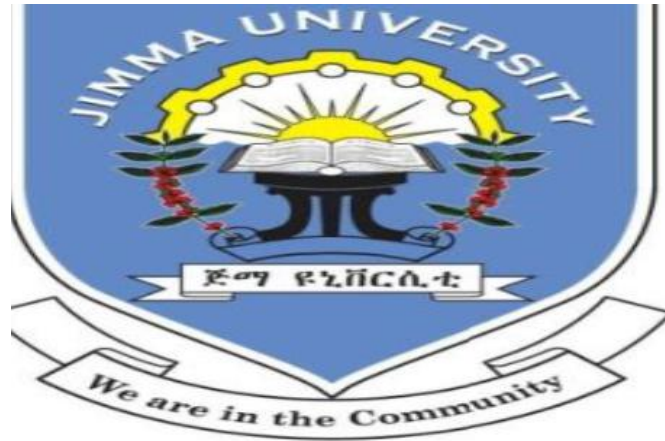


PATIENT SAFETY CULTURE AND ASSOCIATED FACTORS IN ADARE
GENERAL HOSPITAL AT HAWASSA, SOUTHERN NATIONS,
NATIONALITIES, AND PEOPLES REGION, ETHIOPIA



By: Demelash Dejene (B.Pharm)

A Research Submitted to Jimma University, Institute of Health Sciences, Department of Health Economics, Management, and Policy for Partial Fulfillment for the Requirement for Master of Healthcare and Hospital Administration (MHA).

September, 2018

Jimma, Ethiopia

PATIENT SAFETY CULTURE AND ASSOCIATED FACTORS IN ADARE
GENERAL HOSPITAL AT HAWASSA, SNNPR, ETHIOPIA

By: Demelash Dejene (B.Pharm)

Advisors:

Elias Ali Yesuf (MD, MPH)

Ayinengida Adamu (BSc, MPH)

September, 2018

Jimma, Ethiopia

JIMMA UNIVERSITY

INSTITUTE OF HEALTH SCIENCES

PATIENT SAFETY CULTURE AND ASSOCIATED FACTORS IN ADARE
GENERAL HOSPITAL AT HAWASSA, SNNPR, ETHIOPIA

BY:

DEMELASH DEJENE (B.PHARM)

DEPARTMENT OF HEALTH ECONOMICS, MANAGEMENT AND POLICY;
HEALTHCARE AND HOSPITAL ADMINISTRATION (MHA) PROGRAM.

Thesis approved by the Advisors:

Name	Signature	Date
Elias Ali Yesuf (MD, MPH) (Advisor)	_____	_____
Ayinengida Adamu (BSc, MPH) (Advisor)	_____	_____

Abstract

Background:

Patient safety and quality are at the heart of the delivery of healthcare; though evidences are limited in developing countries such as Ethiopia, the attention is given to patient safety in our country; this paper details the findings of a baseline assessment of the patient safety culture in Adare General Hospital in Hawassa, SNNPR, Ethiopia and compares results with international studies that utilized the Hospital Survey on Patient Safety Culture.

Objectives: to assess the level of patient safety culture and associated factors in Adare general hospital at Hawassa, SNNPR, Ethiopia.

Methods: This study applied cross sectional study design. Moreover a qualitative in-depth interview and focused group discussions were added. Quantitative data was collected through self-administered data collection technique. Ten one-to-one in depth interview using a semi-structured guide and three focused group discussions were performed to collect qualitative data. For quantitative data Hospital Survey on Patient Safety Culture was used to collect the data on patient safety practice. The tool included 42 items that measure 12 dimensions or composites of patient safety culture.

The percentage of positive responses for each item and composite was calculated. Multivariate linear regression analysis was conducted to derive potential variables to be included in the regression analyses. All tests were conducted at a significance level of 0.05.

Results: 310 questionnaires were distributed and 263 were returned from which 9 questionnaires were incomplete and discarded (response rate of 81.9%). The finding of this study showed that the overall level of patient safety culture was found to be low 46.33%. Teamwork within units with positive response rate of 77% was found to be areas of strength. Dimensions scoring the lowest and as such can be considered areas requiring improvement were: supervisor/manager expectations and actions promoting safety (45%), overall perception of safety (42.1%), communication openness (38.8%), frequency of events reported (38.8%), hospital handoffs and transitions (34.9%), staffing (29%) and non-punitive response to error (17.6%).

Conclusions: Overall patient safety practice was found to be low. The hospital should give special attention to areas scoring the lowest positive responses.

Keywords: patient safety culture, Adare Hospital, Hawassa, Ethiopia

Acknowledgements

First, I would like to thank almighty God who has helped me thus far. I would like to extend my deepest gratitude to my advisors Elias Ali Yesuf (MD, MPH) and Ayinengida Adamu (BSc, MPH) for their unreserved support for this study. I would like to extend thanks to all study subjects who took their time to respond to the questions. I would also like to extend my appreciation to Jimma University for financial arrangement. I would also like to extend my gratitude for Jimma University Institute of Medical Science and Health Sciences, MHA program coordinators for their helpful suggestions; and Library department for the internet and documentation access. My great gratitude also goes to Adare General Hospital for accessing me records about the study area. Finally, I wish to extend my thanks to all who has assisted me in giving constructive advice during my work.

Table of Contents

Abstract.....	IV
Acknowledgements.....	V
Lists of Figures and Tables.....	VIII
Lists of Tables.....	IX
Lists of Acronyms:.....	X
Chapter One: Introduction.....	1
1.1 Background.....	1
1.2 Statement of the Problem.....	2
1.3 Significance of the Study.....	3
Chapter Two: Literature Review.....	5
2.1 Patient Safety Culture.....	5
2.2 Factors Associated with Patient Safety Culture.....	7
2.3 The Conceptual Framework.....	7
Chapter Three: Objectives.....	11
Chapter Four: Methods and Materials.....	12
4.1 Study area.....	12
4.2 Data collection period.....	12
4.3 Study Design.....	12
4.4 Population.....	12
4.4.1 Source Population.....	12
4.4.2 Study Population.....	12
4.4.3 Inclusion and exclusion criteria.....	12
4.5 Sample size calculation.....	13
4.6 Sampling technique.....	13
4.7 Data collection procedures.....	13
4.8 Data tools.....	13

4.9 Study Variables.....	14
4.9.1 Dependent Variable.....	14
4.9.2 Independent Variables.....	14
4.10 Operational Definition (1,30-32).....	14
4.11 Data management and analysis.....	16
4.12 Data Quality Control.....	16
4.13 Ethical Consideration.....	17
4.14 Dissemination Plan.....	17
Chapter Five: Results.....	18
5.1 Socio-Demographic Characteristics of Respondents.....	18
5.2 Patient safety grade and Number of events reporting.....	20
5.3 Patient Safety Culture Dimensions.....	20
5.6 Linear regression for the patient safety composite scores.....	22
Chapter Six: Discussion.....	27
Chapter Seven: Conclusion and Recommendation.....	30
7.1 Conclusion.....	30
7.2 Recommendation.....	31
Annex-I: Questionnaires for Quantitative Data.....	35
Annex-II Questionnaires for Qualitative Data.....	47
Annex-III In-depth Interview and Focused Group Discussion.....	48
Annex -IV: Written Consent.....	58

Lists of Figures and Tables

Figure 1: Conceptual framework of the study -----7

Lists of Tables

Table 1: Socio-demographic characteristics of patient safety culture participants -----	28
Table 2: An overall grade on patient safety and Number of event reporting -----	30
Table 3: Patient safety culture composite level results -----	31
Table4: Linear regression model for outcome variables of patient safety culture -----	35

Lists of Acronyms:

AHRQ	-----	Agency for Healthcare Research and Quality
AGH	-----	Adare General Hospital
Bpharm	-----	Bachelor of pharmacy
BSc	-----	Bachelor of Sciences
CCO	-----	Chief Clinical Officer
CEO	-----	Chief Executive Officer
ETB	-----	Ethiopian Birr
FGD	-----	Focused Group Discussion
HSOPSC	-----	Hospital Survey on Patient Safety Culture
LOS	-----	Length of Stay
MD	-----	Medical Doctor
MHA	-----	Master in Healthcare and Hospital Administration
MPH	-----	Master in Public Health
OPD	-----	Out Patient Department
PSC	-----	Patient Safety Culture
PSI	-----	Patient Safety Indicators
SNNPR	-----	Southern Nations Nationalities and Peoples Region
SPSS	-----	Statistical Package for Social Science
WHO	-----	World Health Organization

Chapter One: Introduction

1.1 Background

Patient safety has been defined as freedom from accidental injury during medical care or from medical errors. According to WHO (2014), "*Patient safety is the absence of preventable harm to a patient during the process of health care.* It also means "Freedom from accidental injury," or "avoiding injuries or harm to patients from care that is intended to help them." Patient safety has become a critical topic in medicine (1).

Patient Safety Culture is defined as "the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of an organization's health and safety management "(2).

Unsafe working practices pose a risk for injury of patient, staffs and community (3). On the other hand, patient safety practice is an important aspect for quality healthcare delivery and is an issue of high concern globally (6). Ensuring patient safety "involves the establishment of operational systems and processes that minimize the likelihood of errors and maximizes the likelihood of intercepting them when they occur. In developing countries like Ethiopian health system, little is known and information is limited in scope about patient safety practices. Even though data on the epidemiology of harm in developing countries are sparse, it is believed that urgent, cost effective and locally adapted solutions should be applied (6, 7).

There is now overwhelming evidence that significant numbers of patients are harmed from their health care either resulting in permanent injury, increase length of stay (LOS) in hospitals and even death. When so many people and different types of health-care providers (doctors, nurses, pharmacists, social workers, dieticians and others) are involved this makes it very difficult to ensure safe care, unless the system of care is designed to facilitate timely and complete information and understanding by all the health professionals.

Prescribing antibiotics without regard for the patient's underlying condition and whether antibiotics will help the patient, or administering multiple drugs without attention to the potential for adverse drug reactions, all have the potential for harm and patient injury. Patients are not only harmed by the misuse of technology, they can also be harmed by poor communication between different health-care providers or delays in receiving treatment (8).

Professional and organizational cultures in health care must undergo a transformation in the interests of promoting safer patient care. Health care must come to see itself as a high hazard industry which is inherently risky. Organizations with a favorable safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measures.(9) Therefore, healthcare systems must move away from the current “blame and shame” culture that prevents acknowledgement of error and therefore obstructs any possibility of learning from error (10).

A variety of stakeholders (society in general; patients; individual nurses; nursing educators, administrators, and researchers; physicians; governments and legislative bodies; professional associations; and accrediting agencies) are responsible for ensuring that patient care is safely delivered and that no harm occurs to patients (14).

1.2 Statement of the Problem

Patient safety is a global issue affecting countries at all levels of development. To date, there is not enough scientific evidence to understand why adverse events occur, how and to what extent patients are harmed, and moreover, how these issues could be reduced and the related patient harm minimized. There is an obvious need for priority-setting, particularly in transitional and developing countries(12). The health care system of developing countries such as Ethiopia is prone to errors, and can be detrimental to safe patient care, as a result of basic systems flaws. Unsafe care is responsible for an enormous human toll everywhere (13). The errors that occur in healthcare are rarely the fault of individuals, but are usually the result of problems with the systems they work in. Patients should be treated in a safe environment and be protected from avoidable harm. Patients should be treated in clean surroundings, with a minimal risk of infection. The equipment used should be in good working order and used in the correct way. Medicines should be given on time and in the correct doses. Tests, investigations and treatments provided to patients should be appropriate for their condition, with procedures performed correctly and in a timely and effective way. Care should be delivered in a coordinated way by competent healthcare staffs who work in an effective team. This includes communicating patients' needs effectively (15).

New research from the Eastern Mediterranean and Africa suggests that approximately 8% hospital admissions in 26 hospitals showed at least one adverse event that caused harm to patients. Of these, the majority were judged to be preventable and about 30% were associated

with the death of patients. The study suggests areas for improvement, particularly in the training and supervision of staff and availability and implementation of protocols and policies(13).

A variety of stakeholders (society in general; patients; individual nurses; nursing educators, administrators, and researchers; physicians; governments and legislative bodies; professional associations; and accrediting agencies) are responsible for ensuring that patient care is safely delivered and that no harm occurs to patients. A 28% of adverse reactions to medications and 42% of life-threatening events in health care are preventable. A 20% of patients in tertiary care medical centers experience adverse events. A 10 to 30% of laboratory test results are inappropriately classified as normal(16).

In the Eastern Mediterranean and African study, almost one third of patients who suffered a harmful incident died. Another 14% sustained permanent disability, 16% sustained moderate disability, 30% were left with minimal disability and 8% of the patients' harm could not be specified (25).

In Ethiopia, Tom B. et al found that on average, 2.7 percent of surgeries result in surgical site infection and up to 4 percent of children with surgical procedures experience surgical site infection. It is estimated that 40-60 percent of surgical site infection are preventable. In International level, surgical site infections are believed to account for up to \$7 billion annually in health care expenditures (2009) (26).

A study done in Jimma zone (Ethiopia) found that overall level of patient safety culture is low (46.7%), overall perception of patient safety (50.5%), supervisor expectation and action promoting safety (48.5 %), communication openness (46%), hospital management support for patient safety (42.7%), hospital handoffs and transitions (41.5%), staffing (35%), feedback and communication about error (33%), frequency of event reporting (27%) non punitive response to error (23.7%) (27).

1.3 Significance of the Study

Different findings show that there is the urgent need for the assessment of the patient safety culture and actions should focus on patient safety (27). In Ethiopian, there is no sufficient studies done on patient safety; there is no organized and structured documentation in a way that which healthcare facilities are safe for patients; therefore this study will fill this gap especially for Adare General Hospital.

The study will help Adare General Hospital to identify areas for improvement and raise awareness about factors mostly contributing for patient safety practices. But, the data which will emerge from this study should be used in combination with other patient safety information in making decisions about ways to improve patient safety practices. The study will help aware the stakeholders and the government the current situation of patient safety practices and hence indicates them what to do in response to the situation. This study also denotes to the public quality of services being given and intended to be given by Adare general hospital. Furthermore, it can be used as a base line for further study in the area.

Chapter Two: Literature Review

Safety culture is one element of the broader construct of organizational culture. Patient safety is an essential and vital component of healthcare quality. The issue of patient safety has become one of the most significant challenges facing the health care system (19).

Preventable harm to patients resulting from their healthcare is unacceptable at any time. Patient safety is first and foremost a clinical problem, but it is also an important cause of wasted resources. Keeping patients safe can also be viewed as a public health problem and a human rights issue(20). To understand the phenomenon of patient safety culture, different literature on patient safety culture, factors associated with the patient safety culture, and patient safety culture dimensions affecting patient safety were explored.

2.1 Patient Safety Culture

“Patient Safety culture” is defined as "the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of an organization's health and safety management(19). " Patient safety has become an international priority with major research programs being carried out elsewhere(21). Growing interest in safety culture has been accompanied by the need for assessment tools focused on the cultural aspects of patient safety improvement efforts. According to the Institute of Medicine, “the biggest challenge to moving toward a safer health system is changing the culture from one of blaming individuals for errors to one in which errors are treated not as personal failures, but as opportunities to improve the system and prevent harm.(10)” Most errors and inefficiencies in patient care arise not from the solitary actions of individuals but from conflicting, incomplete, or suboptimal systems of which they are a part and with which they interact(22). Patient safety and quality are at the heart of the delivery of healthcare. For every patient, family member and healthcare professional, safety is pivotal to diagnosis, treatment and care. Doctors, nurses and all those who work in the health system are committed to treating, helping, comforting and caring for patients and to excellence in the provision of health services for all who need them. Deficits in hospital care quality were common in all countries (2).

Different literatures used twelve patient safety culture dimensions which are validated by exploratory methods (17, 19, 22, 23). Tools developed by Agency for Healthcare Research and Quality (AHRQ) patient safety indicators (PSIs) could serve as a screen for potential patient safety problems. Most of literatures call these tools as Hospital Survey on Patient

Safety Culture (HSOPSC) which is frequently used to collect quantitative data on patient safety culture. The tool is designed to assess hospital staff opinions about patient safety culture. It includes 42 items that measure 12 dimensions or composites of patient safety culture. Most items use the 5-point likert response scale of agreement (strongly disagree to strongly agree) or frequency (never to always) (17, 22).

Generalizing from different figures, tens of millions of people suffer injuries and millions likely die due to unsafe medical care. Injuries can occur in association with many medical interventions, from counterfeit substandard drugs (due to regulatory and oversight failures) to healthcare-associated infections (due to unhygienic practices). Many of these injuries are preventable and, therefore, particularly troubling. Linda H et al found that percentage of nurses reporting poor or fair quality of patient care varied substantially by country 11% (Ireland), 47% (Greece), as did rates for nurses who gave their hospital a poor or failing safety grade 4% (Switzerland) 18% (Poland)); high rates of nurse burnout 10% (Netherlands), 78% (Greece), job dissatisfaction 11% (Netherlands), 56% (Greece), as did rates of patients willing to recommend their hospital (53% (Greece) to 78% (Switzerland) (24). When so many people and different types of health-care providers (doctors, nurses, pharmacists, social workers, dieticians and others) are involved this makes it very difficult to ensure safe care, unless the system of care is designed to facilitate timely and complete information and understanding by all the health professionals. Prescribing antibiotics without regard for the patient's underlying condition and whether antibiotics will help the patient, or administering multiple drugs without attention to the potential for adverse drug reactions, all have the potential for harm and patient injury. Patients are not only harmed by the misuse of technology, they can also be harmed by poor communication between different health-care providers or delays in receiving treatment(8). In the Eastern Mediterranean and African study, almost one third of patients who suffered a harmful incident died. Another 14% sustained permanent disability, 16% sustained moderate disability, 30% were left with minimal disability and 8% of the patients' harm could not be specified (25).

In Ethiopia, Tom B. et al found that on average, 2.7 percent of surgeries result in surgical site infection and up to 4 percent of children with surgical procedures experience surgical site infection. It is estimated that 40-60 percent of surgical site infection are preventable. In International level, surgical site infections are believed to account for up to \$7 billion annually in health care expenditures (2009) (26).

2.2 Factors Associated with Patient Safety Culture

Some literatures 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 programs significantly associated with the patient safety culture (17, 19). However, many literatures consider patient safety associated factors as those variables which measure the twelve components of patient safety culture as associated factors (7, 10, 22, 26).

Determining factors associated with patient safety culture is a critical component of the quality in health care, and has been identified an important goal by the World Health Organization since 2004 when the WHO launched the patient safety program. Dusadee Y., Kanu P., and Harris H. review of patient safety in Thailand and Malaysia described that the frequency of management errors was highest for medication error (41.1%) compared to investigation error (21.7%) and decision making errors (14.5%); the barriers to safe practice of nurses are exacerbated by factors such as understaffing and multiple assignments (1).

R M Wilson et al found that in Eastern Mediterranean and African Regions and on WHO Patient Safety, the most common type of adverse event was caused by therapeutic error (34.2%, range 4-49%), followed by diagnostic error (19.1%, 12-41%) and operative (18.4%, 7-47%). Therapeutic error indicates that a diagnosis has been made but an appropriate therapeutic response was either not ordered or not delivered; inadequate training or supervision of clinical staff was the single largest category, followed by absence of or the failure to implement a relevant protocol or policy (8).

John B. et al found in USA, UK, New Zealand that substantial variability in teamwork climate, safety climate, job satisfaction, stress recognition and working conditions: one out of five respondents reported that it is difficult to speak up if they perceive a problem with patient care, but at the clinical area level, the percent of respondents who agree ranged from 0% to 50%. In other words, zero respondents reported difficulty speaking up in some clinical areas, while in other clinical areas, half of the caregivers reported difficulty speaking up(28).

2.3 The Conceptual Framework

A framework is the overall conceptual underpinnings of a study that has its roots in a specified conceptual model. The factors contributing for malpractices of patient safety practices can be conceptualized simply as summarized below; these include communication factors, situational factor, organizational factors, local working condition, and external factors. The mal practices of these factors can lead to active failure (error, mistakes, slips/lapse and

violations). The conceptual framework of this study can be summarized in the figure below (21, 26).

1. Situational factors: those characteristics related to patients, care providers which can contribute positively or negatively patient safety.
 - Team work within hospital units: staffs support each other, treat each other with respect, and work together as a team.
 - Team work across hospital units: hospital units cooperate and coordinate with one another to provide the best care for patients.
2. Communication system: It is the extent to which staffs are free to speak up freely and staffs are informed about errors in the way that facilitate learning. It can also be defined as effectiveness in process and system in place for exchange and sharing of information between patients, staffs, groups, departments, and services.
 - Communication openness: staff freely to speak up if they see something that may negatively affect a patient and feel free to question those with more authority.
 - Feedback and communication about error: Staffs are informed about errors that happen, are given feedback about changes implemented, and discuss ways to prevent errors.
 - Handoffs and transitions: Important patient care information is transferred across hospital units and during shift changes.
3. Local Working conditions: these are factors related to availability of adequate number of staffs, supervisor support, management supports promoting patient safety.
 - Staffing: There are enough staffs to handle the workload and work hours are appropriate to provide the best care for patients.
 - Supervisor/manager expectations and actions promoting patient safety: Supervisors/managers consider staff suggestions for improving patient safety, praise staff for following patient safety procedures, and do not overlook patient safety problems.

- Management support for patient safety: hospital management provides a work climate that promotes patient safety and shows that patient safety is a top priority.
4. Organizational factors: the extent to which mistakes and errors are not recorded for punishment of staffs but used as opportunities for learning so that the same mistakes will not happen.
- Non-punitive response to error: Staffs feel that their mistakes and event reports are not held against them and that mistakes are not kept in their personnel file.
 - Organizational learning—Continuous improvement: Mistakes have led to positive changes and changes are evaluated for effectiveness.
5. External factors: they are factors beyond the control of the hospital.
- External Policy content: National driven policies/that impact on the level and quality of resources available to hospitals.
 - Design of equipment and supplies: The design of equipment and supplies to overcome physical and performance limitation.

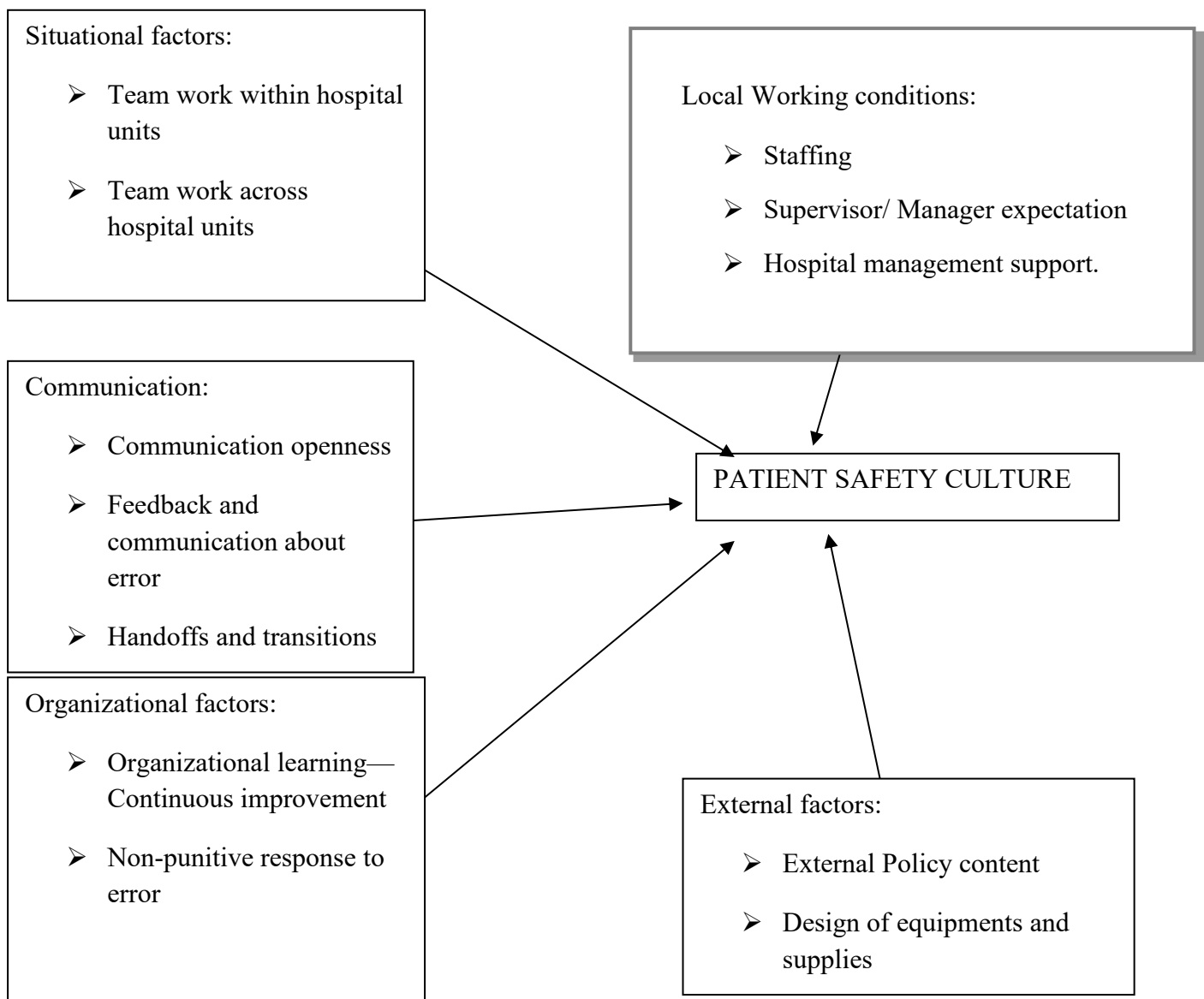


Figure1: *Description of Conceptual Framework of the patient safety culture adopted from Swee C, Craig K, Christopher Chan. Teamwork, organizational learning, patient safety and job outcomes. International Journal of Health Care Quality Assurance, 2013; 26(5), 420-432*

Chapter Three: Objectives

3.1 General objective:

To assess the level of patient safety culture and associated factors in Adare general hospital at Hawassa, SNNPR, Ethiopia

3.2 Specific objectives:

- To assess the level of patient safety culture at Adare General Hospital.
- To assess factors related to patient safety culture at Adare General Hospital.

Chapter Four: Methods and Materials

4.1 Study area

The study area is Adare General Hospital that has a total capacity of 110 beds with major medical specialties and services. It receives referral patients from Hawassa town and nearby zones. In 2008 E.C., the hospital was upgraded to Adare General Hospital from its primary level. The hospital provides services such as outpatient, emergency, inpatient (internal medicine, pediatrics, neonatal intensive care, delivery, and surgery), laboratory, radiology, pharmacy and food. In addition to providing basic health services, the hospital is serving as the training center for the medical and health students who come from governmental and private teaching centers. Currently the hospital has an annual government allocated budget of 98 million Birr (US \$4.5 million) with more than 453 employees (both technical and supportive workers).

4.2 Data collection period

Data collection spanned one month and was available in hard copies (March 2017 to April 2017).

4.3 Study Design

This study applied cross sectional study design using adopted a customized version of the Hospital Survey on Patient Safety Culture (HSOPSC) developed by the Agency for Healthcare Research and Quality for quantitative study. Moreover a qualitative in-depth interview and focused group discussions were added.

4.4 Population

4.4.1 Source Population

All staffs of Adare General Hospital in Hawassa city.

4.4.2 Study Population

Study population was all health care professionals and supportive workers fulfilling the inclusion criteria of the study.

4.4.3 Inclusion and exclusion criteria

Inclusion Criteria: Staffs worked in the hospitals at least for six months.

Exclusion Criteria: Staffs worked for less than six months and students who are at practice.

4.5 Sample size calculation

Census of all potential participants; thus, sample size was not calculated.

4.6 Sampling technique

For the quantitative study, all volunteer eligible participants were taken. In case of refusal, to give informed consent and information, we excluded the non-respondents.

For the qualitative study participants were interviewed based on purposive sampling. Sampling aimed to workers of different grades, areas of practice, and management responsibilities.

4.7 Data collection procedures

Quantitative data was collected through self-administered data collection technique.

The one-to-one in depth interview using a semi-structured guide was performed to collect qualitative data. Ten respondents were selected purposefully for in-depth questions: (pharmacist, matron, medical director, laboratory technologist, and environmental health, a general practitioner from surgery, emergency head, inpatient head, card room worker and midwife). Another approach for qualitative study was using focused group discussion. Three focused group discussions were also performed (two groups consisting of nine health professionals and another group consisting of six supporting workers: cleaners, cooks, guards, electricians, cash collectors and porters). Interview and focused group discussions were conducted with informed consent from participants in Amharic. Both interview and focused group discussions data were collected by principal investigator.

4.8 Data tools

The questionnaire was in English version and data collectors assisted those respondents who face difficulty in comprehending the questionnaires. For quantitative data Hospital Survey on Patient Safety Culture (HSOPSC) was used to collect the data on patient safety practice. The tool was designed to assess hospital staff opinions about patient safety practice. It included 42 items that measure 12 dimensions or composites of patient safety practices. Most items used the 5-point Likert Response Scale of agreement (strongly disagree to strongly agree) or frequency (never to always). The tool also included two questions in which respondents

provided an overall grade on patient safety in their work area/unit and to indicate the number of events they had reported over the past 12 months.

For the qualitative data semi structured guide in depth interview was conducted. The in-depth interview focused to identify factors influencing patient safety culture. Three focused Group discussions were conducted to identify factors influencing patient safety culture of the staffs of the hospital.

4.9 Study Variables

4.9.1 Dependent Variable

- Frequency of events reported
- Overall perception of safety
- Patient safety grade
- The number of events reported

4.9.2 Independent Variables

- ✓ Socio-demographic characteristics of the respondents
- ✓ Supervisor/Manager Expectations & Actions Promoting Safety
- ✓ Organizational Learning Continuous Improvement
- ✓ Teamwork within Hospital Units
- ✓ Communication Openness
- ✓ Feedback and Communication about Error
- ✓ Non-punitive Response to Error
- ✓ Staffing
- ✓ Hospital Management Support for Patient Safety
- ✓ Teamwork Across Hospital Units
- ✓ Hospital Handoffs & Transitions

4.10 Operational Definition (1,30-32)

1. **Communication openness:** Staff freely to speak up if they see something that may negatively affect a patient and feel free to question those with more authority.

2. **Feedback and communication about error:** Staffs are informed about errors that happen, are given feedback about changes implemented, and discuss ways to prevent errors.
3. **Frequency of events reported:** Mistakes of the following types are reported: (1) mistakes caught and corrected before affecting the patient, (2) mistakes with no potential to harm the patient, and (3) mistakes that could harm the patient but do not.
4. **Handoffs and transitions:** Important patient care information is transferred across hospital units and during shift changes.
5. **Management support for patient safety:** Hospital management provides a work climate that promotes patient safety and shows that patient safety is a top priority.
6. **Non-punitive response to error:** Staffs feel that their mistakes and event reports are not held against them and that mistakes are not kept in their personnel file.
7. **Organizational learning—Continuous improvement:** Mistakes have led to positive changes and changes are evaluated for effectiveness.
8. **Overall perceptions of patient safety:** Procedures and systems are good at preventing errors and there is a lack of patient safety problems.
9. **Staffing:** There are enough staff to handle the workload and work hours are appropriate to provide the best care for patients.
10. **Supervisor/manager expectations and actions promoting patient safety:** Supervisors/managers consider staff suggestions for improving patient safety, praise staff for following patient safety procedures, and do not overlook patient safety problems.
11. **Teamwork across units:** Hospital units cooperate and coordinate with one another to provide the best care for patients.
12. **Teamwork within units:** Staffs support each other, treat each other with respect, and work together as a team.

4.11 Data management and analysis

Data collected using the hard copies of the survey were entered epidata version 3.1. Then data filled were edited and then exported for data analysis on SPSS. Data was analyzed using SPSS version 20 at a significance level of 0.05. The HSOPSC is composed of 42 items that measure 12 composites. The HSOPSC included both positively and negatively worded items. Items were scored using a five-point scale reflecting the agreement rate on a five-point frequency scale (both including a neutral category). The percentage of positive responses for each item and composite was calculated; negatively worded items were reversed when computing percent positive response. After counting percent positive responses per composite, this number is divided by the total number of responses for this composite to obtain a percent positive. Composite level scores were computed by summation of the items within the composite scales and dividing by the number of items with non-missing values.

Calculating the item-level and the composite-level percent of positive and negative responses allowed for the identification of areas of strength (at least 75% of respondents answer positively) and areas with potential for improvement (less than 50% of respondents answer positively).

Multivariate analysis was conducted to derive potential variables to be included in the multivariate linear regression analyses. All tests were conducted at a significance level of 0.05.

The four outcome variables: number of events reported, patient safety grade, frequency of events reported and overall perception of safety was regressed against the 10 composite scores. Four linear regression models were constructed.

Results on the survey composite were compared against international and local findings which used the same tools.

Qualitative data were digitally recorded, transcribed and translated by principal investigator. Then ideas were thematically grouped and analyzed.

4.12 Data Quality Control

Only complete records of the patient safety questionnaires were reviewed.

The data collectors were trained by principal investigator (for two days) how to conduct collection and how to recall the jumped points on the side of the interviewee during data collection.

4.13 Ethical Consideration

The ethical clearance was obtained from the institutional review board of the Institute of Health, Jimma University. The hospital requested cooperation with an official request letter written by Jimma University too. Permission letter was obtained from Adare General Hospital. Having permission from the hospital, written consent was obtained from the interviewee prior to quantitative data collection. Verbal consent was obtained prior to the interview and focused discussion.

4.14 Dissemination Plan

The result of the study will be disseminated to Jimma University, Institute of Health, Adare General Hospital, and any relevant stakeholders of the study.

Chapter Five: Results

5.1 Socio-Demographic Characteristics of Respondents

For a quantitative study a total of 310 questionnaires were distributed to healthcare workers of Adare General Hospital, returned 263 of which 254 complete yielding an overall response rate of 81.9%.

The majority of respondents were females 154(60.6%) and the remaining 100(39.4%) were males. Approximately 81% of respondents were within the 20 to 34 age group. Regarding to the marital status of the respondents, 54.3% were married. A total of 52.8% held a Baccalaureate Degree, 35.4% had a Diploma while 8.7% had Medical Doctor Degree. Around 41.8% of respondents indicated being nurses, 12.0% were pharmacy professionals, 9.2% were Medical Doctors, 9.2% were midwives, 9.2% were Laboratory professionals, 9.2% were Health Officers and the remaining 9.4 were other health professionals. A half of respondents had 1 to 4 years of experience (54.5%) while 45.1% had 5 to 27 years of experience. In average around 41.3 % of respondents worked 40 hours per week and 36.2% worked 56 hours per week (Table 1).

Table 1 Socio-demographic characteristics of patient safety culture participants, Adare general hospital, SNNPR, Ethiopia

Characteristics	Frequency	Percent	Characteristics	Frequency	Percent
Sex			Department		
Female	154	60.6	Many different work area	59	23.2
Male	100	39.4	Medicine/non-surgical	31	12.2
Marital Status			Surgery	16	6.3
Single	95	37.4	Obstetrics	26	10.2
Married	138	54.3	Pediatrics	13	5.1
divorced	14	5.5	Emergency department	7	2.8
Widowed	6	2.4	Psychiatry/mental health	5	2.0
Separated	1	.4	Pharmacy	30	11.8
Religion			Laboratory	24	9.4
orthodox	68	26.8	Radiology	6	2.4
Muslim	13	5.1	Other	37	14.6
Protestant	165	65.0	Total	254	100.0
Others	8	3.1	Years of experience in Adare hospital		
Educational status			0-5 years	173	68.0
Diploma	90	35.4	>5 years	83	32.0
Bachelor Degree	134	52.8	Hours per week worked		
Master Degree	3	1.2	3-40	121	47.6
Medical doctor	22	8.7	>40	133	52.4
Specialization	4	1.6			
Other	1	.4			
Profession					
Medical doctor	23	9.1	Anesthetist	3	1.2
Nurse	105	41.3	Psychiatry	4	1.6
Pharmacist	30	11.8	Health officer	23	9.1
Midwives	23	9.1	Environmental health	4	1.6
Radiology	4	1.6	Others	9	3.5
Radiology	4	1.6			
Lab technician	23	9.1			

5.2 Patient safety grade and Number of events reporting

This study revealed that, 20.9 % and 33.5 % of the respondents rated the patient safety grade as excellent and very good, respectively.

Regarding to reporting events, 65% of the respondents reported no events, approximately a fifth (20%) reported 1 to 2 events, and the rest 11.5% reported 3 to 4 events. It is worth noting that only 4.4% of respondents reported 5 or more events (Table 2).

Table 2: An overall grade on patient safety and Number of event reporting *Adare general hospital, SNNPR, Ethiopia*

An overall grade	Frequency	Percent	Number of event reporting	Frequency	Percent
Excellent	53	20.9	0	165	65.0
Very good	85	33.5	1	31	12.2
Acceptable	77	30.3	2	20	8.0
Poor	37	14.6	3	8	3.1
Falling	2	.8	4	19	7.5
Total	254	100.0	≥ 5	11	4.4

5.3 Patient Safety Culture Dimensions

The twelve dimensions were examined to determine areas of strength (those where percent positive rating exceeds 75%), considered as neutral patient safety practice (those where percent positive rating falling between 50 % and 75 % and those requiring improvement (scoring below 50%). The dimension with the highest positive score and is thus considered areas of strength was teamwork within units (77%).

Items being difficult to suggest as areas of strength, thus considered neutral patient safety practice were: organizational learning and continuous improvement (74.3%), teamwork across hospital units (55.7%), hospital management support for patient safety (51.63%) and feedback and communication about error (51.2%).

Others requiring improvement were then examined. Dimensions scoring the lowest and as such can be considered areas requiring improvement were: supervisor/manager expectations and actions promoting safety (45%), overall perception of safety (42.1%), communication openness (38.8%) and frequency of events reported (38.8%), hospital handoffs and transitions (34.9%), staffing (29%), non-punitive response to error (17.6%).

Items considered areas of strength and other requiring improvement were then examined. The only major area of strength was teamwork within units highlighted by the responses to the item on whether the hospital is actively doing things to improve patient safety to which percent positive response was 77.06% (Table3).

Table3: Results Item level and Composite level of Patient Safety Culture in Adare General Hospital, Hawassa, SNNPR, Ethiopia, April 2017

Patient safety culture dimensions	Number of Items	Positive safety culture score	95% Confidence Interval	
			Lower	Upper
Teamwork within hospital departments	4	77.06%	65.5	88.65
Organizational learning	3	74.27%	63.13	86.07
Teamwork across hospital departments	4	55.73%	45.35	66.53
Hospital management support for patient safety	3	51.63%	41.7	61.97
Feedback and communication about error	3	51.17%	40.67	61.53
Supervisor expectation and action promoting safety	4	44.95%	35.8	54.38
Overall perception of patient safety	4	42.13%	32.78	51.78
Frequency of event reporting	3	38.83%	33.03	48.43
Communication openness	3	38.80%	29.63	48.6
Hospital handoffs and transitions	4	34.93%	26.45	43.9
Staffing	4	28.95%	21.18	37.18
Non punitive response to error	3	17.37%	11.43	24.43
Overall level of patient safety culture	42	46.33%	37.22%	56.12%

5.6 Linear regression for the patient safety composite scores

5.6.1 Overall perception of safety

The outcome of overall perception of safety was significantly associated with organizational continuous– learning, non-punitive response to error, staffing, supervisor/ manager expectations and actions promoting safety, and feedback and communication about error.

Perception of patient safety improved by 0.246 (P-Value < 0.001) for a one unit increase in the score on organizational continuous– learning, by 0.128 for every unit increase in the score on non-punitive response to error (p-value <0.01), by 0.302 (P-Value < 0.001) for every unit increase in the score on supervisor/ manager expectations and actions promoting safety, and decreased by 0.131 (P-Value = 0.041) for a one unit increase in the score on staffing, by 0.107 (P-Value = 0.017) for a one unit increase in the score on feedback and communication about error (See Table14).

Therefore, *Ordinary Least Squares (OLS)* equation can be constructed as:

Overall perception of safety = 1.31 + (.246) (Organizational Learning - Continuous improvement) + (.128) (Non Punitive response to error) + (-.131) (Staffing) + (.302) (Supervisor expectations and actions promoting safety) + (-.107) (Feedback and communication about error).

During the qualitative study it was also found that blaming behavior is common in the hospital. The study suggested that organizational learning and continuous improvement was also poor. “We discussed on risks and hazard but we don’t document them appropriately. Once we discussed on points, we report rarely our discussion to the senior management. As staff of Adare hospital, we afraid of reporting our mistakes; because, the senior management may take negative action on us.” [Respondent-1]

Respondents experienced that high workload on health care professionals negatively affect the patient safety culture. They believed the number of staff and the work load was not in balanced to provide safe care. “You know that when you treat manageable number of patient, you can give more quality service therefore more safe service. But in our hospital, staff burnout is evident; as a physician I treat at least forty (40) cases per day. How can I assure the safety? For sure there is considerable number of patients who were misdiagnosed and mistreated if we do investigation.” [Respondent-3]

5.6.2 Frequency of events reported

The outcome of frequency of events reported was significantly associated with four composites: staffing, feedback and communication about error, hospital management support for patient safety, and hospital handoffs and transitions (p-value <0.001) (See Table 14).

Linear regression analysis showed that a unit increase in the score on staffing decreases the frequency of events reported by 0.326 (P-Value = 0.001) whereas an increase in feedback and communications about error increased frequency of events reported by 0.398 (P-value <0.001). An increase in hospital management support for patient safety increased frequency of events reported by 0.256 (P-Value = 0.002); whereas one unit increase in the score on hospital handoffs and transitions decreases the frequency of events reported by 0.241 (P-Value < 0.001) (See Table 14).

Therefore, *Ordinary Least Squares (OLS)* equation can be constructed as:

Frequency of Events Reported = 3.052 + (-.326) (Staffing) + (.398) + (Feedback and communication about error) + (.256) (Hospital Management support for patient safety) + (-.241) (Hospital Handoffs and Transitions)

The result was supported by findings from qualitative study. Staffing, feedback and communication about error were identified as important factors for patient safety.

Respondents believed that hospital management support for patient safety affect patient safety positively. “I think it is clear that the management of the hospital can influence the practices of safety by providing trainings, unclosing the errors and deaths that may be the result of poor safety behavior. The management should also promote open discussion on errors without being fault founder and should promote learning from those errors. You can realize that some staffs don’t report deaths to management for fear of criticism.”

[Respondent-2]

5.6.3 Patient Safety Grade

The outcome of patient safety grade was significantly associated with organizational continuous– learning, staffing, supervisor/ manager expectations and actions promoting safety, and hospital management support for patient safety.

Linear regression analysis showed that a unit increases in the score on organizational continuous– learning decreases the patient safety grade by 0.493 (P-Value < 0.001), a unit increases in the score on staffing decreases the patient safety grade by 0.213, (P-Value = .038), a unit increases in the score on supervisor/ manager expectations and actions

promoting safety decreases the patient safety grade by 0.321 (P-Value = 0.005). A unit increases in the score on hospital management support for patient safety decreases the patient safety grade by 0.263(P-Value = 0.003), a unit increases in the score on team work across hospital unit decreases the patient safety grade by 0.382 (p-value< 0.001). Finally, a unit increases in the score on hospital handoffs and transitions increases the patient safety grade by 0.192 (p-value = 0.003) (See Table13).

Therefore, *Ordinary Least Squares (OLS)* equation can be constructed as:

$$\text{Patient Safety Grade} = 6.76 + (-.493) (\text{Organizational Learning - Continuous improvement}) + (-.213) (\text{Staffing}) + (-.321) (\text{Supervisor expectations and actions promoting safety}) + (-.263) (\text{Hospital Management support for patient safety}) + (-.382) (\text{Team work across hospital unit}) + (.192) (\text{Hospital Handoffs and Transitions})$$

This finding was also supported by results of qualitative study. Respondents believed teamwork was the important factor for patient safety practices. Good team work characteristics positively affect patient safety culture.

“I think the most important factors for patient safety practice the willingness and coordination of health professionals among themselves, the logistics availability for the activities to of safety.” [Respondent-2]

“In my understanding, I think patient safety practice can only be achieved when staffs and management of hospital work hand in hand.” [Respondent-7] “The most important factor for patient safety practices is team spirit. In my opinion there is nothing impossible if we work together.” [Respondent-8]

“I think we don’t have good relations with each other; because when I am overloaded a cleaner from other unit does not help me.” [FGD3-5]

5.6.3 Number of events reported

The outcome of number of events reported was significantly associated with non-punitive response to error, communication openness, and hospital handoffs and transitions with the highest mean scores observed for respondents reporting.

Linear regression analysis showed that a unit increase in the score on non-punitive response to error decreases the frequency of number of events reported by 0.531 (P-Value = 0.001), by 0.508 in a unit increase in the score on communication openness (p-value =0.001). A unit increase in the score on hospital handoffs and transitions increases the frequency of number of events reported by 0.454 (P-Value <0.001) (See Table14).

Therefore, *Ordinary Least Squares (OLS)* equation can be constructed as:

$$\text{Number of Events Reported} = 1.984 + (-.531) (\text{Non Punitive response to error}) + (-.508) (\text{Communication openness}) + (.454) (\text{Hospital Handoffs and Transitions})$$

Table 4 Linear regression model for outcome variables of patient safety culture in ADH April 2017

Patient Safety Dimensions	Overall Perception of Patient Safety		Frequency of Events Reported		Patient Safety Grade		Number of Events Reported	
	B (Unstandard error)	P-value	B (Unstandard error)	P-value	Beta (Unstandard error)	P-value	Beta (Unstandard error)	P-value
Team work within hospital Units	-.007	.900	-.028	.747	.156	.098	.106	.566
Organizational learning - continuous improvement	.246**	.000	.047	.620	-.493**	.000	-.335	.092
Non punitive response to error	.128**	.009	-.141	.056	-.006	.926	-.531**	.001
Staffing condition	-.131*	.041	-.326**	.001	-.213*	.038	-.102	.613
Supervisor expectations & actions promoting safety	.302**	.000	7.229E-05	.999	-.321**	.005	.057	.798
Communication openness	.089	.059	-.014	.843	.004	.940	-.508**	.001
Feedback and communication about error	-.107*	.017	.398**	.000	.037	.530	.173	.221
Hospital management support for patient safety	-.048	.374	.256**	.002	-.263**	.003	-.158	.357
Team work across hospital unit	.040	.546	-.077	.437	-.382**	.000	.402	.055
Hospital handoffs and transitions	.004	.931	-.241**	.000	.192**	.003	.454**	.000

** Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Additional factors were identified during in-depth and focused group:

Respondents experienced that supply system was poor which may cost patients' life and that there was recurrent stock outs of life saving medicines.

“The hospital provides resources to patient activities, but sometimes there are shortages of some important logistics such as disposable gloves, oxygen, some emergency medicines, etc.” *[Respondent-2]*

“I remember one case in the neonatal ward. The baby passed away because of shortage of oxygen he needed. The oxygen wasn't working because it works with electricity.” *[Respondent-9]*

Respondents also believed that application of modern sophisticated instruments is crucial.

“When you see the equipment, there are no some important equipment such as CT-Scan, hormone analyzer such as T3 and T4 analyzer.” *[Respondent-4]*

Respondents also believed that the hospital setup (layout) could affect patient safety culture.

“Therefore, I can say that our hospital setup is the most important factor for low patient safety practices.” *[Respondent-1]*

“When you come to physical environment, you can see this hospital is not built in such a way it facilitates the safety of the patient, it has problem with regard to waste segregation, difficult for disabled patients to walk from one ward to another, no water sinks in some OPD rooms.” *[Respondent-4]*

Some respondents also believed that patient characteristics/perception about the health service affect patient safety culture. Respondents experienced that patient's feeling influenced the care they provide.

“In archive room we try to eliminate possible embarrasses but sometimes patients themselves embarrass us.” *[FGD3-3]*

“For instance, we discuss about patient care-giver to decrease noise/disturbance, overflow of patient care givers.” *[FGD3-2]*

Chapter Six: Discussion

In this study the overall level of patient safety culture was found to be 46.33% CI (39.1, 56.12). This result was comparable with the study reported 52 % in Jimma (27). This similarity might be due to the similarities in staffing and hospital infrastructure between the areas.

However, the overall level of patient safety culture of this study was lower when compared with the study reported, 65.5 % in Taiwan(34), 65.3 % in Saudi Arabia(35). This difference might be due to the differences in organizational behavior between countries. Those countries might have better management values, organizational commitments, leadership and relationships within hospital staff. Other possible reasons might be due to high economic development and those countries were initiated patient safety issue early compared to our country.

In this study 'teamwork within department' dimension was area of strength with average positive response rate of 77 % CI (65.5, 88.65). This result was comparable with the study reported 78.5% in Riyadh(35). This result was also comparable with the study reported 82% in Jimma(27). The similarity may be explained as patient safety culture is influenced by the norms and values of professional thought and efforts to regain status. This indicated respondents are positive in supporting one another, working together as a team and doing things to improve patient safety within their respective departments. This result was lower when compared with the studies reported 93.5% in Taiwan (36). This weak teamwork was explained due to work load of hospital during in-depth interview.

Although respondents generally described as there is good team work within departments, poor communication and collaboration between professions within hospitals was described by few respondents during the in depth interview. The main factor behind lower poor team work behavior was explained that staffs were overloaded in their respective assignment.

The areas with the most potential for improvement in this study hospital were: hospital non-punitive response to error, 17.6%CI (11.43, 24.43), handoffs and transitions, 34.93%CI (26.45, 43.9), communication openness, 38.80%CI (29.63, 48.6), frequency of events reported, 38.83%CI (33.03, 48.43), overall perception of safety, 42.13%CI(32.78, 51.78), staffing, 28.95%CI(21.18, 37.18), supervisor/manager expectations and actions promoting safety, 44.95%CI (35.80, 54.38). Dimensions like non-punitive response to error, supervisor/manager expectations and actions promoting safety, overall perception of safety, was comparable with study reported in Egypt(19.5%, 46.3%, 33.9%) (37). The similarity may

be explained as patient safety culture is influenced by the norms and values of professional thought. Positive response for staffing was lower when compared with the studies reported in Egypt (49.3). This result for positive responses of non-punitive response to error, supervisor/manager expectations and actions promoting safety, overall perception of safety, was also lower when compared with the studies reported in USA with respective values: 58%, 65%, 62% (38). The possible reasons might be due to high economic development and the initiation of patient safety issue early compared to our country.

This result suggested that healthcare workers feel hospital non-punitive response to error was problematic and their shift changes were problematic that patient hand offs were not safe. The in-depth interview of the study revealed that they didn't speak out freely. The in-depth interview result also showed that mistakes and event reports are held against them and those mistakes were kept in their personal file. In-depth interview also explained that it was due to staff burn out that affected patient handoffs and transitions.

Dimensions like organizational learning and continuous improvement, 74.27%CI (63.13, 86.07), teamwork across hospital units, 55.73%CI (45.35, 50.78), hospital management support for patient safety, 51.63%CI(41.7, 61.97), and feedback and communication about error, 51.17%CI(40.67, 61.53) were areas with potential for improvement though they score above 50%.

Positive response for organizational learning and continuous improvement was comparable with study reported in Egypt(78.2%) (37). The possible reason might be explained as patient safety culture is influenced by the norms and values of professional thought and efforts to learn from their mistakes.

Whereas other results were higher compared to the same study done in Egypt when compared with hospital management support for patient safety (27.2%)', and 'feedback and communication about error (39.7%)(37). The results were still not enough to consider being satisfactory.

This finding highlights deficiencies in many patient safety culture dimensions and indicates presence of low patient safety practice in Adare General Hospital.

A unit improvement in communication of staffs with each other improves patient safety culture by 0.51 (P-Value =0.001) keeping other factors constant. This result strengthened by qualitative findings where respondents believed when healthcare professionals communicate freely the patient safety will improve highly. This may be explained as when hospital staff worked in areas with excellent communication; the safety of patient obviously improved, and

consequently will have good patient safety culture. The result is also supported by Bates D in developing and transition countries (25).

This study showed that when frequency of giving feedback for each other when mistakes happened increased by one unit, patient safety culture improved by 0.39 (P-Value <0.001). The result was also supported by the qualitative finding, in which respondents believed giving feedback has a positive impact on patient safety culture. This result was also supported by study done in Sweden(39).

This study also showed that a unit improvement in staff participation in patient safety program improves patient safety culture by 0.25 (P-Value <0.001). The result was also strengthened by qualitative study where respondents believed that training on patient safety is one of main contributing factor for improvement of patient safety. The result is also supported by study done in two East African countries by Emma-Louise Aveling (29).

The study also revealed that when supervisor/manager expectations and actions promoting safety was increased by one unit, patient safety culture would be improved by 0.30 (P-Value <0.001). This result strengthened by qualitative findings where respondents believed when healthcare professionals report adverse events the patient safety will improve highly. This can be explained by when events are reported, learning from those events can contribute positively for patient safety. The result is also supported by Christine E (8).

From the qualitative finding respondents believed patient involvement and health care professionals' perception towards patient safety influence patient safety culture. This result was supported by qualitative study conducted in China(40).

Chapter Seven: Conclusion and Recommendation

7.1 Conclusion

The finding of this study showed that the overall level of patient safety culture in Adare General Hospital was found to be low (46.33%).

Supervisor expectation and action promoting safety, overall perception of patient safety, frequency of event reporting, communication openness, hospital handoffs and transitions, staffing, non-punitive response to error are the areas with potential of improvement.

In this study areas like organizational learning, teamwork across hospital departments, hospital management support for patient safety, feedback and communication about error are areas difficult to be considered as strength of safety practices as they scored positive response rate ranging from 50% to 75%.

In this study teamwork with in hospital unit was found to be the only areas of strength.

Adverse event reporting, communication, teamwork within hospital, level of staffing, exchange of feedback about error and participating in patient safety program were factors significantly associated with the patient safety culture. Hours worked per week, incident reporting, teamwork, level of staffing and exchange of feedback about error were supported by the qualitative finding.

While shortage of resource, lack of some sophisticated medical equipment, healthcare professional attitude toward patient safety and patient involvement were additional variables explored as important factors that influence patient safety culture during in depth interview.

In this study it was found that poor hospital setup is also important factor for poor patient safety.

7.2 Recommendation

Adare General Hospital should give due attention especially for those areas found to be weak areas of patient safety practices.

The areas which were difficult to be considered as areas of strength should also need further intervention.

The hospital should also give emphasis on procurement of sophisticated medical equipment such as: CT-Scan, hormone analyzer such as T3 and T4 analyzer.

The hospital should also work to improve the environmental set up of the hospital so as to facilitate better patient safety.

The hospital should also facilitate different trainings and should train workers based on their gap of experiences.

The management of the hospital should shift itself from culture of blaming and punishing to culture of learning.

Workers of the hospital should develop team spirit and should share or learn experiences from those who have higher experiences.

References

1. Yoelao D, Mohan K, HA AH. Review of Patient Safety in Thailand and Malaysia. *International Journal of Behavioral Science*. 2014;9:53-70.
2. Amarapathy M, Sridharan M, Perera R HY. Factors Affecting Patient Safety Culture in A Tertiary Care Hospital in Sri Lanka. *International Journal of Scientific & Technology Research*. 2013;2(3):173-80.
3. Assefa T, Woldie M, Ololo S, Woldemichael K. Patient safety practices and medical errors: Perception of health care providers at Jimma University Specialized Hospital, Southwest Ethiopia. *Open Journal of Preventive Medicine*. 2012;2(2):162-70.
4. Mohammed F, Messele G, Joyce H, Robinah K, Pierre K, Anna M, et al. Guide for Developing National Patient Safety Policy and Strategic Plan. 1 ed. Republic of Congo, Brazzaville: World Health Organization; 2014. 47 p.
5. Tsegaye S, Wakjira K, Beyene W, Bereket W, A. G. Survey Of Safety Practices Among Hospital Laboratories in Oromia Regional State, Ethiopia. *Ethiopian Journal of Health Science*. 2014;24(4):307-10.
6. Sintayehu W, Amsalu D, Molla W, A. A. Patient safety culture and associated factors: A quantitative and qualitative study of healthcare workers' view. *Journal of BMC Health Services Research*. 2016;16(4):495.
7. David W, Itziar L, Nittita P, K A. Global priorities for patient safety research. *BMJ*. 2009;33:10.
8. Christine E, Sammer RN, Kristine L, Karan P, Singh, Douglas A, et al. What is Patient Safety Culture? A Review of the Literature. *Journal of Nursing Scholarship*. 2010;42(2):56-65.
9. Fereydoon L, Babak F, Davoud B, Forouzan D, Mahdi M, M R. Attitude toward the Patient Safety Culture in healthcare systems. *International Journal of patient safety and Quality Improvement*. 2016;4(2):363-6.
10. Nieva VF, J S. Safety Culture Assessment: A Tool for Improving Patient Safety in Healthcare Organizations. *International Journal for Safety culture assessment*. 2013;12:17-23.
11. Madden D M. Building a Culture of Patient Safety. Ireland: Stationery Office; 2008. 241 p.
12. Federal Democratic Republic of Ethiopia Ministry of Health. Ethiopian Hospital Reform Implementation Guidelines Ethiopia2010. 2:[
13. safety/research/evidence_of_unsafe/en/index.html) PSRAgfdtphwwiep. Patient Safety Research: A guide for developing training programmes 2016. Available from: http://www.who.int/entity/patient_safety/research/evidence_of_unsafe/en/index.html.
14. Becker e. Ten top patient safety issues for 2015: *Infection Control & Clinical Quality*. *BMJ*. 2014;9:59-62.
15. L A. Hospital nurse staffing and patient mortality, nurse burnout and job dissatisfaction. *Journal of the American Medical Association*. 2012;288:18-9.
16. 10 top patient safety issues for 2015. *Infection Control & Clinical Quality* 2014. Available from: <http://www.beckershospitalreview.com/quality>.
17. Michael D, Fetters, Leslie A, Curry, W J. Integrating Mixed Methods In Health Services and Delivery System Research. *Journal of Health Services Research*. 2013:21-5.
18. Mekonnen AB, Yesuf EA, Odegard PS, SS W. Implementing ward based clinical pharmacy services in an Ethiopian University Hospital. *International Journal of Pharmacy Teaching & Practices*. 2013;11(1):51-7.

19. E A. Patients Safety Culture: A Baseline Assessment of Nurses' Perceptions in a Saudi Arabia Hospital. Unknown ed. Saudi Arabia: Wayne State University 2010.
20. M M. Poor hospital care 'puts many lives at risk' in developing world. *British Medical Journal*. 2012;4:3-4.
21. Battles J B, J LR. Organizing patient safety research to identify risks and hazards. *International Journal for Healthcare Quality and Research*. 2009;24:2-7.
22. Carayon P, HundtA, Karsh BT, Gurses AP, Alvarado CJ, Smith M BP. Work system design for patient safety: the SEIPS model. *International Journal for Healthcare Quality and Research*. 2006;24:5058.
23. Swee C, Craig K, Chan C. Teamwork, organizational learning, patient safety and job outcomes. *International Journal of Health Care Quality Assurance*. 2013;26(5):420-32.
24. Mckee M, Bruyneel M, Rafferty L, Griffiths A, Moreno P, MariaT, et al. Patient safety , satisfaction , and quality of hospital care : cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. . *BMJ*. 2012;344:2.
25. Bates D. Patient safety in developing and transitional countries. 1 ed. Geneva: World Health Organization; 2011.
26. Bashford T, Reshamwalla S, Mcauley J, Allen N, Zahirah, Gebremedhen D. Implementation of the WHO Surgical Safety Checklist in an Ethiopian Referral Hospital. *International Journal Biomedical Centre*. 2014;8:16-8
27. Sintayehu Daba Wami, Amsalu Feleke Demssie², Molla Mesele Wase, Ahmed AN. Patient safety culture and associated factors: A quantitative and qualitative study of healthcare workers' view in Jimma zone Hospitals, Southwest Ethiopia. *BMC Health Services Research*. 2016;16:495.
28. What is patient safety? London: Ashgate Publishers Ltd; 2010. 20 p.
29. Sexton J, Helmreich R, Neilands T, Rowan K, Vella K, J B, et al. The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. *International Journal of BMC Health Services Research*. 2008;6:44-5.
30. Conceptual Framework for the International Classification for Patient Safety. *International Classification for Patient Safety*. 2009:154.
31. Shinya I, KanakoS, Mika K, Shigeru F, Toshihiko H, H T. Development and applicability of Hospital Survey on Patient Safety Culture in Japan. *International Journal Biomedical Centre*. 2011;11:27-8.
32. Chaojie Liu WL, Yuanyuan Wang, Zhihong Zhang,, Wang P. Patient safety culture in China: a case study in an outpatient setting in Beijing. *ORIGINAL RESEARCH*. 2014;23(10):556–64.
33. I-Chi Chen H-HL. Measuring patient safety patient safety culture in Taiwan using the Hospital Survey on Patient Safety Culture (HSOPSC). *Health Service Research*. 2010;10:152:152-62.
34. Fadi El-Jardali, Farheen Sheikh, Nereo A Garcia, Diana Jamal, Abdo A. Patient safety culture in a large teaching hospital in Riyadh: baseline assessment, comparative analysis and opportunities for improvement. *BMC Health Services Research*. 2014;14:122.
35. Fadi El-Jardali, Hani Dimassi, Diana Jamal, Maha Jaafar, Hemadeh N. Predictors and outcomes of patient safety culture in hospitals. *BMC Health Services Research*. 2011;11:45.
36. Katherine J, Jones PT P, Anne Skinner R, Liyan Xu M, Junfeng Sun P, Keith Mueller P. The AHRQ Hospital Survey on Patient Safety Culture: A Tool to Plan and Evaluate Patient Safety Programs. *International Journal Institute of Medicine*. 2010;14(2):1-20.

37. Aboul-Fotouh, Ismail, Elarab, Wassif. Assessment of patient safety culture among healthcare providers at a teaching hospital in Cairo, Egypt. *Eastern Mediterranean Health Journal*. 2012;18(4):1-6.
38. Mikaela Ridelberg, Kerstin Roback, Nilsen P. Facilitators and barriers influencing patient safety in Swedish hospitals: a qualitative study of nurses' perceptions. *BMC Nursing*. 2014;13:23.
39. Emma-Louise Aveling, Yvette Kayonga, Ansha Nega, Dixon-Woods M. Why is patient safety so hard in low-income countries? A qualitative study of healthcare workers' views in two African hospitals. *Globalization and Health*. 2015;11:6.
40. Chaojie Liu, Weiwei Liu, Yuanyuan Wang, Zhihong Zhang, Wang P. Patient safety culture in China: a case study in an outpatient setting in Beijing. *BMJ Quality & Safety Online First*. 2013;0:1-9.

Annex-I: Questionnaires for Quantitative Data

Questionnaire for Patient Safety Practices and Associated Factors: A Quantitative and Qualitative Study of Healthcare Workers' View In Hawassa City Hospital; Southern Nations, Nationalities and Peoples Region; Ethiopia, 2017.

Definitions:

- ❖ An **“event”** is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm.
- ❖ **“Patient safety”** is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery.

Hospital Name _____ Bed Numbers _____

Working department _____

PART-I: - SOCIO-DEMOGRAPHIC

S.NO	Questions	Response	Code
1	ID	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
2	Sex	Female-----0 Male-----1	
3	Age in Year	<input type="text"/> <input type="text"/>	
4	Marital Status	Single-----0 Married-----1 Divorced-----2 Widowed-----3 Separated-----4	
5	Religion	Orthodox-----0 Muslim-----1	

S.NO	Questions	Response	Code
		Protestant-----2 Others _____	
6	Educational status	Below and High school -----0 Diploma-----1 Bachelor Degree-----2 Master Degree-----3 Medical doctor-----4 Specialization-----5 Doctorate (PhD)-----6 Other _____	
7	Profession	Medical doctor-----0 Dentist-----1 Nurse-----2 Pharmacist-----3 Midwife-----4 Radiology -----5 Lab technician -----6 Anesthetist-----7 Psychiatry-----8 Physiotherapy -----9	

S.NO	Questions	Response	Code
		Health officer-----10 Env'tal/Occupational health----11 Others _____	
8	What is your primary work unit/ department or clinical area of the hospitals where you spent most of the work time or provides most of the clinical service?	Many different work area-----0 Medicine/non surgical-----1 Surgery-----2 Obstetrics-----3 Pediatrics-----4 Emergency dept.-----5 Psychiatry/mental health-----6 Rehabilitation-----7 Pharmacy-----8 Laboratory-----9 Radiology-----10 Anesthesiology-----11 Other _____	
9	Years of experience in this hospital	_____	
10	How long have you worked in your current hospital work area?	_____	
11	In average how many hours per		

S.NO	Questions	Response	Code
	week do you work in this hospital?	_____	
12	In your staff position do you typically have direct interaction or contact with patients?	No-----0 Yes -----1	

PART-II PATIENT SAFETY PRACTICE DIMENSIONS

SECTION A: Your Work Area/Unit

In this survey, think of your work area as the unit, department, or clinical area of your hospital where you spend *most of your work time* or provide *most of your clinical services*. **Please indicate your agreement or disagreement with the following statements about your work area/unit.**

Team work within Hospital Units							
S.NO	Questions	Response					Code
		Strongly Disagree	Disagree	Neutral(N)	Agree(A)	Strongly Agree	
201	People support one another in this unit	1	2	3	4	5	
202	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	
203	In this unit, people treat each other with respect.	1	2	3	4	5	
204	When one area in this unit gets really busy, others help	1	2	3	4	5	

out							
-----	--	--	--	--	--	--	--

Organizational learning – Continuous improvement

S.NO	Questions	Response					Code
		SD	D	N	A	SA	
205	We are actively doing things to improve patient safety	1	2	3	4	5	
206	Mistakes have led to positive changes here	1	2	3	4	5	
207	After we make changes to improve patient safety, we evaluate their effectiveness	1	2	3	4	5	

Non Punitive response to error

S.NO	Questions	Response					Code
		SD	D	N	A	SA	
208	Staff feel like their mistakes are held against them	1	2	3	4	5	
209	When an event is reported, it feels like the person is being written up, not the problem	1	2	3	4	5	
210	Staff worry that mistakes they make are kept in their personnel file	1	2	3	4	5	

Staffing

S.NO	Questions	Response					Code
		SD	D	N	A	SA	
211	We have enough staff to handle the workload	1	2	3	4	5	
212	Staff in this unit work longer hours than is best for patient care	1	2	3	4	5	

213	We use more agency/temporary staff than is best for patient care	1	2	3	4	5	
214	We work in “crisis mode,” trying to do too much, too quickly	1	2	3	4	5	
Overall Perception of safety							
S.NO	Questions	Response					Code
		SD	D	N	A	SA	
215	Patient safety is never sacrificed to get more work done	1	2	3	4	5	
216	Our procedures and systems are good at preventing errors from happening	1	2	3	4	5	
217	It is just by chance that more serious mistakes don't happen around here	1	2	3	4	5	
218	We have patient safety problems in this unit	1	2	3	4	5	

SECTION B: Your Supervisor/Manager

Please indicate your agreement or disagreement with the following statements about your immediate supervisor/manager or person to whom you directly report.

Supervisor/ Manager expectations and actions promoting safety							
S.NO	Questions	Response					Code
		SD	D	N	A	SA	
219	My supervisor/manager says a good word when he/she sees a job done according to established patient safety	1	2	3	4	5	

	procedures						
220	My supervisor/manager seriously considers staff suggestions for improving patient safety	1	2	3	4	5	
221	Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	1	2	3	4	5	
222	My supervisor/manager overlooks patient safety problems that happen over and over	1	2	3	4	5	

SECTION C: Communications

How often do the following things happen in your work area/unit?

Communication openness							
S.NO	Questions	Response					Code
		Never (N)	Rarely	Some	Most of the time	Always	
223	Staff will freely speak up if they see something that may negatively affect patient care	1	2	3	4	5	
224	Staff feel free to question the decisions or actions of those with more authority	1	2	3	4	5	
225	Staff are afraid to ask questions when something does not seem right	1	2	3	4	5	
Feedback and communication about error							
S.NO	Questions	Response					Code

		Never (N)	Rarely	Some	Most of the time	Always	
226	We are given feedback about changes put into place based on event reports	1	2	3	4	5	
227	We are informed about errors that happen in this unit	1	2	3	4	5	
228	In this unit, we discuss ways to prevent errors from happening again	1	2	3	4	5	

SECTION D: Frequency of Events Reported

In your work area/unit, when the following mistakes happen, *how often are they reported?*

Event: Any type of error, mistakes, incident, near misses, accident or deviation regardless of whether or not it results in patient harm

Frequency of Event reporting							
S.NO	Questions	Response					Code
		Never (N)	Rarely	Some times	Most of the time	Always	
229	When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	1	2	3	4	5	
230	When a mistake is made, but has no potential to harm the patient, how often is this reported?	1	2	3	4	5	

231	When a mistake is made that could harm the patient, but does not, how often is this reported?	1	2	3	4	5	
-----	---	---	---	---	---	---	--

Section E: Patient safety grade

S.NO	Questions	Response	Code
232	Please give your work area/unit in this hospital an overall grade on patient safety	Excellent-----1 Very good-----2 Acceptable-----3 Poor-----4 Falling-----5	

SECTION F: Your hospital

Please indicate your agreement or disagreement with the following statements about your hospital.

Hospital Management support for patient safety							
S.NO	Questions	Response					Code
		SD	D	N	A	SA	
233	Hospital management provides a work climate that promotes patient safety	1	2	3	4	5	
234	The actions of hospital management show that patient safety is a top priority	1	2	3	4	5	
235	Hospital management seems interested in patient	1	2	3	4	5	

	safety only after an adverse event happens						
--	--	--	--	--	--	--	--

Team work across hospital unit

S.NO	Questions	Response					Code
		SD	D	N	A	SA	
236	There is good cooperation among hospital units that need to work together	1	2	3	4	5	
237	Hospital units work well together to provide the best care for patients	1	2	3	4	5	
238	Hospital units do not coordinate well with each other	1	2	3	4	5	
239	It is often unpleasant to work with staff from other hospital units	1	2	3	4	5	

Hospital Handoffs and Transitions

S.NO	Questions	Response					Code
		SD	D	N	A	SA	
240	Things “fall between the cracks” when transferring patients from one unit to another	1	2	3	4	5	
241	Important patient care information is often lost during shift changes	1	2	3	4	5	
242	Problems often occur in the exchange of information across hospital units	1	2	3	4	5	
243	Shift changes are problematic for patients in this hospital	1	2	3	4	5	

Section G: Number of events Reported

S.NO	Questions	Response	Code
244	In the past 12 months, how many event reports have you filled out and submitted?	<hr/>	

Annex-II Questionnaires for Qualitative Data

A. Semi Structured Interview Questions for Qualitative Data

(Will be followed by probe questions)

1. In your opinion what are the factors that influence/affect the patient safety practices in health care recently?

Probing question:

- How do you think these factors influence/affect the patient safety practices?
 - Who do you think are responsible for these factors?
2. Based on the current level of patient safety practices in your hospital what do you think is important factor to achieve increased patient safety practices?

Followed by:

- Do you think these can be achieved at all hospital level?
- How do you think these factors incorporated with the hospitals activities?

B. Topics for Focused Group Discussion for Analysis of Patient Safety Practices

1. Leadership and Culture

- a) Are governance/senior leaders regularly and thoroughly briefed on risks and hazards?
- b) Are patient safety risks, hazards, and opportunities discussed and documented at board meetings?
- c) Does a “just culture”—in which frontline personnel feel comfortable with reporting and “disclosure”— exist?
- d) Does the management provide basic teamwork, communication, and patient safety training?
- e) Does leadership designate resources to patient safety activities?
- f) Is there a system for assessing safety culture?

2. Culture Measurement and Feedback

- a) Is there a clear process for communication among staff in response to adverse events?

- b) Are events used to guide process improvement interventions?
 - c) Is there a process in place for rapid dissemination of critical process improvements?
3. Identification and Analysis of Actual and Potential Adverse Events
- a) Is there a process in place for identifying, managing, and analyzing adverse events, near miss events, and unsafe conditions?
 - b) Do staffs have access to a system for reporting adverse events?
 - c) Do staffs have access to a system for reporting disruptive behaviors?
 - d) Is a root cause analysis conducted after serious reportable and sentinel events?
 - e) Is a root cause analysis conducted after near miss events?
 - f) Does the organization perform at least one prospective analysis per year using a method approved by the organization?
4. Disclosure and Resolution
- a) Is there a formal process for disclosing unanticipated outcomes in the organization?
 - b) Is information related to disclose outcomes linked to performance improvements?
 - c) Is early remediation an element of the disclosure process?
 - d) Are bills for hospital or professional fees waived if inappropriate care caused harm?

Adopted from: Sorra J, Nieva V: **Hospital survey on patient safety culture.**(Prepared by Westat, under contract no. 290-96-0004). AHRQ publication no. 04-0041. Rockville, MD: Agency for Healthcare Research and Quality 2004.

Annex-III In-depth Interview and Focused Group Discussion

In-depth Interview

A total of ten respondents were selected purposefully for in-depth questions: (pharmacist, matron, medical director, laboratory technologist, and environmental health, a general practitioner from surgery, emergency head, inpatient head, card room worker and midwife). Participants were selected based different grades (education level), areas of practice, and management responsibilities. A total of ten (10) health care professionals were successfully interviewed.

“In my opinion, factors such as state of hospital, the level of experience of professional, the setup (infrastructure) of the hospital and the behavior of the patient as well as the health professionals can affect patient safety practices. You can easily understand their importance of these factors by looking for instances, the more experienced professional predicts the problem that certain procedure can pose on patient. Without suitable setup, we cannot practice our safety procedures perfectly. Finally, patients’ and or health professional inherent behavior can positively or negatively affect safety practices. I think we as the health professionals as well as the higher management and community at all can play their parts in realizing safe care and practices.

In my opinion, our hospital is upgraded from health center to hospital. During its transition I think nobody bothered about its old setup. Therefore, I can say that our hospital setup is the most important factor for low patient safety practices. The other important factor I consider so far is the behavior of the staffs. For instances, my supervisor is ignorant about risks and hazards on patient as well as on staffs. For instance, in this room you can see the electric fibers which are naked that can pose the risk on patient and staffs. We discussed on risks and hazard but we don’t document them appropriately. Once we discussed on points, we report rarely our discussion to the senior management. But, when we report our discussion, we careful not to report our mistakes. We afraid to report our mistakes, because, the senior management may take negative action on us. Our management encourages us to communicate with each other but there are some staffs who report our mistakes as well as our work behavior secretly. This type of reporting makes us feel afraid to communicate openly. Of course, there are trainings on patient safety, but I don’t believe that most of the staffs are trained. There is also problem in selecting trainee, as there are some staffs who take training again and again while others don’t have access to training. [Respondent-1]

1. "I think the most important factors for patient safety practice are the level of the education of the health professionals, the management responses to the activities of safety, the willingness and coordination of health professionals among themselves, the logistics availability for the activities to of safety.

I think it is clear that the management hospital can influence the practices of safety by providing trainings, unclosing the errors and deaths that may be the result of poor safety behavior. The management should also promote open discussion on errors without being fault founder and should promote learning from those errors. You can realize that some staffs don't report deaths to management for fear of criticism. Once death is reported, the management is not alert to dig-out the error and learn from that error.

The other important factor in my opinion is some staffs here don't act responsibly, that they go here and there by finding the mistakes of their colleagues. This behavior is not good and it is very difficult to discuss about our patient safety problems. On the other hand, you know that in clinical practices you cannot do everything perfectly. We cannot overcome mistakes and errors always; but in my opinion professionals with higher educational status and skill can overcome or at least minimize mistakes and errors. Therefore, staffs with low experiences and at lower educational status should learn from those who have higher experiences.

The hospital provides resources to patient activities, but sometimes there are shortages of some important logistics such as disposable gloves, oxygen, some emergency medicines, etc. I don't believe that the hospital assess the patient safety culture. We communicate about adverse events with some people who don't blame us. After we discuss on adverse events we try to learn from that event but most of the time we don't report due to fear about its consequences. [Respondent-2]

2. "As a health professional, I can say that factors such as patient load, the skill of the care giver, and the availability of the most sophisticated diagnostic technology can contribute for the safety practices of health professionals. You know that when you treat manageable number of patient, you can give more quality service therefore more safe service. But in our hospital, staff burnout is evident; as a physician I treat at least forty

(40) cases per day. How can I assure the safety? For sure there is considerable number of patients who were misdiagnosed and mistreated if we do investigation. On the other hand, you know that knowledge by itself is not enough, but the skill/experience of the practitioners is mandatory. For sure, we cannot say that two physicians of the same educational level can manage the same case in the same way. Their experience matters and therefore, generally more experienced physician treats more safely. The other important factor that we should never forget is the level of the technology we are applying. Now days, there are many sophisticated diagnostic equipments. For sure application of these technologies improves patient safety practices.

Of course, the hospital encourages reporting of adverse events and mistakes, but we believe that the consequences may affect the staffs. Once the adverse events are reported, the hospital try to find out who did that event why he did then the hospital mostly writes warning papers to the doer of the mistakes.” [Respondent-3]

3. “Many factors can affect patient safety practices: physical environment, equipment and supplies, staff and staffing, management styles. When you come to physical environment, you can see this hospital is not built in such a way it facilitates the safety of the patient, it has problem with regard to waste segregation, difficult for disabled patients to walk from one ward to another, no water sinks in some OPD rooms.

When you see the equipments, there are no some important equipment such as CT-Scan, hormone analyzer such as T3 and T4 analyzer. Sometimes you can see important supplies run out. The other factor is that in some case teams there is staff burnout which affects patient safety. Of course this hospital is general hospital, but it is serving beyond its capacity. Therefore, more staffs should be hired. For example, we are now practicing auditable pharmacy in our hospital, but the staff number is not adequate to practice it effectively. Finally, the management of the hospital should identify the area of priority for patient safety and should take action on problems.

Even if serious mistakes happen, the hospital management try to keep it in secret, because they fear that the hospital may loss tribute and respect of the community. I remember that one druggist counsel a patient to take paracetamol suppository orally. Generally, I believe

that if the mistakes and adverse events are reported and disclosed for learning, it improves patient safety in our hospital.” [Respondent-4]

4. “Now days I think the most important factors affecting patient safety practices are negligence of care providers, unskilled professional practices, lack of certain medications, lack of cleanness of health care institutions. These factors as you know have direct relations with patient safety; for instance, unskilled professionals face difficulty in diagnosing, treating and managing patient. On the other hand hospitals are risk areas for patient if they are not clean or neat. The most important point is that if medicines and other supplies are not available timely treatment is impossible. In my opinion everybody including healthcare providers, managers, politicians and patients can improve the safety practices. In our hospital, I think the most important thing to improve patient safety could be cleanness of the hospital. The maternity ward is not good, you see? No beds, sometimes you don’t have beds to examine patients on then patients are referred to other health facilities. You can imagine what would happen if delivering mother is not treated on time.

Of course, some staffs are not skilled enough but this problem can be handled easily with more experienced staffs. Clean care is safer care and the hospital should do on it aggressively.

I think the hospital management strives to overcome different problems of patient safety by encouraging team spirit of the staffs, by providing different important logistics and scheduling different onsite trainings. As a healthcare provider I suggest that the hospital should do this type of study to differentiate the most important factor of safety problems. [Respondent-5]

5. “In my opinion the important the most important factors for patient safety practice are the willingness of staffs to act in according code of conduct, the level of education of the health care worker, resources of health practices such as adequate number of staffs, availability of drugs, medical supplies and equipments.

Our hospital tries to brief the importance of patient safety. In our surgical ward a person who did a mistake afraid to disclose the mistakes believing that he may be punished or may be considered that he is unskilled. In every week, we have meeting on which we try

to discuss about problems we face during patient care, but we rarely discuss on our mistakes. But, mostly we discuss about stock outs of some important supplies and on punctuality issues. Of course the management provides resources for best care of patients, however; there are frequent stock outs of some supplies such as gauze, oxygen, anesthesia drugs, sutures, etc.” [Respondent-6]

6. “In my understanding, I think patient safety practice can only be achieved when staffs and management of hospital work hand in hand. The relation between hospital management and health care givers should be based on mutual understanding. The relation should not be just like boss and servant. I am telling you frankly that blaming is common in this hospital. We cannot solve problems in such a way. The real problem should be identified before rushing to punish staffs. Who knows may be the punisher himself would be the reason for problems.

When adverse events occur, I don’t know to whom I should report. Still now, we don’t make agenda on mistakes of others to learn from those mistakes. Blaming is common. In my opinion the management of the hospital should discuss on safety issues with all staffs. Then each one may take responsibilities. I don’t believe that the hospital is doing its best on patient safety practices.” [Respondent-7]

7. “The most important factor for patient safety practices is team spirit. In my opinion there is nothing impossible if we work together. In our case team, some staffs are less experienced; but when a woman gives birth, one with good skill helps out others. Therefore, coordination is the most important. On the other hand, important inputs such supplies and medicines should be there for safe delivery. Whatever the skill and knowledge we have, it is impossible to manage certain cases without these medicines. Sometimes mistakes may occur and mothers as well as infants may die. Sometimes there is clinical audit which focuses on the faults of our work. Then the findings of the audit are not shared among all staffs. I think at an individual level as well as at hospital level; disclosure of adverse events is poor. This may be due to lack of awareness on importance of continuous improvement or fear of consequences once serious events are disclosed. In our hospital we don’t have system which supports even when staffs are harmed.” [Respondent-8]

8. “In this hospital, the availability of basic medicines and is very crucial for patient safety. As you know our unit needs due attention because we are striving to save neonates. I remember one case in the neonatal ward. The baby passed away because of shortage of oxygen he needed. The oxygen wasn’t working because it works with electricity. You can take another example inside our room there are places you find structures which are old and are not replaced, which can be a source of infections. In our pharmacy we often have stock shortage: we may prescribe a medicine which the patient cannot find in our pharmacy, and then when he goes to a private pharmacy it is expensive, and this is a very poor patient population so he may delay waiting for money for three or four days. For a patient to wait two or three days without antibiotics it affects his life and also it affects us. The administration is not running smoothly. You can find the money, but some materials are bought but kept in the stores, or they are not bought in a timely way.” [Respondent-9]

9. “Very high patient volumes, lack of dedicated space for emergencies and exacerbation of over-crowding by patient families further intensified the challenges. Emergency room is very narrow that when we receive an emergency case, we don’t have a free room to do emergency procedures. For this reason a mother, children may lose their life. The nurses are overloaded they try their best, but we recognize that they are few, so such low numbers means that probably some patients will not be well managed. The number of staff is not enough, to the extent that due to being few staff your job is always tiring. You do not get time to rest and you cannot give good treatment when you are tired.” [Respondent-10]

Focused Group Discussion (FGD)

Three focused group discussions were performed (two groups consisting of nine health professionals and another group consisting of six supporting workers: cleaners, cooks, guards, electricians, cash collectors and porters). Groups were categorized based on different grades (education level), areas of practice.

“Our hospital manager encourages us to communicate about the risks we may face and report to him. We specially discuss about different risks to patients. For instance, we discuss about patient care-giver noise/disturbance, overflow of patient care givers.” [FGD3-2]

“We discuss about the behavior of guards which may negatively affect the patients and staffs. Action has been taken on two of our guards and now they resigned.” [FGD3-2]

“In archive room we try to eliminate possible embarrasses but sometimes patients themselves embarrass us.” [FGD3-3]

“Most of times we discuss on risks (or acts that dissatisfy) patients and report our discussion points; in frankly speaking sometimes we don’t report serious issues which may have negative consequences on our job.” [FGD2-2]

“Our hospital manager encourages us to discuss our problems on 1 to 5 networks and they ask us to report our discussion weekly.” [FGD3-4]

“Most of serious issues are not raised in regular meetings, but serious issues are raised during bi-annual evaluation of all staffs.” [FGD3-4]

“Though the hospital tries to provide necessary cleaning materials, sometimes we run out of cleansing chemicals which may affect the safety of patients. As cleaners we rarely discuss about our work. I think we don’t have good relations with each other; because when I am overloaded a cleaner from other unit does not help me.” [FGD3-5]

“The management encourages us to discuss about our work, but most of cleaners don’t want to discuss. Sometimes we don’t get heavy duty glove and necessary chemicals such as barakina. The risk is high on us compared to patients. Even we don’t have bill free medical treatment when we get ill.” [FGD3-5]

“A safety culture improvement effort and subsequent action planning must involve stakeholders whose support is required, who have an interest in the results, or who will need to be involved in the problem solving. Staff such as quality improvement team members, staffs in charge of the logistics, communication with senior managers as well as employees is essential to establish commitment to the effort.

The process of improving patient safety culture needs working with the stakeholders to show specific patient safety concerns, outlining how the data would be used, and selecting an appropriate tool to accomplish the objectives.

The involvement of senior management such as the CEO, CCO and even board members is especially critical because they are ultimately responsible for policy and strategic decisions and they will be expected to do something about the results. In addition, senior management controls the resources necessary to address areas identified as needing attention. The benefits of involving senior management benefits patients that senior management periodically visit a hospital unit to speak with staff firsthand about patient safety issues in the unit. After conducting the rounds, the CEO and CCO should take personal responsibility for making sure that every problem that was raised by unit staff was resolved in a timely manner.

Clinical staff and physicians in particular, are also important stakeholders. Lessons can be shared from experienced staffs in health care.

In general, senior management; medical and nursing service director; human resources; departmental units; and others should play their parts. Moreover, these stakeholders are critical to the implementation of any organizational policy or transformation plans that are widely believed based on problems.” [FGD2-2]

“Leadership should encourage and reward recognition and reporting of adverse events and near misses. Otherwise it is very difficult to say that we will improve our patient safety practices. On the other hand, when a mistake is discovered, we should try to figure out what problems in the work process led to the mistake. Supervisors and employees should also discuss how to handle incidents involving error. This is how we learn from our faults.

Employees feel like event reports are held against them. This is bad behavior as far as I know.” [FGD1-1]

Annex -IV: Written Consent

Dear participant!

My name is _____. I am one of the data collector from _____. The main aim of this study is to assess the patient safety practices and associated factors at your Hospital. Participants were selected just by chance from registration book data and data will be collected by interviewing using a questionnaire. The study will involve various questions related to your hospital. In order to effectively attain the objective of the research, we are requesting your help. There will not be significant risks associated with participation in the study except dedication of time for responding the questionnaire as well as there will be no incentive or payment to be gained by being participant. The study will benefit the participants from the recommendations to your Hospital; which may help health program planners, responsible persons in the health institution, stakeholders and significant others to take actions that may result in improving patient safety practices based on the findings. Ethical approval has been obtained from the institutional review board of Jimma University. Permission to conduct the study was obtained from Hawassa city administration health department and your Hospital. Your participation in the study will be voluntary; there is no obligation to participate. You have full right to withdraw from the study at any time if you feel uncomfortable. You are allowed to ask questions at any time about the study. The study data will be coded and it will not be linked to your names or other your information not mentioned in the questionnaire. The information you provide will be kept very confidential and secured as well as it will not be shared to anyone without your permission. It will take you 15-20 minutes to complete the interview.

Would you willing to participate please? If no, quit here and thank you.

If yes, proceed with interview.

If you have any question you can contact principal investigator Demelash: 0926448495

I have understood above information mentioned in this consent form and voluntarily consent to participate in the study.

Date _____

Participant's signature _____

Interviewer's signature _____

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been fully acknowledged.

Name: Demelash Dejene (B.pharm)

Signature: _____

Name of the institution: Jimma University; Institute of Health Sciences; Department of Health Economics, Management, and Policy Healthcare and Hospital Administration (MHA) Program

Date of submission: _____

Approval of the advisors

Name and Signature of the first advisor: Elias Ali Yesuf (MD, MPH)

Signature: _____

Name and Signature of the second advisor: Ayinengida Adamu (BSc, MPH)

Signature: _____