken:- A completed questionnaire was checked for their completeness and consistency at every step of data management. A pretest was done on 5 % of the sample in Fukedy health center one week prior to the data collection and amendment was made accordingly for the instrument. The facilitators and Supervisor was trained for two days before and after pretest. Feedback from the supervisor and facilitators were incorporated to enrich the questionnaire and make more applicable to the local situations. . Respondents were reassured of the confidentiality of the data obtained, Using clearly written scale items to make responses less subject to bias and items were positively and negatively worded; and Informing respondents that there is no preferred or correct answer, and that their individual responses would not be viewed by their management and survey completion would not affect their status at their health centers so that they would be encouraged to be honest. To help maintain anonymity and confidentiality, participants were informed to refrain from placing any identifying information on the survey

The questionnaire was administered in the respected units separately by trained diploma holder data collectors that have prior experience of data collection. Unclear and ambiguous matters were clarified for the health care professionals.

4.10. Operational definitions

Communication openness Professionals can talk freely if they see something may adversely affect the patient and feel free to comment with more authority about it in their health center as per the likert scale measurement.

Feed-back and communication about errors Professionals are informed of the errors that occur, the changes that have been implemented and discuss ways to prevent errors in the health center units as per the likert scale measurement.

Frequency of events reported Errors are reported when errors detected and corrected before affecting the patient, errors without potential harm to the patient and errors that could have caused patient harm but did not, in the health center as per the likert scale measurement.

.Head of health center Support for patient safety health center head encourages a work environment that promotes patient safety and highlights patient safety as a priority in the health center as reported the health care professionals.

Non-punitive response to errors Professionals feel that errors and event notification will not be used against them and that errors are not included in their work record in the health center as reported by the health care professionals.

Organizational learning and continuous improvement There is an atmosphere in which errors lead to positive changes and assessment of the effectiveness of the changes in the performance of the health center as per the likert scale measurement.

Supervisor/head of health center expectations and actions to promote patient safety

The supervisors/heads of the health centers take into account the suggestions of the professionals to improve patient safety, encourage them to continue with safe procedures and ,do not overlook patient safety problems as per the likert scale measurement score.

Teamwork across units The health center units cooperate and coordinate their respective activities to provide better patient care in the health center as per the likert scale measurement score.

Teamwork within the unit Professionals support each other, treat each other with respect and work together as a team in their units of the health centers as per the likert scale measurement score.

Health care professionals: health workers who have diploma and beyond working as a health care profession in the health facilities.

Patient safety culture: is indicated the prevention of harm to patients with emphasis on the organization care delivery that prevents errors, learns from the errors that do occur and is built on a culture of safety that involves health care professionals, organizations, and patients.

Organizational patient safety practice: the performance status of the health centers in employing or applying known safety measures for avoiding medical errors to protect patients from health care delivery associated harms as per the likert scale measurement score as reported by the health care professionals.

Unit: is defined as the work areas or clinical areas of the health center where the health professional spends most of her/his work time or provides most of her/his clinical services.

Factor analysis

The likert scale items of the Hospital Survey on Patient Safety Culture (HSOPSC) have 12 dimensions of patient safety culture. All these dimensions except staffing had Cranach's alpha greater than 0.70. Staffing had 0.63. Before data collection pretest and reliability test was done. 11 items that measured the dependent variable had Cranach's alpha 0.810. From the 12 dimensions of patient safety culture 9 dimensions had good Cranach's alpha and 3 dimensions had poor Cranach's alpha, Staffing, Handoffs & Transitions, Overall Perceptions of Safety 0.56, 0.44 and 0.64 respectively. During analysis after reverse worded items are changed to positive worded, the 9 dimensions of patient safety culture and the 11 items that measured the organizational patient safety practice were treated by principal component analysis. Before factor analysis correlation matrix was generated to check whether the variables do not correlate too highly or too slowly with the other variables. Basic assumptions underlying factor analysis were checked. factorability of the data, Pearson' correlation coefficient of 0.3 or greater, no statistical redundancy, the level of significance of the Bartlett's test of sphericity, the value of the Kaiser-Meyer-Olkin measure of sampling adequacy all >0.5 and the participants to variable ratio 5 to 1 and determinant >0.00001 were checked and there was no problem. In all items and components Eigen value greater one and factor loadings greater than 0.4 were taken.

Table 1: Summary of factor scores of factor analysis of the composites and item questionnaire, 2014

Dimensions	No items used to measure	No items extracted	Range of item loadings	Crinbachs' alpha value	Total variance accounted
Organizational patient safety practice	11	1	.57-.93	.81	67.27
Frequency of event reporting	3	1	.77-.83	.80	64.00
Supervisor/manager expectations and actions promoting patient safety	4	1	.54-.79	.73	55.36
Organizational learning— Continuous improvement	3	1	.69-.74	.70	51.20
Teamwork within units	4	1	.60-.80	.77	49.50
Communication openness)	3	1	.69-.91	.72	52.14
Feedback and communication about error	3	1	.66-.81	.72	51.93
Non -punitive response to error)	3	1	.57-.81	.71	54.50
Health center management support for patient	3	1	.52-.88	.73	59.80

safety						
Teamwork across units	4	1	.64-.81	.71		50.20

For these dimensions and items the new created factor score variable was taken and its name was given by the marker the first extracted item in order to be suitable in comparison with other literatures. The dimensionality was assessed to investigate if all dimensions loaded as expected on their respective items.

4.11. Data analysis procedure

For Quantitative data

After the completion of quantitative data collection: editing, coding, entry and cleaning were done by Epidata 3.1 and exported to SPSS version 16 for analysis.

Frequency distributions were used to organize the data and present the responses obtained. The guidelines proposed by AHRQ were first used to analyze and interpret the respondents' perceptions on patient safety practice and culture composites. The guidelines include combining the two highest response categories, strongly agree/agree and most of the time/always for positively worded items and the two lowest response categories strongly disagree/disagree and never/rarely for reverse worded items to represent a positive response. Thereafter, the percent frequency of each item and dimension was calculated. Higher scores indicate more positive attitudes toward patient safety culture. Patient safety strengths are defined by AHRQ as those items that about 75% of the respondents answered as strongly agree/agree or most of the time/always for positively worded items and strongly disagree/disagree or never/rarely for negatively worded items. Areas in need of improvement are identified as those items or dimensions with 50% or less positive response, whereas, areas where the response is considered neutral or moderate are those where the positive response is lower than 75% and higher than 50% (45).

The row mean of the organizational patient safety practice was calculated by computing the 11 item scores and the result was 32 with SD 5.96. The maximum value was 43.36 and minimum value was 17.18. Then the overall organizational patient safety practice was calculated as $(\text{Row mean} - \text{minimum} / \text{maximum} - \text{minimum}) \times 100 \Rightarrow (32 - 17.18 / 43.36 - 17.18) \times 100 = 57.7\%$.

overall organizational patient safety practice mean score = 57.7% which assumes the 5 point likert scale as 1= 0, 2= 25, 3= 50, 4= 75, 5= 100. By transforming this from 5 point to 100 point the overall score was assumed as interval scale.

Factor analysis was used for variable reduction. Items with a factor loading less than 0.40 on all factors were excluded. Eigen values greater than or equal to 1.0 was taken and determined the number of latent variables/ factors. The factors were extracted in order by the amount of variance they explain. Factors (items) having Eigen value greater than one after the scale treated by factor analysis was considered for the correlation tests. In all cases, $P < 0.05$ and 95% confidence interval were used to check statistical associations. Multiple linear regressions were used to control for confounders. The effect of various independent variables on organizational patient safety practice was assessed by two different models using multiple linear regression analysis. In the first model, the effects of socio-demographic and work characteristics variables were assessed while in the second model effects of different patient safety culture composites' items were regressed against the organizational patient safety practice. The observed data were descriptively, presented and triangulated with the other quantitative data.

Finally, the results were displayed using graphs and tables.

Items with low reliability coefficients: over all perception of patient safety ,staffing, Health center handoffs and transitions were excluded from the analysis and the health centers working hours were in one shift. The item of the number of events reported with the past 12 moth was also excluded since there exists no reporting system for events in the in the health centers.

For qualitative data

The tape-recorded qualitative data were translated to English and transcribed. The main points raised from the in-depth interview were categorized under selected themes and coding was done based on the in-depth guide and summarized manually. The final section of the questionnaire invites respondents to write comments about patient safety, error, or event reporting in their health center. We used an integrated approach to coding these comments by starting with a literature-based organizing framework and then identifying themes that emerged from the experiences of the respondents. The results were presented in narratives triangulated with the quantitative results.

4.12. Ethical Considerations

Ethical approval letter was taken from ethical review committee of the Jimma university college of public health and medical sciences before data collection. Permission letters were gotten from Gambella regional health bureau, Woreda health offices and the selected studied health centers and oral consent was obtained from each study participant. No personal identification or name was used and individual's information was not disclosed to other person or party. Participants were given written information explaining the study in relation to its aims, procedures, risks and benefits, and informed consent obtained for all observations were dealing throughout the data collection period. Participants had full right to decline to participate.

4.13. Dissemination plan

The finding of the result will be submitted to Jimma University College of Public Health and Medical Sciences, health services management department, and Presented to Jimma university scientific community. It will be provided to Gambella regional health bureau, respective Woreda health office and the selected studied health centers. Finally the finding will be tried to be published on national and international journals to make it accessible for scholars

Chapter five Results

5.1. Socio-demographic characteristic of the respondent

Of the total 249 survey questionnaires distributed to different units in the 12 randomly selected health centers 231 were returned, of these 4 incomplete questionnaires were excluded. Finally, 227 completed survey questioners were considered for the analysis which gives a response rate of 91%. The mean age of the respondents was 25.38 years ($SD \pm 2.919$). About 142 (62.0%) of the respondents were males. Concerning respondent's profession more than half of them 132(58.1%) were nurses followed by laboratory 51(22.5). When we see respondent's educational status 191(84%) were diploma. Majority of the respondents (78%) are never married followed by married which accounts 20.3%. Respondents also had 1.93 (± 0.425) years of working experiences in their health centers. In addition 59 % of the health professionals had working hours of 40 to 59 per week.

Table 2: socio-demographic characteristics of health professionals working at Gambella region health facilities, April 2014

Variables (n= 227)	Frequency	Percent
sex of the respondents		
Male	142	62.6
Female	85	37.4
educational level		
Diploma	191	84.1
Degree	36	15.9
Profession		
Nurse	132	58.1
health officer	22	9.7
pharmacist/pharmacy technician	22	9.7
lab.technologist/technician	50	22.0
marital status		
never married	177	78
married/living as married	46	20.3

divorced/widowed	4	1.7
work experience (years)		
<1 yrs	28	12.3
1 upto 5 yrs	188	82.8
more than 6 yrs	11	4.9
working hours per week		
less than 20 hours per week	9	4
20 to 39 hours per week	38	16.7
40 to 59 hours per week	134	59.1
60 to 79 hours per week	34	15.4
80 to 100 hours per week or more	11	4.8
Direct contact with patient on duty	167	73.6

Organizational patient safety practice score

The organizational patient safety practice was measured by 11 items, 10 items asks about the health centers patient safety practice and one items over all patient safety grade for health center units. The overall positive percentage of organizational patient safety practice was 49.3% below the cutoff point of AHRQ. The overall organizational patient safety practice mean was 57.7%, $SD \pm 5.96$.

Table 3: Organizational patient safety practice positive percentage score in Gambella region health centers, Gambella, Ethiopia, 2014

items	mean	positive percentage
over all organizational patient safety practice	57.7	49.30%
Patient complaints are registered in the practice of health center.	3.26	56.50%
There is an actual list of medications used present in the practice for every patient.	3.33	60.50%
The practice analyses patient complaints and takes adequate actions.	3.31	60%
We normally have the equipment/supplies we need to give safe care.	2.85	30.10%
The practice uses only sterile equipment with small surgical procedures.	3.49	65.70%
Sterile surgical gloves are used when recommended in prevailing guidelines.	3.36	62.60%
Reminders and alerts regarding safety issues are integrated in the patient record system in the practice.	3.11	50.30%
The practice performs a periodic review of medication with pharmacists/pharmacy technician in patients who use risk full (combinations of) medication.	3.26	53.40%
Staff in this practice often disregards rules procedures or guidelines.	2.98	39.30%
The practice premises are not really suitable for the safety of patients.	2.81	29.60%
Please give your work area/unit in this health center an overall grade on patient safety.	2.97	34.30%

The following table shows the positive percentage score in the 9 composite of patient safety cultures and their respective item scores.

Table 4: The positive percentage scores of patient safety cultures in selected health centers of Gambella regional state, 2014

S no.	Component/ Items	Mean	Positive % score
1	Teamwork Within Health center unit	3.56	69.6%
	People support one another in this unit.	3.56	67%
	When a lot of work needs to be done quickly, we work together as a team to get the work done.	3.66	71.8%
	In this unit, people treat each other with respect.		72.7
	When one area in this unit gets really busy, others help out.		67%
2	Organizational Learning—Continuous improvement	3.29	51.6%
	We are actively doing things to improve patient safety	3.56	71.8%
	Mistakes have led to positive changes here	2.79	26.4%

	After we make changes to improve patient safety, we evaluate their effectiveness	3.50	57.8%
3	Non-punitive Response To Error	2.24	36.6%
	Staff feel like their mistakes are held against them.	3.17	40.5%
	When an event is reported, it feels like the person is being written up, not the problem	3.01	37.9%
	Staff worry that mistakes they make are kept in their personnel file	2.81	31.3%
4	Supervisor/manager expectations & actions promoting safety	3.40	56.65%
	My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.	3.63	70.1%
	My supervisor/manager seriously considers staff suggestions for improving patient safety.	3.24	53.3%
	Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	3.28	44.9%
	My supervisor/manager overlooks patient safety problems that happen over and over	3.43	58.6%
5	Communication Openness	3.38	52.7%
	Staff will freely speak up if they see something that may negatively affect patient care	3.19	43.7%
	Staff feel free to question the decisions or actions of those with more authority	3.34	49.8%,
	Staff are afraid to ask questions when something does not seem right	3.60	64.6%
6	Frequency of Event Reporting	2.49	22.1%
	When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	2.80	22%
	When a mistake is made, but has no potential to harm the patient, how often is this reported?	2.12	16.3%,
	When a mistake is made that could harm the patient, but does not, how often is this reported?	2.55	28%
7	Health center Management Support for Patient Safety	3.44	60.43%,
	Health center head provides a work climate that promotes patient safety.	3.60	66.5%,
	The actions of health center head show that patient safety is a top priority.	3.25	53.7%,
	Health center management seems interested in patient safety only after	3.45	61.2%

	an adverse event happens.		
8	Teamwork Across Health center Units	3.54	63.2%
	There is good cooperation among health center units that need to work together.	3.48	58.1%,
	Health center units work well together to provide the best care for patients.	3.55	63%
	Health center units do not coordinate well with each other.	3.52	. 66.1%
	It is often unpleasant to work with staff from other health center units.	3.60	65.7%
9	Feedback and Communication About Error.	2.80	33%.

In this study the outcome variable and all of the composites were below the AHRQ cutoff point that is 75%. According to respondents, the areas with the most potential for improvement were frequent of event reporting 22.1%, Feedback and Communication about Error 33%, and non-punitive response to error (36.6%)

For the last section of the questionnaire 11% of the respondents respond the open-ended question and this was coded in to four theme and tallied. these were one “medical errors problem” second “absence of event reporting” third about “lack or absence of equipment for patient safety” and fourth about specific ‘ patient safety problems’.

Organizational inputs for patient safety practice

In all the 8 observed health centers there was incomplete medical record, and there were no running waters in all units.

In 6 of the 8 observed health centers, there was no autoclave for sterilization of equipments and materials and functional incinerators.

In 4 of the 8 health centers, There were no guide lines for clinical practice, infection prevention practice and hand hygiene (local, national or WHO), There was also no placental pit for disposal of human tissue.

In-depth interview data supported the above points.

'... to prevent the health care associated infection it is essential that everyone providing care in this health center with hand decontamination, the appropriate use of gloves and protective barriers, and the safe disposal of sharps. But adequate supplies of soap, alcohol rub, towels and sharps bins must be made available wherever care is delivered. And this was not happening; after all there was no enough equipments and supplies to do so. in this health center there is no appropriate waste disposal system. Wastes from the health center services were disposed without segregation in open field including human tissue like placenta, since there was no placenta pit and other reasons. When we come to infrastructure of the health center, there was no running water for hand washing and the toilets were unclean there is nonfunctional incinerator in the compound of the health center. so there were no suitable atmosphere for infection prevention practice due to shortage of equipments and supplies, lack of basic infrastructure, lack of supervision from regional health bureau and Woreda health office, absence of functional infection prevention committee and health care professional negligence and commitment problems'. (A 30 years old EHO expert from one Woreda health office)

'..... there was shortage supplies and Personal protective equipment (PPE) (for example, gloves, masks, protective eyewear, and gowns) in this health center to wear by an employee for protection against an infectious hazard. There was no running water for hand washing and there is shortage of alcohols for antiseptic hand rub and antiseptic hand wash. The latrines of this health center was too old, gave services for so long time. Due to this several patients who were ordered to give stool and urine samples for laboratory test were return home without lab examination. When we come to the medical waste disposal, segregation of sharps was performed by all health professionals but the problem is in the disposal of the medical waste. We did not use incinerator to burn the medical wastes, we used the burial method. There is no incinerator.....' (A 28 years old male nurse)

Factors Associated with Patient safety practice

Bivariate analyses were used to examine the associations between patient safety culture composites, socio-demographic variables. Pearson correlations were used to examine the association between the patient safety culture composites, socio-demographic and the organizational patient safety practice. All items were satisfactory when it came to the missing

and skewness criteria, indicating no need to remove any items based on these criteria. Skewness was highest for the variable “Frequency of event reporting”.

Socio-demographic predictors of organizational patient safety practice

Multiple regression analysis was performed to identify factors affecting organizational patient safety practice. Multicollinearity, residuals, and outlying values were examined in order to test regression analysis hypotheses regarding variable independence. No explanatory variable with a correlation coefficient higher than .80 was found. Predictors were confirmed to be independent from one another. In addition, tolerance was > 0.5 and the variance inflation factor was < 2 . Thus, there was no problem with multicollinearity. The results of testing hypotheses on residuals satisfied the hypotheses of linearity, residual normality; accordingly, assumptions of the multivariate regression equation were satisfied. Thus, results of the regression analysis results were considered reliable. The socio-demographic variables and working characteristics regressed against the outcome variable organizational patient safety practice. All the socio-demographic and work characteristics variables were non-significant except whether the health professionals had direct contact with patient while on duty.

Table 5: Scio-demographic predictors of organizational patient safety practice in Gambella health centers, 2014

Variable	No.	Un standardized coefficient B	Standardized coefficient Beta	P value	95% CI for B
Constant		-0.547		0.491	-2.110-1.016
Mean age with SD	25.38 years (SD ± 2.919)	0.028	0.081	0.290	-0.351-0.179
Sex	Male Female	142 (62.6%) 85 (37.4%)	0.046	0.749	-0.293-0.073
Education level	Diploma Degree	194(84.1%) 36(15.9%)	-0.170	0.390	-0.562-0.187
Profession	Nurse health officer pharmacist/pharmacy technician Lab.techonlogist/technician	133(58.6%) 22(9.7%) 22(9.7%) 50(22%)	-0.110	0.238	-0.293-0.073
Marital status	Married never married Other	46(20.3) 177(78%) 4(1.7%)	-0.086	0.525	-0.351-0.179
Work experience in years	<1 yrs 1 up to 5 yrs more than 6 yrs	28(12.3%) 188(82.8%) 11(4.9%)	0.030	0.855	-0.291-0.351
Working hour per week	less than 20 hours per week 20 to 39 hours per week 40 to 59 hours per week 60 to 79 hours per week 80 to 99 hours per week 100 hours per week or more	12(5.3%) 30(13.2%) 114(50.2%) 42(18.5%) 22(9.7%) 7(3.1%)	-0.123	0.0149	-0.292-0.045
Patient contact	Direct contact Indirect contact	155(68%) 72(32%)	0.581	0.027	0.067-1.096

$R=0.213$, $R\ square\ 0.045$, $adjusted\ R\ square=0.010$,

the socio-demographic and work characteristic variables had 4.5% of explanatory power of the organizational patient safety practice.

Safety Culture Dimension Predictors of organizational patient safety practice

Factor score variables which accumulatively account the highest variability from each 9 dimension of patient safety culture were used. These factor score were “when a mistake is made, but has no potential to harm the patient, how often is reported”?, “We are actively doing things to improve patient safety”, “in this unit ,people treat each other with respect” ,” in this unit we discuss ways to prevent error from happening” , “staff feel like their mistakes are held against them”, the head of health center provides work climate that promote patient safety , “health center units work well to provide the best care for patient safety” ,” my supervisor/manager seriously considers staff suggestions for improving patient safety” ,” staff freely speak up if they see something that may negatively affect patient care”. These factor score variables had an explanatory power of about 62.7 % ($p < .005$) of the variance in the organizational patient safety practice percentage score among the respondents.

Organizational Patient Safety practice results showed that a one unit increase in the factor score for supervisor/manager expectations and actions to promote patient safety increased by 0.097 (95%CI = 0.002-0.192). Similarly, organizational patient safety practice increased by 0.210 (95% CI = 0.095-0.325) for a one unit increase in the factor score for communication openness. Moreover, a one unit increase in the factor score on teamwork across health center units increased the organizational patient safety practice by 0.101 (95% CI = 0.010-0.192). Increase in one unit for the factor score for head of health center support for patient safety increased the organization patient safety practice by 0.228 (95% CI = 0.126-0.330; P-Value < 0.001)

An increase of 0.376 (CI, 0.281-0.471) in the organizational patient safety practice was observed for a one unit increase in the factor score on non-punitive response to errors. On the other hand, a reduced of 0.160 (CI = -0.255-(-0.065)) in the organizational patient safety practice was observed for a one unit increase in the factor score on frequency of event reporting. Organizational patient safety practice predictors result was presented below in the (Table 7)

Table 6: Shows the patient safety culture predictors of organizational patient safety practice in Gambella region health centers, 2014

Factor score of patient safety culture items extracted	Unstandardized Coefficients B	Standardized Coefficients Beta	p-value	95% Confidence Interval for B
Constant	-1.098E-16		1.000	-0.082 - 0.082
Factor score when a mistake is made, but has no potential to harm the patient, how often is this reported	-.16	-.16	.001	-0.255 - 0.065
Factor score we are actively doing things to improve patient safety.	.034	.034	.486	-.131-.062
Factor score in this unit ,people treat each other with respect	.024	.024	.607	-.118- .069
Factor score in this unit we discuss ways to prevent error from happening	.003	.003	.947	-.102-.096
Factor score staff feel like their mistakes are held against them	.376	.376	.000	.281-.471
Factor score the head of center provides work climate that promote patient safety	.228	.228	.000	.126-.330
Factor score health center units work well to provide the best care for patient safety	.101	.101	.030	.010-.192
Factor score my supervisor/manager seriously considers staff suggestions for improving	.097	.097	.045	.002-.192
Factor score staff freely speak up if they see something that may negatively affect	.210	.210	.000	.095-.325

R=.792 *R square*=.627 *adjusted R*=.611

Chapter six: Discussion

In this study, organizational patient safety practice as pointed out by the health care professionals is poor practice that needs improvement. The organizational patient safety practice positive percentage score as rated by the healthcare professionals is 49.3% which is relatively indicated poor patient safety practice. A report from Iranian health centers shows Approximately 67 % of staffs value the patient safety grade in employing center as “good” or “excellent” (26). Other study done in Primary Health Care Settings in Kuwait indicates that 53.4% of the surveyed staff rated patient safety grade in their work unit as very good and 32% as excellent (27). The lower percentage of patient safety practice in this study might be due to social, cultural and economic differences.

Health professionals (nurses and health officers) who had direct contact with patients gave higher rate on the organizational patient safety practice than the health professionals who had not direct contact with patients ($p= 0.027$, $CI= 0.07-1.09$).

In this study the composites with the highest percent of positive responses were teamwork within units (69.6%), teamwork Across Health center Units (63.2%), Health center Management Support for Patient Safety 60.43%, supervisor/manager expectations and actions promoting patient safety (56.7%), Communication Openness 52.7%, organizational learning-continuous improvement (50.6%). the study in Iranian primary healthcare indicated that the highest percentage of positive responses were in “teamwork cross unit” (77%), “management support for patient safety” (75%), “teamwork within unit” (74%), “continuous organizational learning” (72%) these are all greater than this study result. And the lowest in “non punitive response to error” (17%) which is lower than this research result, which is punitive response to error (36.6%) (26).

According to respondents, the lowest positive percent score were frequent of event reporting (22.1%) , Feedback and Communication About Error (33%), and non-punitive response to error (36.6%). Areas in need of improvement are identified as those items or dimensions with 50% or less positive response.

Assessment of Patient Safety Culture in Primary Health Care Settings in Kuwait indicate dimensions have less than 50% positivity, these dimensions are: Non- punitive response to error (24%) and communication openness (45%) both these dimensions are lower than this research result (27).

Patient safety culture predictors of organizational patient safety practice

In this study the patient safety culture related factors, supervisor/manager expectations and actions to promote patient safety, communication openness, head of health center support for patient safety , non-punitive response to errors , frequency of event reporting and team work across health centers were predictors of organizational patient safety practice. The respondents, who gave relatively high rate for organizational patient safety practice, also gave high rate for supervisor/manager expectations and actions to promote patient safety, communication openness, head of health center support for patient safety, non-punitive response to errors and team work across health centers than these who gave low rate. on the other hand, respondents who gave relatively high rate for organizational patient safety practice, gave low rate for frequency of event reporting. This may be due to skewness nature of the frequency of event reporting or the health professionals who gave relatively high score on organizational patient safety practice on their health center may be over confident about the medical errors that might happen in their health centers. Results of this study indicate that health professionals were not reporting when a mistake was made but was caught or corrected, or when the mistake did not harm the patient. and there was no reporting system in the health centers. Health professionals did not feel the need to report when an outcome was not happening. *Non-Punitive Response and frequency of event reporting composites* indicated in this finding as there no reporting system in Gambella health centers and the not reporting errors may be due to fear of punishment and blame. Other studies show in the culture which staff found guilty and punished for their mistakes, they try to hide the errors instead of reporting them (26).

Therefore results of this study indicate that health centers need to implement plan that support and encourage health professionals to report errors or any near misses for purposes of learning about how errors occur, and for improving the quality of care and patient safety . Similarly, other study indicated two important concepts affect the safety culture: error reporting and disclosure of errors. The means by which errors are identified, reported, and communicated to those involved

or affected have much to do with how well safety is treated in the healthcare organization's culture (34).

Limitations of the study

Social desirability bias and Central tendency bias may introduce in the self administered questionnaire data collection technique.

Chapter seven: Conclusion

The organizational patient safety practice score is low relatively to other studies. There are gaps in the health centers that required attention for improvements in safety through the actions of organizations, and professional groups; and create safety systems inside health care organizations through the implementation of safe practices at the health care delivery level. The findings indicate that governmental health centers need an improvement in, frequency of event reporting, non-punitive response to error and feedback and communication about error.

The statistically significant predictors for organizational patient safety practice in health centers were communication openness, non-punitive response to error, frequency of event reporting, health center management support for patient safety, Supervisor/manager expectations & actions promoting safety and Teamwork Across health center. The finding implies the patient safety cultures are the most important factors in patient safety practice in the health centers.

The observational and in-depth interview study indicated that there were insufficient supplies, equipments, materials and infrastructures in the health centers.

Chapter eight: Recommendations

For Gambella regional health bureau

Gambella region health bureau should facilitate implementation of patient safety practice standards within the health centers.

The Gambella health centers should adapt infection prevention and patient safety guideline and solve the problem regarding to the shortages of PPE by allocating and distributing these to the health centers.

Gambella regional health bureau should give training the health centers' health professionals on infection prevention practice.

Training should be given in strategies and plans necessary to build a culture of safety for leadership, supervision and support to the health centers and the health professionals.

The infection prevention committees should be established in all health centers.

The running water, clean latrines, incinerators and autoclaves should make available in all the health center.

The health centers should reduce the fear of blame culture and create a climate of open communication and continuous learning through voluntary reporting of events.

Documentation and reporting system should establish to protect patients from medical errors and its adverse consequences and to learn from events reported.

Reporting practices should provide for describing error in terms of a system and provide the foundation for an informed, safe culture.

Supervisor/ head of health center should communicate to health professionals that patient safety is a high priority.

Health professionals should report to the Woreda health office and regional health bureau on the occurrence of known medical and health care errors

All heads of the health centers and staff must supervise properly placed and timely disposal of wastes.

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ANNEXES

Questionnaire

Jimma university college of public health and medical sciences, department of health services management

Questionnaire to assess organizational patient safety practice and its associated factors Gambella region health centers, self administered questionnaire to be filled by health care professionals 2014

Introduction

Researchers' name: Teweldebrhan D. , Shimeles O.,(MPH, ASS. Professor), Aynenigda A.(BSc, MPH)

verbal informed consent for patient safety related questionnaire in Gambella region health centers.

Dear Sir/ madam;

My name (the researcher) is _____ and I am Master's Degree student in jimma university. As part of our academic requirements, we are expected to conduct assessment of patient safety practice in Gambella region health centers. The purpose of this survey is to assess the organizational patient safety practice and its associated factors in the health centers through this to identify patient safety related health problems.

The information that we will be obtained from you is very useful for the health facility and the surrounding community including you. I assure you that the information that you gave us will be kept confidentially. There is no any harm to you by giving this information except the time you will spend for the response of the question. This will take about 20 minutes and you have full right to participate or to refuse or to withdraw in the meantime.

Are you willing to participate to fill this questionnaire?

Yes _____ **signature (continue)** _____

no _____ **(stop).**

Thank you for your cooperation

Health facility Survey on Patient Safety

Instructions

This survey asks for your opinions about patient safety issues, medical error, and event reporting in your health facilities and will take about 10 to 15 minutes to complete. If you do not wish to answer a question, or if a question does not apply to you, you may leave your answer blank.

SECTION A: You're Work Area/Unit

In this survey, think of your "unit" as the work area, or clinical area of the health center units where you spend *most* of your work time or provide *most* of your clinical services.

What is your primary work area or unit in this health centers? Write down-----

back ground information

Question	Coding categories
1.what is your age?	_____ Years
2.what is your sex?	1. male 2. female
3. what is your level of education?	1. diploma 2. degree 3. other _____
4. what is your work profession?	1. Nurse 2. HO 3. Pharmacy technician/technology 4. lab. technician/technology

5. what is your marital status?	1. Never Married 2. Married/Living as married 3. Divorced 4. Separated 5. Widowed	
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Please read the following statements and show your extent of agreement or disagreement by rate the following: (circle one number on each line)

Think about your health center work area/unit...	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
SECTION B: Teamwork within the unit					
1. People support one another in this unit	1	2	3	4	5
2. When a lot of work needs to be done quickly, we work together as a team to get the work done	1	2	3	4	5
3. In this unit, people treat each other with respect.	1	2	3	4	5
4. When one area in this unit gets really busy, others help out	1	2	3	4	5
SECTION C: Organizational Learning—Continuous improvement					
5. We are actively doing things to improve patient safety	1	2	3	4	5
6. Mistakes have led to positive changes here	1	2	3	4	5
7. After we make changes to improve patient safety, we evaluate their	1	2	3	4	5

effectiveness					
SECTION D: Non punitive Response To Error					
8. When an event is reported, it feels like the person is being written up, not the problem	1	2	3	4	5
9. Staff worry that mistakes they make are kept in their personnel file	1	2	3	4	5
10. Staff feel like their mistakes are held against them	1	2	3	4	5
SECTION E: Your Supervisor/Manager					
11. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	1	2	3	4	5
12. My supervisor/manager seriously considers staff suggestions for improving patient safety	1	2	3	4	5
13. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	1	2	3	4	5
14. My supervisor/manager overlooks patient safety problems that happen over and over.....	1	2	3	4	5
SECTION F: Communication Openness and Feedback and Communication about error					
How often do the following things happen in your work area/unit?					
Think about your health center work area/unit...	Never	Rarely	Some- times	Most of the time	Always

1. We are given feedback about changes put into place based on event reports	1	2	3	4	5
2. Staff will freely speak up if they see something that may negatively affect patient care	1	2	3	4	5
3. We are informed about errors that happen in this unit	1	2	3	4	5
4. Staff feel free to question the decisions or actions of those with more authority	1	2	3	4	5
5. In this unit, we discuss ways to prevent errors from happening again	1	2	3	4	5
6. Staffs are afraid to ask questions when something does not seem right	1	2	3	4	5
SECTION G: Frequency of Events Reported					
In your health center work area/unit, when the following mistakes happen, how often are they reported?					
1. When a mistake is made, but is <i>caught and corrected before affecting the patient</i> , how often is this reported?	1	2	3	4	5
2. When a mistake is made, but has <i>no potential to harm the patient</i> , how often is this reported?	1	2	3	4	5
3. When a mistake is made that <i>could harm the patient</i> , but does not, how often is this reported?	1	2	3	4	5
Please indicate your agreement or disagreement with the following statements about your health center.					
SECTION H: Team work across the units					
1. Health center units do not coordinate well with each other	1	2	3	4	5
2. There is good cooperation among health center units that need to work together	1	2	3	4	5
3. It is often unpleasant to work with staff from other health center units	1	2	3	4	5
4. Health center units work well together to provide the best care for patients	1	2	3	4	5
SECTION I: Health center management support for					

patient safety					
5. Head of the health center provides a work climate that promotes patient safety	1	2	3	4	5
6. The actions of the head of health center show that patient safety is a top priority	1	2	3	4	5
7. Health centers' management seems interested in patient safety only after an adverse event happens	1	2	3	4	5
Please indicate your agreement or disagreement with the following statements about your health center and working area or units					
SECTION J : Organizational patient safety practice related questions about your health center and units					
1. patient complaints are registered in the practice of health centers	1	2	3	4	5
2. There is an actual list of medication used present in the practice for every patient	1	2	3	4	5
3. The practice analyses patient complaints and takes adequate actions.	1	2	3	4	5
4. We normally have the equipment/supplies we need to give safe care	1	2	3	4	5
5. The practice uses only sterile equipment with small surgical procedures.	1	2	3	4	5
6. Sterile surgical gloves are used when recommended in prevailing guidelines.	1	2	3	4	5
7. Reminders and alerts regarding safety issues are integrated in the patient record system in the practice.	1	2	3	4	5

8. The practice performs a periodic review of medication with pharmacists/pharmacy technicians in patients who use risk full (combinations of) medication.	1	2	3	4	5
9. Staff in this practice often disregard rules, procedures or guidelines	1	2	3	4	5
10. The practice premises are not really suitable for the safety of patients	1	2	3	4	5
11. Please give your work area/unit in this health center an overall grade on patient Safety .	1, failed	2, poor	3, acceptable	4, good	5, excellent

SECTION K: Number of Events Reported

In the past 12 months, how many event reports have you filled out and submitted?

- a. No event reports b. 1 to 2 event reports c. 3 to 5 event reports d. 6 to 10 event reports
- e. 11 to 20 event reports f. 21 event reports or more

SECTION L: Background Information

This information will help in the analysis of the survey results.

1. How long have you worked in this health center?

- a. Less than 1 years b. 1 to 5 years c. 6 to 10 years
- d. 11 to 15 years or more

2. Typically, how many hours per week do you work in this health centers?

- a. Less than 20 hours per week b. 20 to 39 hours per week c. 40 to 59 hours per week
- d. 60 to 79 hours per week e. 80 to 99 hours per week or more

3. In your clinical practice, do you typically have direct interaction or contact with patients?

a. YES, I typically have direct interaction or contact with patients. b. NO, I typically do NOT have direct interaction or contact with patients.

SECTION M: Your Comments

Please feel free to write any comments about patient safety, error, or event reporting in your health centers _____

THANK YOU FOR YOUR COOPERATION!!

Observational checklist

Observational checklist for selected health centers in Gambella regional state
to assess organizational inputs for patient safety practice in selected Gambella health centers,
2014

S.N	Availability of organizational input for patient safety	yes	no	Partially available
Oooo	name of the health center _____			
O001	The health facility has a complete medical records system.			
O002	the health facility has clinical practice guidelines in all units			
O004	The health facility has guidelines for infection prevention and control including WHO guidelines.			
O005	the health facility has essential functioning infection prevention and control equipment and supplies {e.g ,safety box, alcohol }			
O006	The health facility has guidelines for hand hygiene, including WHO guidelines.			
O007	The health facility displays warning signs marking unsafe areas.			
O008	Does the health facility use any color coding for the waste system?			
O009	Availability of essential functioning personal protective equipment.			
O010	the health facility has adequate safety boxes			
O011	Availability of running water.			
O012	Disposal pits for disposal of placenta and other tissues.			
O013	Availability personal protective equipment: gowns ,gloves, masks, goggles, face/ eye shield.			
O014	autoclaves available and working			
O015	Incinerators/pits/landfills: available, working.			
O016	the health facility has adequate latrine{ clean, running water and superstructure }			

GUIDE FOR IN-DEPTH INTERVIEW

In-depth interview

Dear respondent

My name is _____ I am working for research undertaking by Jimma University on organizational patient safety practice and its associated factors among Gambella Region health centers.

Today, I would like to ask you few questions about infection prevention practice and its associated factors. Like health care waste management, health care professionals' hand decontamination practice and personal protective equipment utilization status. I would like to tape record our discussion with you this will ensure that we correctly represent your views. May I have your permission to do this? What you say here today is confidential and will be used only for research purpose and help us to incorporate with our findings.

- 1 Do you think your health center' infection prevention practice safe?
- 2 How do you see the safety of your health centers' patient from health care associated infection?
- 3 What problems do staffs and patients face related to infection prevention practice?
- 4 Do you think health care associated infection is top problem or top priority in this health center
- 5 Why do you think the reason behind health care associated infections in your health centers?
- 6 What are the predisposing factors for the health care associated infections in your health centers
- 7 Is there health care associated infection in your health center/s?
- 8 How do you see infection prevention equipment and infection prevention practice specifically for health centers?
- 9 Is there adequate personal protective equipment in your health center/s?
- 10 Is there patient safety practice including infection prevention practice related services in the health center/s?
- 11 IS there patient safety/infection prevention committee in your health center/s?
- 12 What do you recommend in general?