UNIVERSITY OF GHANA

ASSESSING CLINICAL STAFF PERCEPTION OF PATIENT SAFETY CULTURE OF SELECTED HOSPITALS IN BAWKU CENTRAL AND WEST DISTRICTS

BY

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DECLARATION

I hereby declare that this thesis titled "Assessing clinical staff perception of patient safety culture in selected hospitals of Bawku Central and West districts" submitted to the University of Ghana is a record of an original work done by me under the supervision of Abuosi A. Aaron (Ph.D.). This thesis is submitted in partial fulfilment of the requirement for the award of a degree in MPhil Health Services Management. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree.

…… ……

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CERTIFICATION

I hereby certify that this thesis was supervised in accordance with the procedures laid down by the University.

…… ……..

DR. AARON A. ABUOSI **DATE**

(SUPERVISOR)

DEDICATION

This study is dedicated to my wife: Madam Alice Awini Ndebugiri and to my children: Wintis, Winipas, and Wintenr for their love and encouragement. The study is also dedicated to my mother who toiled to raise me up after the early demised of my father. The Lord continue to bless them all.

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TABLE OF CONTENT

DECLARATION i
CERTIFICATION ii
DEDICATION iii
ACKNOWLEDGEMENT iv
TABLE OF CONTENT v
LIST OF TABLES x
LIST OF FIGURES xi
LIST OF ABBREVIATIONS xii
ABSTRACT xiv
CHAPTER ONE 1
INTRODUCTION 1
1.0 Introduction 1
1.1 Background to the study 1
1.2 Problem statement 4
1.3 Objectives of the study 6
1.4 Research Hypothesis 6
1.5 Significance of the Study 7
1.6 The scope of the study 8
1.7 Operational Definitions 8
1.8 Organisation of the study 9
CHAPTER TWO 11
LITERATURE REVIEW 11
2.0 Introduction 11
2.1 Historical Perspective of Patient Safety Culture 11
2.2 Review of Theoretical Literature 12
2.3 Empirical Literature Review 15
2.4.1 Management support for patient safety 17
2.4.3 Staffing and patient safety culture 19
2.4.4 Non punitive response to error and patient safety culture 20
2.5 Process factors of safety culture 22

2.5.1 Safety Culture Teamwork and Patient 22
2.5.2 Communication openness and patient safety culture 25
2.5.3 Organisational Learning, Continuous improvement and patient safety culture 27
2.5.4 Hospital handoffs and transitions 27
2.6 Patient safety outcomes 29
2.6.1 Number and Frequency of error reporting 29
2.6.2 Patient safety grade, over all perception of patient safety culture 32
2.7 Hospital Characteristics 34
2.8 Respondents socio-demographic factors 35
2.9 Overall patient safety culture 36
2.10 Challenges encountered on patient safety culture 36
2.11 Conceptual Framework 37
2.12 Chapter summary 39
CHAPTER THREE 40
RESEARCH METHODOLOGY 40
3.0 Introduction 40
3.1 Research Paradigm 40
3.2 Research Approach 41
3.3 Research Design 42
3.4 The scope of the study 43
3.5 Research Setting 43
3.5.1Morbidity Trend of the Study Hospitals 48
3.6 Target Population 51
3.7 Determination of Sample Size 52
3.7.1 Proportion of Respondent for each Hospital 53
3.8 Sampling Technique 53
3.9 Inclusion Criteria 55
3.10 Exclusion Criteria 55
3.11 Type and source of data 55
3.12 Instruments for Data Collection 56
3.12.1 Validity and Reliability 57
3.13 Procedure for Data Collection 57

3.14 Qualitative Data Collection 58
3.15 Procedure for qualitative data analysis 59
3.16 Ethical Consideration 59
3.16.1 Anonymity and Confidentiality: 60
3.16.2 Beneficence and Non-malfeasance: 60
3.17 Data management and Analysis 60
3.17.1 Descriptive statistics 61
3.17.2 Analysis of Variance (ANOVA) assumptions 62
3.17.3 Test of association (correlation) assumptions 62
3.17.4 Multiple Regression assumptions 62
3.18 Chapter Summary 63
CHAPTER FOUR 65
PRESENTATION OF RESULTS 65
4.0 Introduction 65
4.1 Socio-demographic and professional characteristics of respondents 65
Table 4.1 Socio-demographic and professional characteristics of respondents 66
4.2 Frequency distribution for dimensions of patient safety culture 67
4.2.1 Patient safety culture outcomes 71
4.3 Safety culture compared across study hospitals 72
4.3. 1 ANOVA Results for the Overall Patient Safety Culture in the three Hospitals 73
4.3.2 ANOVA results for each of the ten composite areas of Patient Safety Culture in the three Hospitals 75
4.4 The influence of structural and process factors on patient safety outcomes 78
4.4.2 Multiple Linear Regression: Evaluation of the models 80
4.4.3 ANOVA table for regression model 82
4.4.4 Multiple Linear Regression Testing of Hypotheses 83
4.4.5 Multiple Linear Regression 84
4.4.6 Multiple Linear Regression of structural factor on frequency of event reported 86
4.4.7 Multiple Linear Regression of process factor on frequency of event reported 87
4.5.1 Logistics and infrastructural challenges 88
4.5.2 Staffing challenges 90
4.5.3 Blame Culture 91
4.5.4 Emergency preparedness 92

4.5.5 Heavy workload 92
4.5.6 Patient factors 93
CHAPTER FIVE 94
DISCUSSION 94
5.0 Introduction 94
5.1 Demographic and hospital characteristics of clinical staff 94
5.2 The prevailing patient safety culture in study hospitals 95
5.3 Patient safety culture in study hospitals compared 99
5.4 The influence of structural and process factors on patient safety outcomes 102
5.4.1 Patient safety grade 102
5.4.2 Frequency of events reported 104
5.5 Challenges associated with patient safety culture of staff 105
CHAPTER SIX 109
SUMMARY, CONCLUSION AND RECOMMENDATIONS 109
6.0 Introduction 109
6.1 Summary of findings 109
6.2 Prevailing patient safety culture 109
6.3 Safety culture in study hospitals compared 110
6.4 Factors that determines patient safety culture 111
6.5 Challenges facing patient safety culture 111
6.6 Conclusion 112
6.7 Contribution of the study to literature 112
6.8 Recommendation 113
6.9 The implication for patient safety 114
6.10 Limitations of the Study 114
6.11 Suggestions for future studies 115
REFERENCES: 116
APPENDIX 1 130
QUESTIONNAIRE 130
APPENDIX 2 ANOVA TABLES 138
Appendix 2Table 4.1 ANOVA test results 138
Appendix 2 Table 4.2 Post-hoc comparisons using the Tukey HSD 139

Appendix 2 Table 4.3 Post-hoc comparisons using the Tukey HSD 141
APPENDIX 3 143
ETHICAL CLEARANCE 143

LIST OF TABLES

Table 2.1 patient safety culture dimensions 16

Table 3.1 Hospital characteristics 48

Table 3.2: 2017 top 10 outpatient department cases, Bawku Presbyterian hospital 49

Table 3.4: 2017 Top 10 Outpatient Department Cases, Zebilla District Hospital. 51

Table 3. 4: Participating hospitals and their staff strength 53

Table 4.1 Socio-demographic and professional characteristics of respondents 66

Table 4.2 statistics for patient safety culture composite areas 69

Table 4.3 Descriptive Statistics for patient safety culture scale 70

Table 4.4 Patient safety culture outcomes 71

Table 4.5 statistics of outcome variables 71

Table 4.6 Test of Homogeneity of Variances for each of the Ten Domains of Patient Safety Culture for Presbyterian, Vineyard, and Zebilla Hospitals. 73

Table 4.7: Descriptive statistics for overall patient safety culture score 74

Table 4.8: ANOVA test results for overall Patients safety culture among three hospitals 74

Table 4.9: Post-hoc comparisons using the Tukey HSD 74

Table 4.10 Pearson correlation between process and outcome variables 79

Table 4.111: Summary of the models 81

Table 4.12: ANOVA table 83

Table 4.13: Regression of structural factors on overall patient safety grade. 84

LIST OF FIGURES

Figure 2.1 Donabedian conceptual frame work……..14

Figure 2.2 Conceptual Framework of factors influencing patient safety culture…….36

Map of Bawku Central……42

Map Of Bawku West……*44*

LIST OF ABBREVIATIONS

AHRQ	Agency for Healthcare Research and Quality
AIDS	Aquired Immuno Difficiency Syndrome
CHAG	Christian Health Association of Ghana
CJD	Centre for Justice and Democracy
CO	Communication Openness
DDNS	Deputy Director of nursing services
ED	Emergency Department (ED)
EHS	Environment Health and Safety
FCE	Feedback and communication about errors
FER	Frequency of event reported
GHS	Ghana Health Service
GHSFF	Ghana Health Sector Facts and Figures
HIV	Human Immune Virus
HOT	Handoffs and transitions
HPS	Compounds-Community-Based Health Planning and Services
HRO	Highly Reliable Organisation
HSOPSC	Hospital Survey on Patient Safety Culture
IOM	Institute of Medicine
MSPS	Management support for patient safety

NAM	National Academy of Medicine
NER	Number of events reported
NO	Nursing officer
NRE	Nun punitive response to error
OAPPS	Overall perception of patient safety
OLCI	Organisational Learning and improvement
PNO	Principal nursing officer
PSG	Patient safety grade
SCM	Swiss cheese model
SEAPPS	Supervisor Expectation and Actions Promoting Patient
SN	Staff nurse
SNO	Senior nursing officer
SSN	Senior staff nurse
THF	The Health Foundation
TWAU	Teamwork within units
TWWU	Teamwork within units
US	United States
WHO	World Health Organisation

ABSTRACT

Patient safety culture is a fundamental determinant of patient safety. Keeping patients safe ensures the wellbeing of the citizenry which translates into economic productivity. Infrastructural and human resource deficit in Africa and Ghana calls for more attention in the area of patient safety culture. As part of getting better outcomes for patients, the Ghana Health Service patient chatter was developed to guide both patients and health workers to achieve good patient care outcomes. The purpose of this study was to assess clinical staff perception of patient safety culture in selected hospitals in Bawku Central and Bawku West Districts and explore the challenges staff encounter when observing patient safety culture. The study employed Mixed Method approach and Cross-sectional survey using the Hospital Survey on Patient Safety Culture (HSPSC) data collection tool. The target population was clinical staff. Out of the 385 questionnaires administered, 364 representing 94% response rate was achieved. The results were presented using descriptive statistics, ANOVA, correlation and multiple linear regression. Qualitative data was analyzed in themes. The results indicate that the overall positive rating of patient safety culture was 59%. Non-punitive response to errors (25.95%), and Staffing (33.45) were perceived to be poor. ANOVA comparative test of the selected hospitals and patient safety grade indicates that Vineyard (private) has a better safety grade (66.7%) than Presbyterian (faith-based and Zebilla (public) hospitals. Regression analysis showed that three structural factors; management support for patient safety (β=.188, p=.000), non-punitive response to error (β =.092, p=.014) and supervisor's expectation and action promoting patient safety (β =.188, p=.017) influence patient safety grade and frequency of event reported. The findings suggest that patient safety culture is important in improving the overall performance of hospitals and ensuring patient safety.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

In this chapter, the researcher discusses the background of the study, problem statement, the objective of the study and hypotheses. In addition, the significance of the study, definitions of key terms and the chapter organization are discussed.

1.1 Background to the study

Healthcare delivery is supposed to be safe. However, it is not always safe as it should be (National Patient Safety Foundation, 2015). Medical errors/adverse events pose a serious threat to the safety of patients worldwide. An adverse event is the cause of injury/harm by medical treatment rather than the primary disease of the patient (WHO, 2008). For instance, in every 35 seconds, a patient gets injured in the United Kingdom (Mauro, Greco & Grimaldi, 2016). In Canada, approximately 185,000 medical errors are recorded every year and about 38 percent of these incidences are preventable with good practices (Baker *et al.,* 2004). In the United States of America, about 44000 to 98000 patients die of preventable medical errors (Donaldson, Corrigan & Kohn, 2000). Yearly, over 700,000 outpatients in the United States are treated by emergency departments for medical errors (National Academy of Medicine, 2017).

In many African countries, patients safety remains a major challenge (Alhassan *et al.,* 2015). In a retrospective review of 15,548 patients records from over eight African countries, it was found that about 8.2 percent of the records had at least one adverse event. Out of the 8.2% adverse events, approximately 83% were preventable and 30 % were associated with patient death.

Furthermore, adverse events occur in about 30% of all patients attending hospitals in Africa (Ente, Oyewumi & Mpora, 2010).

The consequences of medical errors cannot be underestimated. For instance, medical errors kill more people than motor-accident, breast cancer and AIDS (National Academy of Sciences, 2000). Moreover, medical errors can lead to patients' distrust in the healthcare system and decrease both patients and providers satisfaction with care (National Academy of Sciences, 2000). Medical error is the 14th leading contributor to the global burden of diseases (National Academy of Medicine, 2017). Besides, about 15% of overall healthcare institution spending is as a direct result of medical errors (Slawomirski, Auraaen & Klazinga, 2017). Adverse events exert physical and financial burden on patients, their relatives and the community at large (Leape et al., 2002). Therefore, the safety of patients has become a concern for health professionals and researchers worldwide (Goh and Kuziemsky, 2011; Fujita et al., 2013).

Poor patient safety culture among clinicians is one of the factors that hinder the reduction of medical errors in health facilities. Patient safety culture is defined as ' the product of individual and group attitudes, beliefs, behaviors, perceptions, and values that determines an organization's responsibility to patient safety' (World Alliance for Patient Safety, 2011). A poor patient safety culture is characterized by inadequate training and supervision for clinical staff and the failure to observe protocols or policies (Wilson *et al*., 2012). A safety culture with the attributes of shaming, naming, and jailing contributes to poor patient safety culture. Again, there is a lack of willingness among staff to document medical errors to improve upon learning culture (Ente et al., 2010). Furthermore, poor communication, inadequate staff and punitive response to errors

contribute to compound poor patient safety (Abbas, Bassiuni & Baddar, 2008). Further, studies indicate that poor management actions and lack of feedback on reported errors are barriers to maintaining positive patient safety (World Health Organization, 2014). The consequences of poor patient safety culture cannot be underestimated. It can result in poor patient care leading to both mortality and disability (Colla et al., 2005). If patient safety culture is poor, medical errors can occur. For example, a study conducted in South Africa found that poor safety culture among clinical staff resulted in poor treatment outcomes (Mayeng & Wolvaardt, 2015).

On the other hand, a positive patient safety culture is key to improving patient safety outcomes (Fujita et al., 2013). A positive patient safety culture depends on effective communication, appropriate staffing, procedure compliance, leadership support, non-punitive response to error, teamwork among others (Joint Commission Resource, 2008). In addition, a positive patient safety culture requires that individuals identify and communicate their errors without fear. A positive patient safety culture opposes a culture of blame (Mohr et al., 2005). Goh and Kuziemsky (2011) recommend that patient safety culture should be a priority of healthcare leaders and should be part of an organization's culture. Safety culture should promote collaborative learning, replace blame culture and motivate individual who identify and report errors. The Joint Commission (2008) also argued that a positive patient safety culture is dependent on teamwork, and a collaborative environment. Studies have found that a positive patient safety culture can help reduce medical errors (Mohr, 2005). Positive patient safety culture is cost-effective, can reduce unnecessary hospital admissions resulting from adverse events and has the potential of saving countries millions of dollars annually (Mauro et al., 2016).

However, there is a paucity of literature on patient safety culture in Africa (Powell et al., 2011). The available literature indicates that about 75% of physicians and healthcare workers hold the views that medical errors are committed by individual practitioners leading to personal guilt and regret (Ente., et al 2010). These regrets instill some fears of being blamed or prosecuted thereby hindering the reporting of adverse events in African healthcare facilities compared to other parts of the world (Barach & Small, 2000). Notwithstanding the challenging environment, the healthcare system needs a paradigm shift from a culture of individual blame to a system-based approach (Jewell & McGiffert, 2009). Error recognition has increased the interest and desire to include not only technical failures but also organizational processes, management, and staff factors, which are the main causes of unexpected patient outcomes (Colla et al., 2005).

1.2 Problem statement

Ghana is an African country with a population close to 30 million. In Ghana, many people seek healthcare from professional healthcare providers (Kotoh, Aryeetey & Van Der Geest, 2017). Patient safety and quality of care remain major challenges of Ghana's healthcare system (Alhassan *et al*., 2015). For instance, in every 24 hours, about 8.7% of patients receiving care in health facilities in Ghana get harmed (Ocran & Tagoe, 2014). In 2014 Ghana reported only 6 harmful incidences for 1000,000 population to the World Health Organisation Program for international drug monitoring which is woefully below the WHO recommended reporting rate of 200 per million population per year (Sabblah, et al., 2014).

Despite the benefits associated with promoting patient safety culture in hospitals, there is scanty empirical literature on Ghana. According to Avortri (2015), patient safety and safety culture have

attracted low interest and commitment in Ghana. Amponsah-Tawiah and Adu (2016) argued that when a good safety culture is lacking, there is low teamwork within and across units, poor communication openness and leadership lack of interest in safety. It has been argued that evaluating patient safety culture of healthcare professionals is the first step to promoting safe care and reducing adverse events (Gozlu and Kaya, 2016).

However, most of the studies on patient safety culture are from developed countries whose context are different from developing countries like Ghana (Wagner, Smits, Sorra & Huang, 2013). In Ghana, there is a dearth of literature on patient safety culture among healthcare providers. Prior studies focused on work pressure and safety behavior among health workers (Amponsah-Tawiah & Micheal Appiah Adu, 2016). Another study at the La general hospital found a lack of adequate safety training of staff and management not equipped enough to handle safety issues (Ameko, 2015). In addition, a study on the assessment of patient safety systems and practices in Sunyani Municipal Hospital found that safe surgical care was below expectation (Yeboah et al., 2017).

Even though anecdotal evidence shows that faith-based hospitals have better patient safety culture than public and private hospitals, there is limited empirical literature to substantiate this assertion. Furthermore, little is known about challenges clinical staff encounter in their quest to practice good patient safety culture. This study, therefore, seeks to assess clinical staff perceptions of patient safety culture in selected hospitals in Bawku Central and Bawku West districts, and explore challenges clinicians face in practicing good patient safety culture.

1.3 Objectives of the study

The study seeks to assess clinical staff perceptions of patient safety culture of selected hospitals in Bawku. The specific objectives include the following;

1. To assess clinical staff perceptions of the prevailing patient safety culture.

2. To compare staff perceptions of patient safety culture among the study hospitals

3. To investigate the factors that determine patient safety culture

4. To identify challenges facing patient safety culture

1.4 Research Hypothesis

Hypothesis One:

H_0 *Patients safety culture in the study hospitals will not differ from the benchmark of 75% positive response on the patient safety culture scale.*

H_1 *Patients safety culture in the study hospitals will be less than the benchmark of 75% positive response.*

This hypothesis is based on the prevailing literature that some high-income countries do not have a safety culture meeting the benchmark (Theodosios, 2012; Gordon & Bose-Haider, 2012);

Ghana been a developing country where resources are scarce is likely to score lower positive ratings than the benchmark.

Hypothesis Two:

H_0: Staff perception of patient safety culture will not significantly differ across the study hospitals.

H_1*: Staff perception of patient safety culture will significantly differ across the study hospitals*

This hypothesis is set to test whether differences exist between these ownership type: Government, Private and Faith-based health facilities and to determine which type drives the difference.

Hypothesis Three:

H_0 Structural and process factors will have no significant influence on patient safety outcomes

H_1 *Structural and process factors will have a significant influence on patient safety outcome*

This hypothesis is derived from the notion that good structures lead to good processes and good processes lead to good outcomes (Donabedian 1986).

1.5 Significance of the Study

The findings of this study are important for government policymakers, health institutions, patient safety activist and researchers. The study is relevant in these areas due to the fact that it provides inside in staff perception of patient safety, it identified the prevailing patient safety culture in the study institutions and the differences that exist in Government, faith-based and private health facilities which are applicable to many health facilities in Ghana and Africa at large.

The findings further provide useful information for Government and policymakers to formulate national and institutional patient safety culture policies. This will help to curtail the challenges clinical staff encounter in ensuring patient safety in healthcare institutions. The findings will help to remove barriers to patients-staff and staff-staff relationships which will translate into greater utilisation of health services resulting in a decrease in all forms of disabilities, impairments, handicaps, and deaths that could result due to unsafe patients' safety culture practices.

The findings have further opened a clearer path for clinical staff to know the attributes and factors that are needed to develop a congenial patient safety culture to ensure patient safety. In addition, the findings of the study may further create an avenue for further studies to be conducted on patient safety culture in Bawku and other parts of the country in order to move towards a state where healthcare workers will consciously and effortlessly maintain patient safety through the practice of patient safety culture.

1.6 The scope of the study

The study covered patient safety culture in faith-based, private and government hospitals in Bawku. The study was limited to clinical staff of the selected hospitals and did not cover nonclinical staff or staff from other hospitals. Therefore, generalization should be done with caution. In view of the fact that the study was to assess staff perceptions and to explore the challenges they encounter, the study made use of staff who mostly have direct interaction or contact with patients. Other facilities and other categories of staff were not part of the study due to resource and time constraints.

1.7 Operational Definitions

Safety; freedom from accidental injuries

Culture; "*The way we do things around here"*, where here refer to the healthcare setting.

Patient; A person seeking healthcare services from a healthcare institution

An event: The unexpected happenings in the course of medical treatment.

Patient safety: Making sure patients are not harmed while receiving medical care.

Clinical staff; Hospital staff whose work directly influence patients recovery.

Positive response to patient safety culture: A response rate of 75% positive or more on the patient safety culture scale.

1.8 Organisation of the study

This study was organised into six chapters. Chapter one is the introduction to the study. It includes the background information, problem statement, specific objectives of the study, research questions, scope, significance of the study and operational definitions.

Chapter two is a literature review. Literature was reviewed in two sections; theoretical and empirical literature on patient safety culture. The chapter further used the Donabedian conceptual Framework as the underpinning framework to assess staff perception of patient safety culture of selected hospitals in Bawku. The literature review was done taking cognisance of the stated objectives of the study.

Chapter three covers the methodology which comprises the study design, the study type, the study variables (independent and dependent variables), the procedure used for data collection, sampling procedure and sample size, study population, data collection methods, quality control measure as well as plans for dissemination of the findings.

Chapter four comprise of data analysis, which made use of the findings obtained from the respondents to generate answers to the stated objectives and the reviewed literature. The researcher further used tables to present the results of the study.

Chapter five captured the discussions of the findings with respect to the study objectives and literature review to find out whether the findings conform to literature or not.

The final chapter (6), was focused on a summary of the main findings, the implication of the study conclusion and recommendation with regards to the findings

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents the theoretical and empirical literature on patient safety culture that is relevant to the study. The chapter is divided in to three sections. The first section covers the introduction and historical perspectives of patient safety culture. The second part looked at the theoretical literature and the third aspect dealt with the empirical literature relevant to the study. The empirical literature was reviewed based on the Agency for Healthcare Research and Quality dimensions on patient safety culture (Famolaro, Yount & Hare, 2018). Challenges associated with patient safety culture was also reviewed. The final aspect of the chapter dealt with the development of a conceptual from work for the study.

2.1 Historical Perspective of Patient Safety Culture

Patient safety culture began with the term "*Primum non nocere; first, do no harm*". The term is accredited historically to Galen. It became part of American and British medical culture, introduced by Hooker in 1847 (Jones, 2007; Ilan & Fowler, 2005). Florence Nightingale acknowledged this idea of safety culture and states that; "It may seems a strange principle to enunciate as the very first requirement in a hospital, that it should do the sick no harm" (Nightingale, 1859). This advocacy regarding safety culture became dormant until the occurrence of two major events; First, it became popular in (1987) after the '*Chernobyl nuclear disaster*' when it was suggested that organisations can reduce safety incidents by developing a positive safety culture (The Health Foundation, 2011).

The second trigger event was in (1999) when the institute of medicine unveiled serious medical malpractice in healthcare system. They published a ground-breaking article; "To Err is Human." They found 44,000 to 98,000 deaths occurring in US health facilities resulting from medication errors (Donaldson, Corrigan & Kohn, 2000). This was ensued by "*Crossing the Quality Chiasm*" A new health system for the twenty first century in 2002, as a wider form of "to err is human" (Pittet & Donaldson, 2005). They proposed that systems and structures should be put in place making it harder for people to commit errors and easier for them to do the right thing (Ulrich & Kear, 2014). This led to the development of several instrument to measure safety culture in healthcare institutions. Such as the "*Agency for Healthcare Research and Quality (AHRQ) hospital survey on patient safety culture"* (Joann Sorra et al., 2016).

To obtain an indebt understanding to patient safety culture, both safety and culture were looked at. Safety has been defined by Hudson as "just make sure that people are not hurt" (Hudson, 2001). Whiles Patient safety is the prevention of errors and adverse events associated with healthcare delivery rather than the under laying condition of the patient (Barbosa & Malik, 2016). According to Reason (2000), a safety culture like a state of grace, is a product of continual striving whiles Patient safety is further defined as "freedom from accidental or preventable injuries produced by medical care" (World Health Organization, 2012).

2.2 Review of Theoretical Literature

A number of theories explain patient safety culture in healthcare delivery**.** However, there is the possibility for healthcare institutions not to depend on the available theories for their practices.

Applying theory for Patient safety culture is necessary in every healthcare institution given the role it plays in the prevention of medical errors and the reduction of adverse events to patient (The Health Foundation, 2011). Safety culture has a positive relationship with hospital adverse events, morbidity and readmission rate (Hofmann & Mark, 2006; The HealthFoundation, 2011). Maintaining safety culture also improves quality of care thereby increasing the facility's clientele.

Theories that are applicable in the study of patient safety culture include but not limited to;

The Swiss cheese model (SCM), which indicates that, errors occur due to various levels of weaknesses in the healthcare system. The model likens the healthcare system to the Swiss cheese but differs in the fact that the holes are opening, shutting and shifting their locations. An error occurs when holes on several layers opened through each other continually and create an opportunity for harm to reach the victim (James Reason, 1990). This can happen through active failures or latent failures. Active failures occurs when those who have responsibility to patient such as nurses, pharmacist, doctors, laboratory staff and anaesthetist make mistakes through slips, lapses, fumbles and procedures failures (James Reason, 1990). Latent failures emanate from management roles workable systems and infrastructural lapses.

Another theory is the just culture perspective. This theory considers three levels of errors causation. The first and mild aspect of error causation is human error which occurs as a result of errors in the system designs and behaviour choices. A personal choice of at risk behaviour with less justifiable reasons for such behaviour and the final level of reckless behaviour portraying a conscious disregards of substantial and unjustifiable risk actions (Jones, 2013).

However, this study adopted Donabedian conceptual framework of quality and patient safety. The Avedis Donabedian framework which is made up of structure, process and outcome, has been the most profound conceptual framework for examining health services and assessing patient outcomes (Donabedian 1980) as cited by (Famolaro, Yount &Hare, 2018). Donabedian defined structures to be the physical and Organisational property in the work environment in which care is provided. Process refers to the kind of services offered whiles outcomes are the end results of healthcare (Donabedian, 1980). From the stand point of patient safety, Donabedian model stipulates patient safety framework and allows for scrutiny of how risk, errors and hazards are entrapped in the structures of health care system and the process, action and inactions of both system and persons leading to patient safety out comes (Baker et al., 2005). Individual or team failure in healthcare delivery are persistently recognised as an outstanding causal factor for negative patient outcomes (Baker et al., 2005). Donabedian further states that a strategy is successful if the structure and process lead to a positive change in patient safety outcomes. The Donabedian model again envisage that, outcomes be evaluated and deemed fit for the assessment of patient safety culture. The hospital survey on patient safety culture (HSOPSC) data collection tool was suitable to be used with Donabedian framework. It is made up of 42 items measuring 12 composite areas in addition to two outcome variables (Agency for Healthcare Research and Quality, 2017). It is, therefore, fit to use the Donabedian conceptual framework to guide the researcher.

Figure 2.1 Donabedian conceptual framework for healthcare quality and safety

Out of the 12 composite areas, four are structure dimensions; *Supervisor or manager expectation and actions promoting patient safety, management support for patient safety, staffing and non-punitive response to error*. The process factors were made up of *teamwork within and across units, Organisational learning and continuous improvement, feedback and communication about error, communication openness and handoffs and transitions*. Four outcome variables measured include; *overall perception of patient safety, number of events reported within the period of a year, patient safety grade and frequency of events reported.*

2.3 Empirical Literature Review

Empirical literature reviews were based on the patient safety culture composite areas as well as respondent's socio-demographic factors. The four managerial structures (Manager's expectations and actions promoting patient safety, supervisor's support for patient safety, provision of staff and non-punitive response to error). The six Process factors: (teamwork within and across units, Organisational learning and continuous improvement, feedback and communication about error, communication openness and handoffs and transitions). Then finally the outcome factors overall perception of patient safety, number of events reported within the period of a year, patient safety grade and frequency of events reported). The dimensions and their definitions are presented in table 2.1.

Table 2.1 patient safety culture dimensions.

Structural Factors	Definition
Management support for patient safety	"Management provide conducive environment for work climate and show that patient safety is a top priority" Using the percentage of positive responses recommended by the Agency for Healthcare Research and Quality. This method is employed for all the safety culture dimension (Leap et al., 2002)
Supervisor Expectation and Actions Promoting Patient Safety	"Staff suggesting are considered for improving patient safety and do not overlook patient safety problems"
Nun punitive response to error	"Staff feels their mistakes are not held against them and that mistakes are not kept in their files"
Staffing	"There are enough staff to handle the work load and work hours are appropriate to provide the best care for patients"
Handoffs and transitions	"Important patient care information shared across units during shift changes"
Process Factors	**Definition**
Teamwork within units	"Staff support each other, treat each other with respect and work together as a team"
Communication Openness	"Staff freely speak up if they see something that may negatively affect a patient and feel free to question those with more authority"
Organisational Learning and improvement	"Mistakes have led to changes and changes evaluated for their effectiveness"
Feedback and communication about errors	"Staff are informed about errors that happens and given feedback about changes implemented and discuss ways to prevent errors"
Teamwork across units	"Hospital units cooperate and coordinate with each other to provide the best care for patients'

Number of events reported	'The number of mistakes health workers commit whether it cause harm to patient or not"
Overall perception of patient safety	"Procedures and systems are good in preventing errors and there is a lack of patient safety problem"
Frequency of events reported u	"It involved reporting the following; mistakes caught and corrected before affecting the patient, mistakes that has could harm the patient but did not and the mistakes that has no potential of causing harm"
Patient safety grade	"Believing that the hospital and its staff has what it takes to avoid bad events, lesion mistakes and prevent harm to patient"

Hospital survey on patient safety culture users guide 2016

Structural factors

2.4.1 Management support for patient safety

When an institution's management shows concern for patient safety, staff would be motivated and cautious of what management ascribed to. A study carried out by (Sorra et al., 2016) on "Patient safety climate in US hospitals: Variations by management level" indicates that frontline workers and senior management have influence on patient safety culture. Front liners have few problematic views than senior managers. There is the need to put effort in improving patient safety and address perceptual differences both among and within group by management levels.

Hellings, Schrooten, Klazinga & Vleugels (2007) carried out a study on "Challenging safety culture". The study recorded management support for patient safety culture as one of the lowest scores (viewed negatively) by staff and is seen as an important challenge for all hospital stakeholders. Similarly, another study conducted by (noord, Wagner, dyck, Twisk & De bruijne, 2014) to study staff perception on the association between safety culture and patient safety gives

a positive perception on all the construct Indicating more nurses scoring positive management support than doctors.

2.4.2 Supervisor or manager expectation and actions promoting patient safety

Recognising the exact components of a healthcare organisation patient safety culture is a difficult task. However, literature indicates that the role of supervisors and managers is a key determinant in designing and aiding the development of patient safety culture (Classen et al., 2011; Leape et al., 2009a; Mitchell, 2008). Leaders who see the importance of safety culture develop interest in patient safety culture by designing strategies and building structures that guide safety processes, give rewards and recognition and focus on positive treatment outcomes (Classen et al., 2011; Yates et al., 2005). Leaders convey their action plan regarding patient safety, the decisions they arrive at prudent allocation of scarce resources and feedback they provide with regards to patient safety culture (Pronovost, 2003). Teamwork is enhanced and staff confidence busted when managers are constantly engaged with workers (Pronovost, 2003). The study recorded 52% as management effort to patient safety as perceived by staff. This result reflects that management support for patient safety is inadequate.

A survey carried out in Ghana to assess work pressure and safety behaviour of healthcare workers: "The moderating role of management commitment to safety", indicates that high management commitment to safety was associated with positive safety behaviour (Amponsah-Tawaih & Adu, 2016). Natasha and colleagues studied on patient safety in Organisational culture as observed by hospital leaderships with different types of administrative strategies in Brazil. The study discovered a correlation between type of administration, and management expectations and actions promoting patient safety to be negative (Barbosa & Malik, 2016). They

concluded that different healthcare organisation looked at the culture of patient safety differently and needed to add other dimensions in order to improve upon their patient safety culture.

A study in Taiwan hospitals on patient safety culture rated management support for patient safety as 45.2% and an overall safety culture as 37.2% (Lee et al., 2010). These ratings were far below the benchmark for positive patient safety culture. They concluded that hospital safety culture is immature in Taiwan and needs massive improvement. A similar study involving three countries; Japan, Taiwan and the United States, to determine the characteristics of patient safety culture revealed that hospital management assistance in patient safety was significantly low in all the three countries, with US scoring the lowest (Gordon & Bose-Haider, 2012). The results were indication that, patient safety culture varies among countries.

Another study carried out at university of North Texas to defined patient safety culture, indicates that; leaders acknowledge the hospital certain as a high risk environment and seek to align vision and mission, staff competences and human resource from the boardroom to the frontline (Sammer et al., 2014). They again noted that leadership walk rounds, accountability and commitment are management actions that promotes patient safety out comes (Johnson & Maultsby, 2007). Other studies revealed that encouraging staff development, in service training and a strong organizational procedure are management actions that promote patient safety culture (Hartmann et al., 2009).

2.4.3 Staffing and patient safety culture

A study carried out in "A large hospital in Riyadh: a baseline assessment, comparative analysis and opportunities for improvement" posits that staffing is a very critical element in patient safety

and needs massive improvement (El-Jardali et al., 2014). Adequate staffing is fundamental for patient safety and quality of care (WOH, 2008). The staff are usually the last layer of defence for error occurrence. Therefore under staffing and inadequate skill mix of staffing are thread to patient safety (Alfredsdottir & Bjornsdottir, 2008). Singer et al., (2009) found in a study that 49 % of participants have witness productivity pressure emanating from unsafe actions by healthcare professionals. Inadequate staffing couple up with staff turnover, degrade the integrity, cohesion and collective experience of unit staff there by affecting the safety outcome of patient (Wilson, 2007).

In the study on improving patient safety culture in Saudi Arabia, majority of study participants were registered nurses and that healthcare professionals work longer than normal for patient safety (Alswat et al., 2017).

2.4.4 Non-punitive response to error and patient safety culture

For the healthcare system to achieve a highly positive patient safety culture as that of a high reliable organisation, trust within the work environment among staff and management is a key factor. The presence of trust serves as a motivational factor for staff to talk about errors they have committed with their co-workers. Errors are inevitable in a human institution. Even though for the healthcare sector, the aim is to fulfil the adage “primum non nocere” (first do no harm) to patients and their relatives, yet errors do often occur (Ulrich & Kear., 2014a). In a non- punitive environment where reports of errors are made without the fear of been punished, mocked at, or ashamed of the action, is of paramount importance in the healthcare sector.

A study conducted to measure staff perception of non-punitive response to errors reporting indicates that effective response to errors with the main aim of identifying systems errors that militate against positive patient safety culture rather than the individual blame is needed to promote patient safety (Battard, 2017). The study revealed that most staff hold the view that their mistakes when reported are held against them and written reports kept in their files leading to overall non- punitive response scoring only 42% positive. Several studies also recorded low positive perception for non- punitive response to error reporting (Battard, 2017; Jones & connor, 2016; Mary, 2009), they variously described the response as worker apathy. This is an indication that workers have so much fear in reporting errors they have committed. Furthermore, Jones & O ’conno further discovered that hospitals with strict rule scored lower means 64.8% than hospitals that donot use strict rules 66.8% and frequency of events reporting 63.2% as against 62.9%. However, on number of events reported strict rule institutions obtained a mean of 54..8% for reporting no event whiles non strict rule hospitals obtained 50.5%. (Jones & O ’connor, 2016).

Another study carried out at the Texas university on errors reporting; a new kind of safety culture assessment discovered two factors of measure of error disclosure to be the focus on the general culture and the principle of trust (Etchegaray et al., 2012). These two dimentions predicted the intent to disclose a near miss to a patient. The study also revealed that those who received pre error disclosure training reported significantly higher levels of error disclosure for general culture and trust culture respectively.

Gordon & Bose-Haider (2012) carried out a study on a new way of giving feedback to decrease medical errors; a pilot study found that 205 respondents in anonymous study and another 69

respondents with 33280 and 784 possibilities of errors respectively, yielded no significant difference in their error commitment. They concluded that an error feedback system can reduce errors. Another study that has been done to "investigate quality of healthcare services and its relationship with patient safety culture and nurse physician communication", revealed that staff perception of patient safety culture ranges from 45.87 % positive for non-punitive report of errors to 68.21 % for Organisational learning (Ghahramanian, Rezaei, Abdullahzadeh, Sheikhalipour & Dianat, 2017). They conclusively state that Organisational method of dealing with patient safety culture should buy in to the idea of non-punitive response to error. This is in line with the Swiss Cheese Model which maintained that causation of error stems from various factors as active and latent, potential hazard and potential loopholes to allow harm to reach the patient (James Reason, 2000a; Tsoka-Gwegweni & Wassenaar, 2014). Therefore, if medical error eventually occurs, the general system should be looked at rather than placing blame on the individual health professional who is at the end point of error occurrences (Severo et al., 2014). The system approach in a non- punitive facility, with emphasis on error reporting, will lead to learning and finding of answers to committed errors.

2.5 Process factors of safety culture

2.5.1 Teamwork and Patient and patient safety culture

The hospital set up is basically a system to accomplish a task relating to patient health (Perrow, 2011). Aimed at preventing or treating patients suffering from different kind of health problems (Hoff, 2015). In trying to provide health care, health care professionals must work in teams. The aim is to bring individuals with unique competencies and specialised job roles and use common resources in solving patients health problems (Perrow, 2011; Reeves, 2011). Various studies

have confirmed that, factors contributing to negative events in healthcare stem from faulty teamwork rather than lack of skills (Hogden et al., 2017; Manser et al., 2009). Good teamwork could have played an important role in the prevention of many negative events. Good teamwork was associated with improved patient safety and performance in the emergency units, operating theatre and neonatal intensive care units (Catchpole, De Leval, et al., 2007; Catchpole, Giddings, et al., 2007; Neily et al., 2010). Teamwork further help to reduce mortality rate among the aged (Gary Null et al., 2004; Randerath et al., 2001) and increase after-discharge survival for patients suffering with chronic heart failure (WOH, 2008).

Furthermore, teamwork have a relationship in health care staff's attitude towards patient safety in obstetric care (Pettker et al., 2011), hospital mortality (Catchpole et al., 2007; Neily et al., 2010), less adverse events in paediatric care (Catchpole, De Leval, et al., 2007) team work also indicates reduction in lower respiratory tract infections (pneumonia) (Bigham et al., 2009) and catheter-related bloodstream infections (Listyowardojo et al., 2012; Van et al., 2012) in paediatric intensive care.

Hall and Weaver distinguished three forms of healthcare teams consisting of members from different professional groups. The first form is the "multi-disciplinary team" in which team members from different professionals contribute their particular expertise in treating a patient. The second form is the "trans disciplinary team" in which team members roles overlapped and are interchangeable. With this, team members are familiar with team concept. The third form of team work is the interdisciplinary team in which team members from different professions, work closely with each other to deliver healthcare to patients. (Hall & Weaver, 2001). Team work

enhance patient compliance and increase patient satisfaction, increase efficacy, reduce cost of care and decrease duration of hospitalization (Wylie & Wagenfeld-Heintz, 2004).

Several studies among healthcare professionals indicate that leadership quality and communication openness were rated positively in examining staff perceptions of teamwork (Flin, 2003; Miller & Cohen, 2001) Another study conducted to assess patient safety culture in the Gaza Strip pointed out that, the safety culture dimension with the highest positive score was team work within units (78%). They concluded that safety culture within team work influences staff attitudes and actions towards patient safety (Bassam Abu-Hamad, 2016). In comparing different categories of healthcare professionals in their perceptions of teamwork, nurses pointed out teamwork of having less impact on patient safety and quality of care than physicians (Sexton et al., 2006). However, another study carried out in the university medical Centre, Groningen, the Netherland, to assess the variations in hospital worker perception of safety culture, indicates that nurses scored higher safety culture perception than physician (Listyowardojo et al., 2012; noord, Wagner et al., 2014). None the less both categories of staff scored less than average positive patient safety culture. It is also an indication that perceptions differ across profession and the research settings. Several studies attest to the fact that healthcare is not same in the aspect of team work and responsibilities in patient safety development and that a significant proportions of physicians allude to the fact that nurses significantly play roles in teams making decisions regarding patient safety (Drinka & Clark, 2000; Leipzig et al., 2002; Makary et al., 2006; Sexton et al., 2006; Thomas et al., 2004).

2.5.2 Communication openness and patient safety culture

Communication openness in a healthcare institutions is the state in which a staff, irrespective of his or her job description, has the right and the responsibility to speak up on behalf of a patient (Mallouli et al., 2017). A study conducted by (Dingley, Daugherty, Derieg & Persing, 2008) analysed communication openness and identified "problematic time" as a contributor to open communication challenges. Problematic time constitute the period staff spent in trying but failing to communicate with the correct provider. Recent studies indicate that ineffective communication among healthcare workers is one of the main causes of medical mistakes and harm to patients in healthcare institutions (Leonard et al., 2004; Lingard et al., 2004). A study on "Improving patient safety through provider communication strategy enhancement" found that, communication problems are straight forward and exist in four categories; a too late communication to be effective, failure to communicate with all effective stage holders, incomplete, inconsistent and inaccurate content and unachieved communication purpose (Dingley et al., 2008; Lingard et al., 2004). Therefore, inappropriate communication could compromise the quality and safety of care rendered to patients. Several studies have also shown that communication openness is an integral part of safety culture (Blake, Kohler, Rask, Davis & Naylor, 2006; Farrell & Davies, 2006). That Assertive language such as "Add some clarification" (Weinstock, 2007) and structured language such as "read back" are communication strategies central to patient safety culture. These expressions clarify and provide accuracy in verbal orders and also provide check and balances in the correction of procedures and the identifications of patients for correct and effective treatment (Beckett & Kipnis, 2009; Farrell & Davies, 2006; Wagner, Capezuti & Rice, 2009; Weinstock, 2007; DesHarnais, 2012).

Studies have also shown that effective patient centred communication timely intercepts and corrects potentially harmful errors or adverse events (Lyndon et al., 2015). Other studies indicate that, poor communication among staff has militated against hospital efforts to put in place patient safety culture (Blake et al., 2006), and that poor communication openness exist at the clinical and managerial levels and is a barrier to errors reporting among clinical staff (Blake et al., 2006; Brennan et al., 1991; Flin et al., 2003). Another study carried out at Tabriz, Iran to ascertain the "Quality of healthcare services and its relationship with patient safety culture and nurse – physician professional communication" indicates that there exist a very low communication openness among them, as in non-participation decisions and lack of cooperation respectively (Ghahramanian et al., 2017). They concluded that effective communication among healthcare professionals is needed in the development of patient safety culture.

A survey to assess patient safety culture; variability of scoring strategies in France, records that, communication openness is one of the most developed dimension with an average score of 62 % positive (Giai et al., 2017). Variation of hospital worker perception about patient safety culture, a study at the Netherland revealed diverse perceptions of hospital workers about patient safety culture and in particular, communication openness. More positive rating emerged from physicians and non-clinical staff than nurses (Listyowardojo et al., 2012). Hamdan and colleagues also perform a study in Palestinian hospital and found communication openness to have scored a very low percentage positive (36%) which is an indication that communication openness is less developed within healthcare organisation (Hamdan & Saleem, 2013a).

2.5.3 Organisational Learning, Continuous improvement and patient safety culture

Learning culture is having the ability to respond to the demand of a task, employing varied methods with a positively changing the handling of errors and near misses (Ulrich & Kear, 2014a). Learning in general, encompasses the acquisition, sharing and usage of new knowledge and success for a health facility to achieve outstanding patient safety and maintain a culture of safety. Organisational learning and continuous improvement should be a key component for every staff performance to enhance skills and competences (Dekker & Breakey, 2016).

A survey of 405 Gaza Strip health providers revealed that most of the participants wanted continuous learning to reduce medical errors (Bassam Abu-Hamad, 2016). In the assessment of patient safety culture in Palestinian Public hospitals, participants maintained that learning takes place from mistakes that occur in practice and enhanced changes in the system to reduce the likelihood of future errors from occurring (Hamdan & Saleem, 2013a).

The National Patient Safety Agency in a joint conference on improving patient safety: Inside from America, Britain and Australian healthcare, posit that leering is not to respond to the adverse event with blame, but learning from the wrong, and striving to curb future occurrences (Anderson, 2003).

2.5.4 Hospital handoffs and transitions

A handoff is a transfer and the acceptance of patient progress of care through effective communication. Handoffs involves the real time transfer of patient information from one care giver at a shift to another to ensure continuity of care and safety of the patient (Joint Comission's Center for Transforming Healthcare, 2014). On handoffs communication

performance measure, it was found that a large number of participants receives defective handoffs from staff who have ended their shift (The Joint Comission's Center for Transforming Healthcare, 2014). Handoffs is, therefore, a time of reinforcement and the information exchange can spread or undermine informal norms and change the way the group do it things and the individual obligations (Leape et al., 2009).

Hospital handoffs with detail information for continuity of care have a positive relationship with patient treatment outcome. Giai et al., (2017) on a study, "Hospital survey on patient safety culture: Variability of scoring strategies revealed that handoffs and transition was one of less developed construct in safety culture dimensions. They also discovered that safety culture varies from one department to the other. The period of handoffs offers a great opportunities for junior nurses to learn "the way things are done around here" (Cohen & Hilligoss, 2009). In a study to ascertain the "working hours of hospital staff nurses and patient safety", indicates that all participants work full time at least 36 hours per week, working 8 and half hours and 12 and half hours to have 30 munities in-between for handoffs (Rogers, Hwang, Scott, Aiken & Dinges, 2004). They also recorded a large number of errors (199) and (213) near misses, mostly being medication errors occurring as a result of over time shift. Studies have constantly shown that shifts that exceed 12 hours are detrimental to healthcare safety, quality and expected outcome (Rogers et al., 2004). Therefore, keeping a balance on the human resource requirement of the hospital, life style needs of staff, quality, experience demand of clients, is a dynamic, continuous process that need to be brought to bear (Dempsey, Ganey, & Nursing, 2016).

2.6 Patient safety outcomes

2.6.1 Number and Frequency of error reporting

Establishing a learning culture and error reporting within the healthcare sector has the probability of changing the preventable medical errors that often lead to death of clients posing a problem for the individual healthcare worker that calls for criminal investigation (Wilson, 2007; Wolf & Hughes, 2008; Zhan et al., 2005). Furthermore, prescribing punishment for healthcare professionals as a results of the occurrence of an error makes it difficult for staff to report errors they have encountered (Goh et al., 2013; WHO, 2005). Punishment denies leadership the opportunities to examine the very systems that is needed to unveil and correct the underlying causes of such errors (Leape et al., 2009a; Woolf, Kuzel, Dovey & Phillips, 2004). This fear of punishment and possible shame and guilt undoubtedly encourages providers to cover up their mistakes. However, James Reason states that an organisation is made up of several layers that have defences (the cheeses) or weaknesses in the form of "holes" to protect or allow the occurrence of an error (James Reason, 2000b). Reason maintained that when the holes are aligned to each other, in succession, the harm gets to the patient. If the weaknesses are interrupted, by systems and structures in place, the hazardous act will not get to the patient (Reason, Hollnagel & Paries, 2006). Therefore, error causation must be considered as both system and human errors. Notwithstanding, healthcare worker are the last line of defence in curtailing errors or contributing to the causation of errors. Hence, they are often the easiest to be victimised and actually do fall as victims of error occurrences. Also, some errors do not result in harm alluding to the mentality of no harm, no fault (National Academy of Medicine, 2017). However, a highly reliable organisation (HRO) encourages the reporting of near misses (Marais, Dulac & Leveson, 2004). This is carried out through learning culture where staff are encouraged to learn

from their mistakes and not hiding or covering them up. The principle of HROs attest to the fact that, human error is inevitable. However, HRO concept tries to prevent trap or act against the outcome of those errors by motivating workers to make it a routine of checking for errors and reporting them (Sexton et al., 2006; Wilson, 2007). This encouragement are initiated at management level and trickle down to the sharp end (the employee who carried out the task). Encouraging errors reporting is not intended to apportion blames but to tract and correct the errors to promote patient safety (Liu et al., 2015; Wilson, 2007; Hudson, 2001; Parker, Lawrie & Hudson, 2006), instead, the main cause of the error is inquired to ascertain its outcome and also offer an opportunity for the whole organisation to learn from the occurred error (Shaw & Coles, 2001; Wilson, 2007; Wolf & Hughes, 2008). With respect to the discussion above, it is not surprising that majority of clinical staffs are not willing to admit their mistakes. In recent past, medical errors in healthcare is usually justified and rationalised due to the complex and subjective nature of medicine (Wilson, 2007).

Another study that was carried out to assess the impact of mandatory, no confidential error reporting systems revealed that, these systems highly discouraged error reporting (Williamson, Feyer, Cairns & Biancotti, 1998). Furthermore, researchers discovered that clinical staff have reasons for not disclosing errors which include the risk of public abhor, law suit, lack of clarity as to which error is permissible and the reasons to investigate such errors (Wilson, 2007). However, in a study conducted by Hamdan & Saleem (2013), it was discovered that teams which were able to openly discuss their adverse experiences in their work places were good at learning from errors than those who encountered communication barriers with regards to error disclosure (Hamdan & Saleem, 2013a; Wilson, 2007). This suggests that learning from errors is

a useful means in improving patient safety. In other words, in a punitive institution where there is fear of punishment for committing an error, employees tend not to report errors in order to escape punishment especially, if the error involves harm to patient (Sabblah et al., 2014). This act leads to the loss of vital information from which to learn from regarding the influence of anonymous and voluntary reporting system (Jewell & McGiffert, 2009; Sabblah et al., 2014).

Another study conducted in Ethiopia to assess patient safety culture and associated factors using mixed method revealed that 69% of study subjects have never reported a case and that frequency and number of errors reporting as well as Organisational learning significantly affect patient safety culture (Wami et al., 2016). They concluded that patient safety culture in Jimi Zone, Ethiopia is very low. A similar study on patient safety culture in Arab countries, however, showed that Organisational learning and continuous improvement is gaining grounds as it scored a positive response of 71%, but recorded very low in other patient safety factors. They came out with a conclusion that patient safety culture in Arab countries need improvement. The effort should involve all stage holders such as policy makers, hospital administrators among others.

In a study to find out "reasons for not reporting patient safety incidence in general practice" in Denmark revealed that, in a period of one year, some hospitals (4) did not report an incidence, few reports 3-5 incidence and only one clinic reported over 20 incidence (Kousgaard, Joensen & Thorsen, 2012). Some staff recognised error reporting to be time consuming whiles others perceived that errors reporting will not have significant impact on patient safety. Furthermore, (Mallouli et al., 2017) in a study involving public and private hospitals in Tunisia revealed that 90.2% of the respondents did not report any adverse event, indicating low and less positive score on staff number and frequency of errors reporting. Therefore, no lessons could be learned from

errors committed by staff. In their conclusion, they intimate that, patient safety culture is less developed in Tunisia and that reporting adverse events will contribute in building a strong patient safety culture.

In the quest to render healthcare, unintended errors may occur. Errors can lead to diverse harm or discomfort to the recipient of such care. The harm or adverse events results when an injury is caused by medical management rather than the underlying disease condition (Brennan et al., 1991; National Academy of Medicine, 2017). Errors can also lead to missed calls or near miss, where an error that would have resulted in harm has not occurred because of timely interception. There should be an effective system of reporting such errors when they occur. Reporting system should be non-punitive and contain structures that protect reporters. With a secure and trusting environment that value the information and used it to improve upon safety system, and should be independent from any authority with the power to punish (Leape et al., 2009b).

2.6.2 Patient safety grade, over all perception of patient safety culture

Staff perception of patient safety culture over all great is shown to have a relationship with patient safety. A study carried out to assess patient safety culture in the Gaza Strip hospitals revealed an overall staff perception of safety grade to be 66.9% excellent, whiles 33.1% of participants regarded patient safety culture as acceptable or less (Bassam Abu-Hamad, 2016). They discovered that staff in non-governmental hospitals perceived higher safety culture (93.1%) than their colleagues in government hospitals (60%).

Furthermore, another study conducted by (Wami et al., 2016) on patient safety culture and associated factors: A mixed method study of hospital workers view in Jimmia Zone hospitals, South West Ethiopia. The study found that participants rated patient safety grade 11% excellent and 23 very good respectively. 39% rate acceptable whiles 21% respondents rated patient safety culture as poor. The findings also revealed that 69% of respondents never reported any event within a period of one year.

Another study by Evans Castel et al (2015) on "understanding nurses and physicians fear of the repercussion for reporting errors: clinicians' characteristics, organisation demographics or leadership factors?" Revealed that a significant number of respondents expressed fear of been blamed. They concluded that when clinicians are afraid to report patient safety problems, a resultant failure in curtailing morbidity and mortality from medical errors occurs.

In looking at why hospital staff are not reporting medical errors in their general practice using a qualitative method, revealed that reporting incidents is not done because it is time consuming and tedious to complete whiles taking care of patients. General practitioners did not also see reporting to have a positive impact on the care and maintenance of sustained patient facilities (Kousgaard et al., 2012) .

Another study carried out in Tunisian operation rooms to assess patient safety culture recorded a general perception of patient safety 34.9% which is a sign of poor patient safety in the operating rooms in Tunisia. Nun-punitive response to error 20.5% was recorded as the lowest positive response area (Mallouli et al., 2017). However, a study by (Ejajo, Arega & Batebo, 2017) on patient safety culture in primary healthcare services in Turkey had a higher score for staff

perception of patient safety culture at (59%) with very low positive response at (18%) on frequency of event reporting. They concluded that improving patient safety culture should be a primary interest among managers of healthcare institutions.

2.7 Hospital Characteristics

Hospital bed size is an area that can influence patient safety culture. A study to "determine the Predictors and outcomes of patient safety culture in hospitals" indicates that a hospital with small bed size observes higher number of event reported compared to hospitals with large bed size (El-jardali et al., 2011). However, another study to ascertain the individual and work environment characteristics associated with error occurrences in Korean public hospitals showed that there exist a significant frequencies of errors in a large bed size hospitals than small size hospitals (Mardon et al., 2010). Respondents from large hospital size were less likely to rate their hospitals as excellent compared to small size hospitals.

Furthermore, a study by (Hamdan & Saleem, 2013b) on *Assessment of patient safety culture* in Palestinian public hospitals recorded over50% of respondents working more than the normal 40 hours per week. They further indicate that majority of the respondents have direct contact with patients. With regards to professional groups, the study revealed that Pharmacy staff recorded more excellent and very good patient safety grade with very few indicating that patient safety grade is poor. Physicians were the group that scored the least positive for patient safety grade (Hamdan & Saleem, 2013b)With respect to type of hospital, studies indicates that private non-profit hospitals are likely to report error than those who work in Government hospitals (Sorra & et al., 2016)

2.8 Respondents socio-demographic factors

Respondents socio-demographic factors refer to the personal information the researcher elicited from participants. These include; age, gender, marital status, educational level, as well as work experience. These socio-demographic factors are said to have influence on patient safety culture (Choudhry, Fang & Lingard, 2009).

These demographic factors can have an effect on patient safety culture and influence individual safety behaviour (Hinze, 1997). A study carried out by Siu et al (2003), indicated that, older age respondents have shown more positive behaviour regarding safety as compared to their younger counterparts. In a study by Fang et al (2006) to explore the relationship between safety climate and personal characteristics, revealed that, personal characteristics have a relationship with safety climate perceptions. However, a study conducted by Lee et al (2010), indicated that increase in age does not lead to corresponding increase in positive perception in patient safety culture. Lee et al further indicate that differences in education does not have any bearing on safety perception. This contrasting finding might mean that other institutional factors play major role in influencing personal characteristics and perception on patient safety culture.

Further studies to "assess the safety culture by surgical unit nursing team" recorded that all participant had 30 hours mean hourly work per week (Cirúrgicas et al., 2014). In a study on A "Baseline Assessment of Patient Safety Culture among Nurses at Student University Hospital" more than 40% of respondent were of age 40 or more whiles 60% were married and 56% holds Bachelor degree (Hala Abdou & Saber, 2011). The data further revealed that respondents who serve fewer years have greater dedication to unit level patient safety culture.

2.9 Overall patient safety culture

Overall patient safety culture depicts the general perception of patient safety prevailing in an institution. It indicates how staff perceived the repetitive actions norms and values kept within the institution and practice among the staff.

A study carried out in Ethiopia indicated an overall patient safety culture to be 46.7% which is an indication of poor patient safety culture in the Jime Zone Ethiopia % (Wami et al., 2016). Furthermore, a study carried out at Riyadh on patient safety culture in a large hospital: baseline assessment, comparative analysis and opportunities for improvement. Their findings indicates that a unit increase in score on supervisor actions promoting patient safety, handoffs and transitions, teamwork within units, staffing lead to an increase in the overall perception of safety (El-Jardali et al., 2014).

2.10 Challenges encountered on patient safety culture

(Hickam et al., 2003) carried out a research on "The effects of healthcare working conditions on patient safety". They found a very strong impact on patient safety to work force staffing and work flow design. The findings of (Cirúrgicas et al., 2014) on "Assessing of patient safety culture by Surgical Unit Nursing" indicates that material and logistics inadequacies hinder staff quest to render safer care to patients.

A study on specifying nurse experiences of risk management is one of the patient security challenges in social security hospitals: a phenomenological approach. As Isfahan, Iron with 14 participants came out with two themes regarding patient safety challenges. Some of the issues

identified includes; Less support for error reporting, disagreement on punishment and patient safety culture, not carrying out or decreasing the professional risk, non-creation of safe environment and lack of motivation on workers. Most respondents attest to the facts that, more than 40% of occurred errors are not reported. They recorded that, in the first step, a nurse recognising an error looks at the existing choices of formal and informal report system of error reporting, she then views the side effects of reporting and ignore it.

Another study by Vincent (2003), on understanding and responding to adverse events. They identified individual factors including lack of knowledge and or inexperience of some staff inadequate staffing and limited access to essential equipment and materials as challenges that affects patient safety culture.

2.11 Conceptual Framework

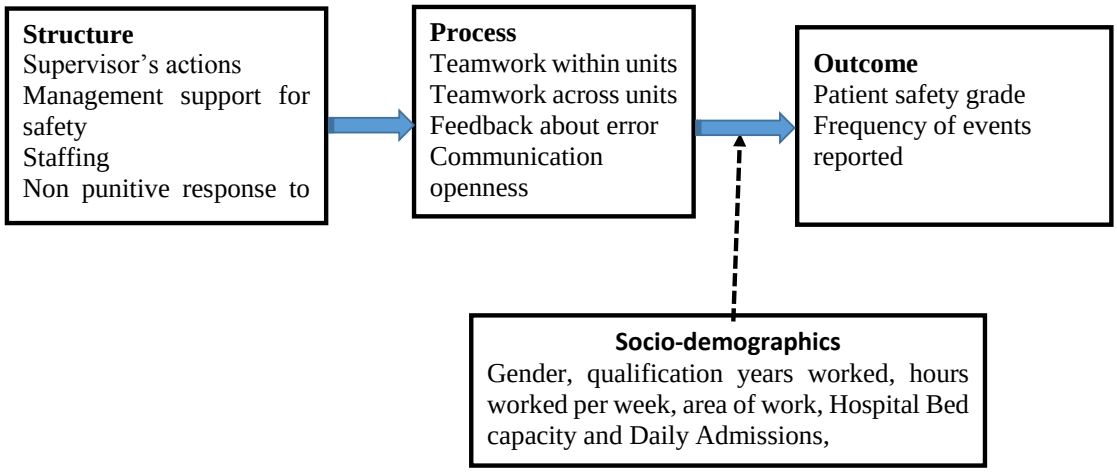
The conceptual framework was developed based on Donabedian model of quality and safety. According to Donabedian, understanding the relationship between structure, process and outcome are important in-patient safety (Donabedian, 1988). Maintaining patient safety culture require active involvement of managerial structures, and to influence the safety process by way of good information flow (communication openness), Teamwork, among others. The structures further imply staff participation and the available facilities necessary for effective personnel development. Structures are also inclusive of the environment, human resource, organisational policies, materials and the needed equipment to execute stated organisational objectives.

The conceptual framework was developed based on the assumption that, if hospital management provide support and employ requisite and patient safety minded staff, and the staff also maintain

a good process of teamwork, giving good and detail handoffs and willing to learn from their errors, patient safety outcome will improve. Process factors refer to cooperation among various departmental workers who partake in the execution of the program. Process factors include but not limited to clinical, technical and clinician's interpersonal relationship to patient safety.

However, hospital factors such as bed capacity, daily attendance admissions and area of work can also influence safety culture mindedness. Perception of safety can also be influenced by respondent's, socio-demographic characteristics such as educational level, occupation, gender and age (Darker, Donnelly-Swift & Whiston, 2017). Hence these socio-demographic factors were used as control or moderating agents. A total assessment of patient safety will depend on the structures, process and demographic factors. Also, improvement in outcomes can in effect influence improvement in the structure and the process hence creating a feedback loop**.** In patient care, outcome refers to mortality, patient functional status, complications or client been fully recovered from ailment presented at health facility for treatment.

Conceptual Framework of factors influencing patient safety culture



2.12 Chapter summary

The study adopted Donabedian framework which posits that patient safety depends on three main items made up of structure, process and outcomes. To improve the safety outcomes, the necessary structures in addition to sound process are needed. However, Donabedian did not acknowledge that demographic factors can also influence patient safety outcomes which the researcher has addressed. Literature was reviewed based on the Agency for Healthcare Quality and research (AHQR) structure for hospital survey on patient safety culture.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter discusses the appropriate strategies that were employed in carrying out the study. It is made up of all the steps involved in addressing the research questions with respect to the identified problem in the following manner. The chapter introduction, definition of the paradigm upon which the study was built, research method, research design, the scope of the study, the research setting, target population, inclusion criteria, exclusion criteria, sampling technique and determination of sample size. In addition, it covers type and source of data, instrument for data collection, procedure for data collection, data processes and analyses, methodological rigor, data management, ethical consideration and chapter conclusion.

3.1 Research Paradigm

A paradigm is viewed as a set of basic believes that guide action (Guba & Lincoln, 1994). It is also seen as the general orientation one has about the world and the type of research the researcher engages in (Creswell, 2013). According to Guba & Lincoln (1994), research paradigms are in four main domain made up of post positivism, constructivism, critical theory and pragmatism. It is therefore imperative for every research to be associated with either of the four views. This study, therefore, is in line with the pragmatist philosophical world view. This philosophical world view emerged out of action, situations and results of the actions rather than antecedent conditions (Creswell, 2013; Giddings, 2006). The concern is on the application of what works to provide solution to a stated problem and not necessarily on method and procedures involved (Patton, 2002). Pragmatist approach is the philosophical underpinnings for

mixed method research and conveys the importance on focusing on the research problem in social sciences (Patton, 2002; Cavana, Delahaye & Sekaran, 2001).

3.2 Research Approach

This study adopted the mixed method approach. This approach Makes use of quantitative and qualitative methods. Mixed method has become a widely employed approach and is used in this study to assess staff perception of safety culture and to explore challenges they encounter in practicing patient safety culture. Mixed method is flexible and provides both in-depth and generalizable findings (Phillips, 2006). This method reduces the biases, weakness and limitations associated with each of the methods. The goal of using the mixed method is to draw from the strength and minimise the weakness of qualitative and quantitative research approaches respectively (Johnson & Onwuegbuzie, 2004). Closed ended questionnaire in five Likert scale was used to obtain the data.

Two opened ended questions were attached to elicit information from respondents in the form of explanations, descriptions, narrations of their views and thoughts about patient safety culture in the selected hospitals. An example was a question like; what are the challenges associated with patient safety culture? This kind of question offers the respondents the freedom to express themselves and in the end, their views are considered to reflect or portray the state of patient safety culture in the study hospitals.

3.3 Research Design

The research design serves as the "blue print" for the study and is a logical structure of enquiry (Broadhurst et al., 2012). It includes all the plans and the procedures for conducting a research (De Langen, 2003). These plans and procedures start from the decisions from wider assumption to the detail specific method of data collection and analysis (Broadhurst et al., 2012).

The cross-sectional survey was used for this study. It is called cross sectional because it is employed to collect data within a short period and can be used for large data collection (Creswell, 2013). This cross-sectional design is one of the well-known designs that is flexible and can be used for both quantitative and qualitative data collection. Furthermore, the design permits comparison of different groups in a given population. It involves the use of a structured questionnaire to obtain data concerning people perceptions and their preferences (De Langen, 2003). This design also permits respondents to respond to the questionnaire at their own convenient time.

Cross sectional design is less costly and good for the collection of a large data from a population within a short period of time. This design helps to specify the research method, sample size measurement, and data analysis processes (Cavana et al., 2001). Furthermore, the design has enabled the researcher to explore respondent's knowledge on factors that affect the practice of patient safety culture. It was suitable for this study because the outcome can be used for clinical care planning to improve patient safety outcomes.

3.4 The scope of the study

The study was carried out within the limits of assessing clinical staff perception of patient safety culture within the three selected hospital in Bawku. Within this scope, the study examined the clinical staff perception of patient safety culture. Furthermore, the study explored the challenges associated with patient safety culture. The study further obtained a measure of the prevailing patient safety culture within the study hospitals**.**

3.5 Research Setting

The study was carried out in Bawku East Municipality and Bawku West District in the Upper East Region of Ghana. The Upper East region is located at the North Eastern part of Ghana and lies between longitude 0º and 1º west and Latitude 10º.30º north. The region is administratively divided in to 13 districts and municipalities and covers a total land area of 8842 kilometres square (GHSFF, 2015) with a total population of 1,110,863. The Ghana health sector figures and facts indicates that the Region has a high illiteracy rate of 30.7 male and 48.7 female in 2014 (GHSFF, 2015). The Upper East has a total of 334 health facilities with majority being CHPS Compounds. The Region is also deprived of healthcare professionals especially, medical doctors (33) which is in the ratio of 1:31,214 (GHSFF, 2015).

Bawku Municipality shares boundaries with the Republic of Burkina Faso to the North, Garu Tempani District to the South, Pusiga District to the East and Bawku West District to the West. According to the 2010 population census, Bawku East Municipal has a population of 104,594 representing 11.9% of the total population of the Upper East Region of Ghana. The major ethnic

groups include the Kusaasis, Mampurisis, Bissas and Moshies. The municipality has 3 hospitals and 4 clinics.

With regards to the study facilities, Bawku Presbyterian hospital has a bed capacity of 388 and a total clinical staff strength of 304 out of which 8 are doctors 245 nurse, 12 laboratory staff, 21 dispensary staff, 13 physician assistants and 5 anaesthetists (Bawku Presbyterian Hospital, 2018). The hospital has specialist in general surgery, orthopaedic surgery and ophthalmology and has since been serving the whole Region and the Southern parts of Burkina Faso and Togo.

Vineyard hospital also has a bed capacity of 110 with a total clinical staff of 97. These staff are made up of two doctor, 8 physician assistants, 1 anaesthetist, 9 laboratory staff and 8 dispensary staff. The hospital has a specialist gynaecologist, ear, nose and throat, eye and ultrasound as specialist services. The map for Bawku municipal is indicated below in figure 3.1.

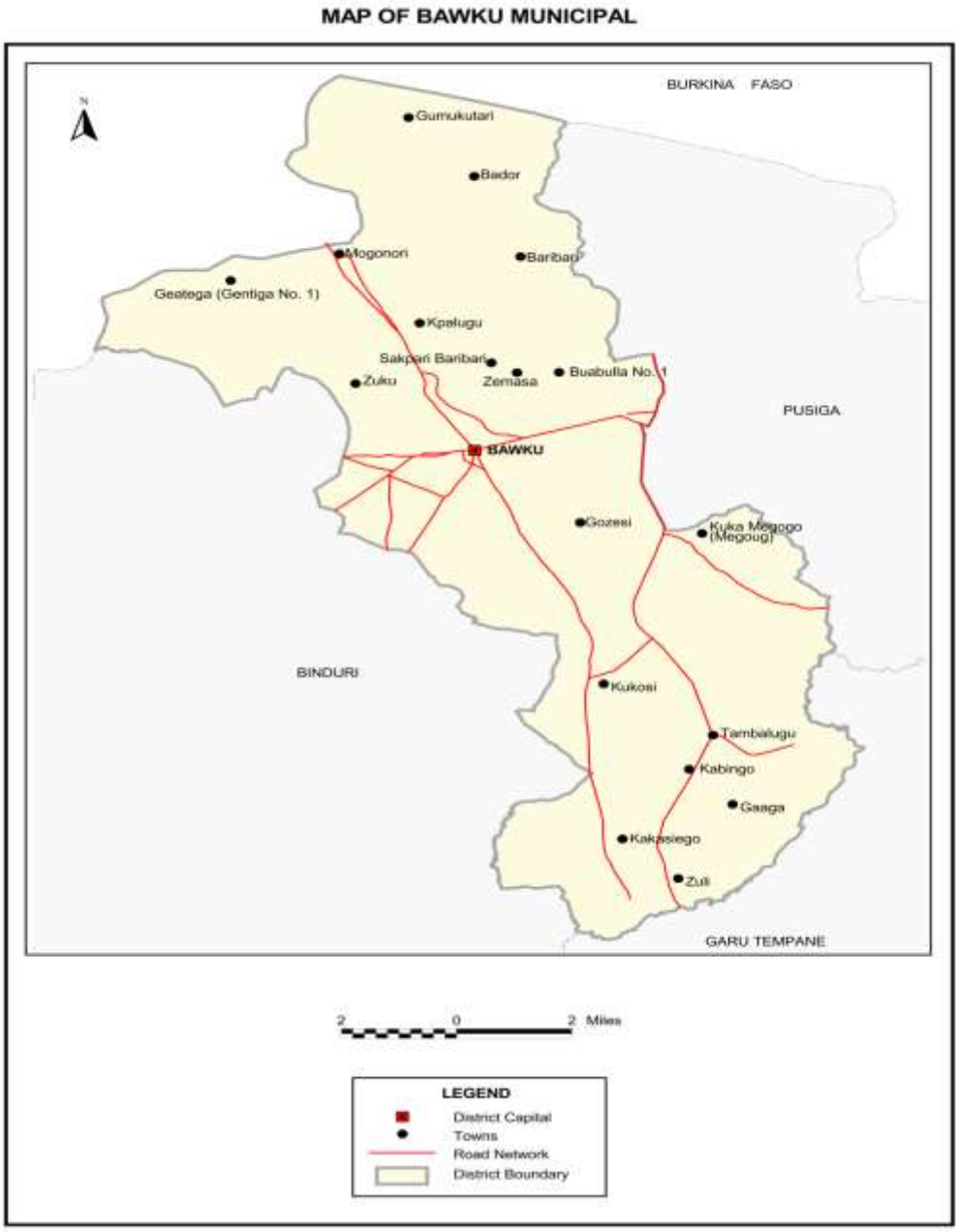


Figure 3.1 municipal map of Bawku central

Bawku West District also shares boundaries with the Republic of Burkina Faso to the North, Talinsi District to the South, Bawku Municipal to the East and Nabdam District to the West. Bawku West district has a population of 99,813 representing 9% of the population of Upper East

Region. The population is made up mainly of Kusaasis with some few settlers of Bissas, Moshies and Frafras. The hospital has a bed capacity of 110 and 224 clinical staff strength made up of 2 doctors, 172 nurses, 4 physician assistants, 2 anaesthetist, 7 laboratory staff and 8 dispensary staff.

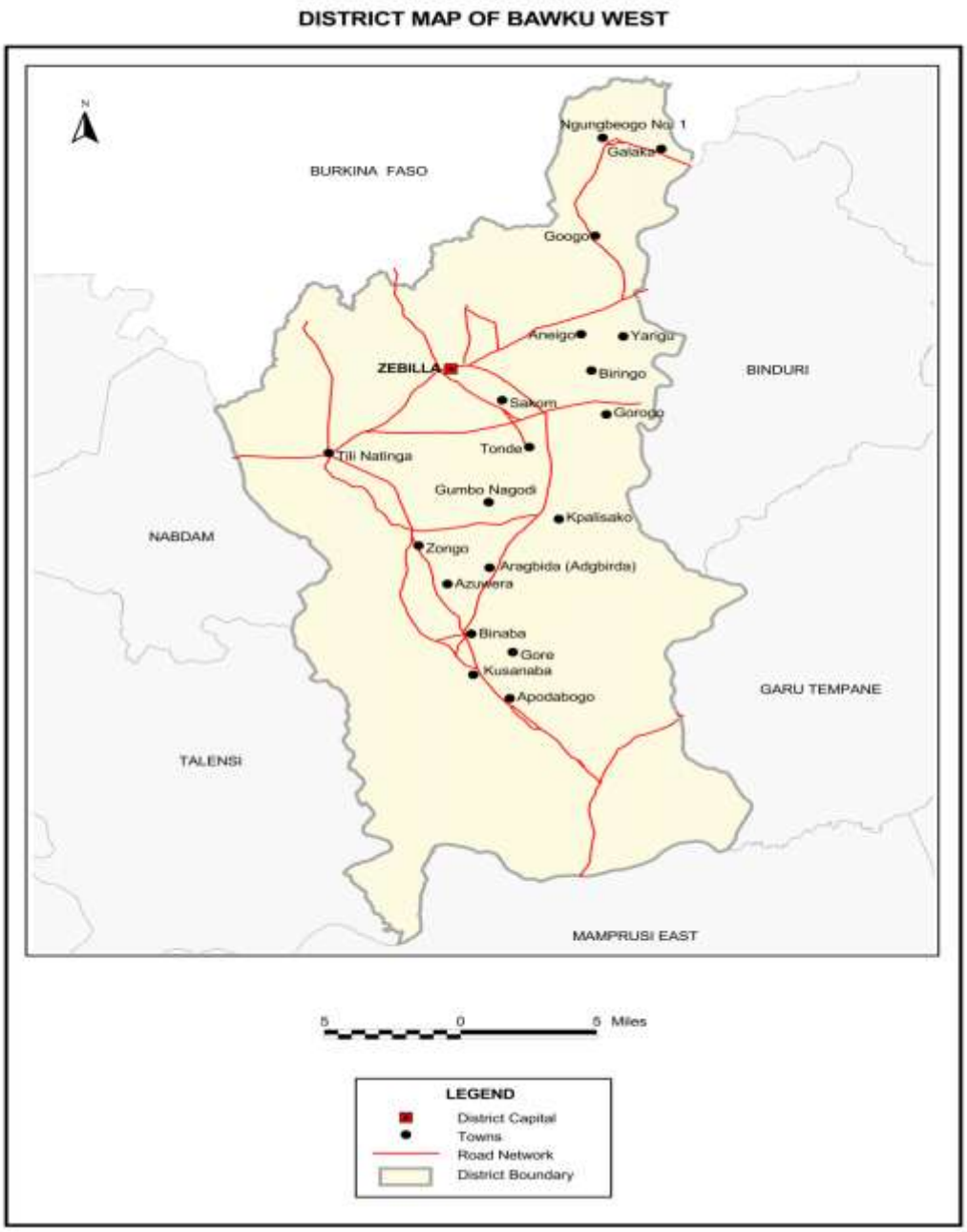


Figure 3.2 District map of Bawku west

The hospitals daily attendance, daily admissions, bed capacity and annual number of patients seen in 2017 are tabulated below.

Table 3.1 Hospital characteristics

	Bawku Hospital (Faith Base)	Vineyard Hospital (Private)	Zebilla District Hospital (Government)
Daily Attendance	551	60	138
Daily Admissions	59	21	38
2017 Annual Attendance	131725	72975	50217
Bed Capacity	388	105	110

Source: *Study hospitals, 2018.*

3.5.1Morbidity Trend of the Study Hospitals

Malaria, Respiratory tract infections hypertension and acute eye infections are the leading conditions clients who visit the health facilities for medical intervention present with. The less frequent disease conditions include; Diarrhoea diseases and anaemia. The top ten conditions as a course of hospital visits for the study hospitals in 2017 are presented in the tables below.

Table 3.2: 2017 top 10 outpatient department cases, Bawku Presbyterian hospital

Disease	Number of Case	Percentage (%)
Malaria	11191	**32.22**
RTI	4935	**14.21**
Acute Eye Infections	4509	**13.98**
Hypertension	3614	**10.41**
Acute Ear Infections	2958	**8.52**
Pneumonia	2253	**6.49**
UTI	1620	**4.66**
Typhoid Fever	1340	**3.86**
Pregnancy Related	1244	**3.58**
Diarrhoea	1069	**3.08**
Total	34733	**100**

Source: Bawku Presbyterian Hospital ICT Unit, 2018.

Table 3.3: 2017 Top 10 Outpatient Department Cases, Vineyard Hospital

Disease	Number of Case	Percentage (%)
URTI	4503	29.28
Malaria	4118	26.78
Hypertension	1942	12.63
Eye infections	1300	8.45
Urinary tract infections	901	5.86
Anaemia	746	4.85
Pneumonia	532	3.46
Diabetes mellitus	513	3.34
Otitis media	474	3.08
Septicaemia	350	2.28
Total	15379	100

Source: Vineyard Hospital ICT Unit, 2018.

Table 3.4: 2017 Top 10 Outpatient Department Cases, Zebilla District Hospital.

Disease	Number of Cases	Percentage (%)
Malaria	5204	31.36
URTI	3683	22.19
Rheumatism	2076	12.51
Typhoid Fever	1480	8.92
Pneumonia	1078	6.50
Diarrhoea	1016	6.12
Acute UTI	883	5.32
Skin Disease	604	3.64
Septicaemia	570	3.44
Total	16594	1oo

Source: Zebilla District Hospital, 2018.

3.6 Target Population

The target population consist of all clinical staff of the selected hospitals. The clinical staff strength of the selected hospitals was made up of 304 from Bawku Presbyterian Hospital, 107 from Vineyard Hospital and 192 from Zebilla District Hospital. This staff comprises of all categories of nurses, doctors, anaesthetist, pharmacists and laboratory staff. These categories of staff often do come in to contact or have interactions with patients and relatives and will portray

minimal levels of biases in responding to issues relating to patient safety culture in the study setting.

3.7 Determination of Sample Size

The sample size calculation is based on the single population proportion for sample size calculation Cochran (1963:75) as sited by (Israel, 1992). It states that; $n_0 = \frac{Z^2 Pq}{e^2}$

Where n_0=sample size

$Z^{2=}$ is the abscissa of the normal curve that cuts off an area and at the tail (1-α equals the desired confidence level at 95%)

e is the desired level of precision, p is the estimated proportion of an attribute that is present in a population

q is 1-p

The value for z is found in statistical tables which contain the area under the normal curve. Consider P=0.05 (maximum variability)

e =0.05 (desired level of precision)

$$\text{The sample size } (n_0) = \frac{Z^2}{e^2} pq$$

$$= \frac{(1.96)^2\ (0.5)(0.5)}{(0.05)^2}$$

$$=385$$

3.7.1 Proportion of Respondent for each Hospital

Proportions were used to allocate number of staffs interviewed in each hospital based on their eligible (clinical) staff strength to obtain the sample size of 385. Out of 304, 86 and 192 for Bawku Presbyterian, Vineyard and Zebilla hospitals respectively, proportionate sample size of, 189, 60 and 138 was calculated. The table below indicates the hospitals and the number of staffs sampled.

Table 3. 4: Participating hospitals and their staff strength.

Category	**Level**	**number of clinical staff**	**Sample size**
Mission hospital	Primary hospital	304	189
Government hospital	Primary hospital	192	138
Private hospital	Primary hospital	86	60
Total	-	582	415

Study hospitals, 2018.

The response rate was 94%. With reference to the Agency for Healthcare Research and Quality AHRQ (2004), this response rate of (94%) is sufficiently large enough to give a statistically significant result.

3.8 Sampling Technique

A multistage sampling method was employed to arrive at the required sample size for this study. First of all, three hospitals were purposefully selected for the study from Bawku East and Bawku

West municipal and district hospitals respectively in the Upper East Region of Ghana. These hospitals include one government (Bawku West District Hospital, Zebilla), one faith-based (Presbyterian Hospital, Bawku) and one private (Vineyard Hospital, Bawku) respectively. The hospitals were selected in order to determine ownership status of health facility and patient safety culture of staff. The second step was to consider the hospital units as clusters and proportions for each cluster calculated.

The third step was a cross sectional survey using simple random sampling technique to obtain the required sample for the study. The process involved four steps; Defining the population, constructing a list, drawing the sample and contacting members of the drawn sample (Lammers & Babbie, 2005). In defining the population, a total eligible list of clinical staff was obtained from the management of the participating hospitals. The researcher ensured that the list contained essential information that promote validity, accuracy and reliability of the study such as; first and last names, hospital area or unit of work and job title of participant in order to keep track with the distribution of questionnaire and retrieval of the survey. The researcher further ensured that the list obtained was current and exhaustive.

To obtain an unbiased sample, the assigned numbers of the list were folded in to a basket and mixed thoroughly. A blind folded selection of one after the other was made till the required sample size is obtained (Lammers & Babbie, 2005). The final aspect involve tracing and locating the chosen respondents to administer the questionnaire (Trust, 2016). This method was chosen because of the numerous advantages associated with it: There is equal probability for inclusion in

the sample for every subject. The sample mean obtained is unbiased (Trust, 2016). Minority groups such as doctors were taken note of and had a fair representation.

3.9 Inclusion Criteria

The study was delimited to clinical staff who were working in the selected hospitals for more than six months and have voluntarily consented to take part in the study.

3.10 Exclusion Criteria

This study was not administered to health care workers who are not working in the selected hospitals. Those who were not clinical staff were excluded.

Staff who are recently employed, (less than six months) and students on clinical duties were not included in this survey. This was to make sure that, staffs who respond to the questionnaire have spent enough time in the study hospitals to understand the prevailing safety culture. Staffs who do not have direct contact or interaction with patients were also excluded.

3.11 Type and source of data

This study basically involved the use of primary data which was elicited by the administration of structured questionnaire to clinical staff of Bawku Presbyterian Hospital, Vineyard Hospital and Bawku West District Hospital, Zebilla. Two opened ended questions were also added to obtain much deeper information from respondents. The primary data made meaning to the study because it addressed the research objectives and answered the research hypotheses and question.

By that, relevant contributions and recommendations were made to add new knowledge to the area of patient safety culture.

3.12 Instruments for Data Collection

A structured questionnaire that has been designed by the Agency for Healthcare Research and quaality to be used for hospital survey on patient safety culture (Rockville & Sorra, 2004) was used. The instrument has internal consistency and reliability for the items and scales used for it construction (Rockville & Sorra, 2004; Ulrich & Kear, 2014b) and is therefore recommended for use in all hospitals for patient safety culture assessment. It is made up of 42 items measuring 12 composites areas (Rockville & Sorra, 2004).

These composite areas or variable were grouped in to structural factors, made of; management expectation and actions promoting patient safety; management support for patient safety, staffing and non-punitive response to error. These were measured in a five Likert scale, aim at finding out whether respondent strongly disagree, disagree, neutral, agree or strongly agree to a particular statement. These were coded where 1 represents strongly disagree, 2 disagree, 3 neutral, 4 agree and 5 strongly agree.

The process and outcome variables follow similar trend. Some statements tried to find out whether participants never, rarely, sometimes, most of the time or always complete a prescribed task. These were coded 1 representing never and five representing always. Negatively worded questions were recoded.

3.12.1 Validity and Reliability

A data collection instrument is said to be valid if it is capable of measuring what it has been designed to measure. For reliability and validity to be assured, a small sample test was carried out and the researcher administered 10 questionnaires to randomly selected clinical staff at Zebilla District Hospital. This pretesting was carried out using an existing data collection instrument developed by the agency for healthcare research and quality for patient safety culture assessment (Rockville & Sora, 2004).

This pretesting was done to clarify the ability of the questionnaire to elicit appropriate information that solves the research question. It also helps the researcher to determine the acceptability of the questionnaire and to determine the required time for respondent to complete a set of questionnaires. After the interview, a slight modification was made with regards to the open-ended questions and demographic data in order to ensure clarity. The outcome also revealed that between 20 to 30 minutes was enough for a participant to complete a set of questionnaires. A final 58 closed ended 5 Likert scale questions and two opened ended were quite satisfactory and proven to be reliable and valid for the data collection.

3.13 Procedure for Data Collection

Paper-based data collection was employed to collect data after the rationale for the research was explained to respondents. This was made up of two sections; the five Likert scale questionnaire and two questions that require respondents to write their challenges regarding patient safety culture. The paper form of data collection was preferred to online data collection because of two main reasons; It is more realistic method of data collection in Bawku since many people do not

have uninterrupted internet services to complete the online survey. The second reason was that the Agency for Healthcare Research and Quality (AHRQ) recommend paper survey for higher response rate (Henriksen et al., 2008).

Three trained research assistants and the principal investigator administered the questionnaire to the respondents. The team also responded to all inquiries and clarifications required by the respondents. A tracking log was developed containing a list of unique identity numbers (IDs). The tracking log ID helped the researcher to identify non respondents and re-administered the questionnaire to them. The questionnaire was administered by hand delivery to staff on duty and a time period agreed upon for submission (three to four days). The response rate was then calculated using the follows method; Number of complete returned surveys /Number of surveys distributed-ineligibles +incomplete surveys. This enabled the researcher to make follow ups by giving second survey forms to those who failed to complete the first form in order to obtain a high response rate. A higher response rate increases the generalisability power of the study (Henriksen et al., 2008; Rockville Sorra, 2004). The achieved response rate was 94%.

3.14 Qualitative Data Collection

The data was collected using a semi structured interview guide which was attached to the quantitative questionnaire adopted for data collection. Two main questions were included for participants to freely express themselves regarding challenges they encounter in ensuring patient safety and maintaining safety culture. Participants were also asked to indicate their comments regarding patient safety, error or event reporting as observed in their respective hospitals. As indicated in Appendix 1 sub section I, reflecting the objectives of the study.

3.15 Procedure for qualitative data analysis

The data was analysed by making use of thematic content analysis (TCA). TCA is the fundamental method in qualitative data analyses. TCA enables the researcher to group the responses in to a list of common themes that gives a true reflection of the whole data set (Anderson 2017).

In this study, the main themes were in consonance with the hospital survey on patient safety culture. The written expressions of participants were read repetitively to obtain a broader understanding of the data. The main ideas stated by participants were noted and labelled with codes and subsequently categorised into themes. The themes, were been constantly revised till it fall in line with the study objective as findings.

3.16 Ethical Consideration

Studies relating to the health sector are usually taking seriously, well-regulated and ethically minded. Introductory letters ware obtained from the department of Public Administration and Health Services Management. Ethical Clearance was also obtained from the Ethics Committee for the Humanities (ECH) in the University of Ghana. These documents were used to obtained entry permission from management of the selected hospitals; that is, the Presbyterian hospital, the Zebilla District hospital and the Vineyard hospital respectively before administering questionnaire to the staff. The ethical principles of research involving human subjects which essentially centred on respect for human dignity, beneficence and non-malfeasance were strictly adhered to. These ethical principles are explained below:

3.16.1 Anonymity and Confidentiality:

Anonymity is an ethical responsibility of the researcher not to disclose the identity of the respondent. In this study, data was collected such that, the researcher did not have individual details that can link the subject to the information gathered. The collected data would be kept under key and lock and is assessable to only the researcher and would be destroyed after a certain period as required by research ethics.

3.16.2 Beneficence and Non-malfeasance:

The principles of beneficence including Positive beneficence and utility beneficence. These two were strictly adhered to. It involves the provision of benefits and balancing benefits, burden and risk in a study (Ebbesen, 2013) Non-malfeasance on the other hand, posit that we should do no harm to others. In research, it implies that the researcher should act in a way as to help others or do no harm to the study subject (Rich, 2013). Therefore, the study subjects were accorded the needed respect and dignity throughout the study period. Also, the scientific value of the research was explained to participants. This study was for academic purpose and would also contribute to knowledge in this area of study and would cause no harm to the respondents and the study environment at large. Participants were informed that they will not get personal or individual benefits for participating in the study but the findings will inform clinical staff on issues relating to patient safety in the quest to carry out their day to day clinical activities.

3.17 Data management and Analysis

After taking the data, every questionnaire was examined for completeness before entering the results in to the data set for onwards analysis. A complete survey is one in which every item or

most items have been responded to (Joann Sorra et al., 2016). The AHRQ recommend the exclusion of survey questionnaire that has been answered less than one entire section of the survey. Surveys that have fewer than half of the items throughout the entire survey and finally answering all items the same. For example all "1" s or all "3"s. This is an indication that the respondent did not commit the needed attention to answering the questionnaire.

The survey has negatively worded constructs that express both the highest positive and the lowest negative end of the 5 Likert response scale to produce consistent answers (Joann Sorra et al., 2014).

If a participant did not respond to the majority of the items in at least one of the sections, of the questionnaire, much relevance would be lost making it inappropriate to calculate the safety culture score. Therefore, missing items exceeding two were excluded before entering the data into the software for onwards analysis. The quantitative data were analysed using the International Business Machine (IBM) Statistical Package for Social Sciences (SPSS) version 22. The hypotheses were tested using the following statistical tools:

3.17.1 Descriptive statistics

This statistical tool was employed to obtain percentages for each composite area of the patient safety culture for comparison. The percentage positive scores were determined, areas that need intervention and areas indicating failing patient safety culture were computed.

3.17.2 Analysis of Variance (ANOVA) assumptions

A one-way analysis of variance (ANOVA) was computed to determine the mean difference within and across the hospitals in the composite score of the safety culture dimension. Levine's test for homogeneity of variances, which tests whether the variance in scores is the same for each of the three groups, was performed. The result indicated that the assumption of homogeneity of variance was not violated (Levine statistic=1.26, p-value=0.29). The results were presented in tables.

3.17.3 Test of association (correlation) assumptions

Correlations analysis were also carried out to find out the association between demographic and hospital characteristics, structural factors and process factors of the safety culture dimensions and four main outcome variables respectively. Those that have statistically significant values were used for regression to ascertain which variable in each case drives the difference.

3.17.4 Multiple Regression assumptions

Assumptions

To test the third hypothesis: H_1 *Structural and process factors will have significant influence on patient safety outcome.* Linear regression models were conducted. The data met the assumptions for linear regression as the dependent variables are continuous as well as the independent variable, with an adequate sample size of 364 participants (Creswell, 2013). Multiple regression also holds the assumption of Multicolinearity (Williams & Dame, 2015) which was not observed among the independent variables as they were not highly correlated with each other.

Outliers, Normality, Linearity and Homoscedasticity

There is high sensitivity to outliers with regards to multiple regressions and the researcher did not violate this role. This was proven by the normality p-p plot, which lies in a straight diagonal from bottom left to top right and the residual scatter plot respectively**.** Normality, linearity and homoscedasticity are the various distributions of the scores and the nature of the underlying relationship between the variables. Therefore, the residuals were normally distributed on the predicted dependent variable scores. Homoscedasticity means the variance of the residuals about the predicted dependent variable scores should be the same for all predicted scores (Pallant, 2005). These assumptions were tested using a Residual Scatter plot and a Normality P-P plot. It is expected that the residuals in the scatter plot should be roughly rectangular distributed with most of the residual at the center. None of these assumptions was violated.

The Qualitative data was analysed manually by thematic content analysis to reflect the expressions of the respondents. These analyses assisted the researcher in answering a research objective and also triangulate with the quantitative data to further support the findings.

3.18 Chapter Summary

This chapter captured the research paradigm, the study design, the study population, sampling technique, and sample size, data management and analysis as well as ethical considerations of study participants. The validity and reliability of the study and measures put in place to ensure trustworthiness and authenticity of the method employed for the study. The study design was a cross sectional descriptive design using quantitative method. Purposeful sampling was employed for the selection of study facilities, proportions used to obtain sample size for each facility and a

systematic random sampling for the administration of questionnaire to respondents; including doctors, physician assistants, nurses, anaesthetists, pharmacy staff as well as laboratory staff. Relevant statistical methods were used for data analysis

CHAPTER FOUR

PRESENTATION OF RESULTS

4.0 Introduction

This chapter presents the results of the study. It comprises descriptive statistics, analysis of variance (ANOVA), and test of associations (correlation), regression analyses and a summary presentation of respondents' comments. Out of the total of 385 questionnaires administered to clinical staff of the three hospitals, 364 completed questionnaires were retrieved, representing 94 %. Response rate. Out of the 364 respondents, 164(45.01%) were from Presbyterian hospital, 52 (14.29%) were from Vineyard Hospital and 141 (38.74%) were from Zebilla Hospital.

4.1 Socio-demographic and professional characteristics of respondents

The majority of the respondents were females (56.6%), married (59.4), had a diploma (79.9%), were nurses (77.2%), work at the medical non-surgical department, have had direct contact with patients (94.8%), had between 1-5 years of work experience (64.6%), works at Presbyterian hospital (46.4%), and majority worked between forty to fifty-nine hours per week (48.9%). The average age of respondents was 31 years. The average hospital bed capacity, daily admission, and daily attendance at the hospitals were 238, 45 and 318, respectively. See table 4.1

Table 4.1 Socio-demographic and professional characteristics of respondents

		n	*%*	*M*	*SD*
Gender	Male	158	43.4		
	Female	206	56.6		
Marital status	Single	148	40.7		
	Married	216	59.4		
Educational background	Certificate	33	9.1		
	Diploma	291	79.9		
	Degree	40	11		
Staff category	Nurses	271	74.5		
	Physicians	40	11.0		
	Pharmacy staff	17	4.7		
	Laboratory staff	36	9.9		
Area of work	Many different hospital units/ no specific area	50	13.7		
	Medicine (non-surgical)	86	23.6		
	Surgery	43	11.8		
	Obstetrics	49	13.5		
	Paediatrics	45	12.4		
	Emergency department	32	8.8		
	Pharmacy	21	5.8		
	Laboratory	33	9.1		
	Anaesthesiology	5	1.4		
Direct contact with patients	Yes	345	94.8		
	No	19	5.2		
Years of work experience	Less than 1 year	129	35.4		
	1-5 years	150	41.2		
	5 years and above	85	23.4		
Hours worked per week	Less than twenty hours per week	28	7.7		
	Twenty to thirty-nine hours per week	60	16.5		
	Forty to fifty-nine hours per week	178	48.9		
	Sixty to seventy-nine hours per week	69	19.0		
	Eighty to ninety-nine hours per week	18	4.9		
	Hundred hours per week or more	11	3.0		
Number of respondents from each hospital	Presbyterian	169	46.4		
	Vineyard	54	14.8		
	Zebilla	141	38.7		
	Age in years			30.70	6.46
	Bed capacity of hospitals			238.33	139.54
	Daily admissions in the hospitals			45.23	14.00
	Daily Attendance in the hospitals			318.18	218.55

Source: author's field survey, (2018)

4.2 Frequency distribution for dimensions of patient safety culture

The researcher decided to merged positive responses; agree, strongly agree to mean good patient safety outcome existing in respondent facility. Neutral response is perceived to be in between agree and disagree responses and therefore, denote an acceptable level of patient safety culture. Responses that disagree and strongly disagree reflect poor or failing patient safety culture (Hayfaa et al 2018). Negatively worded responses were recoded to reflect the real level of good, acceptable and poor responses regarding patient safety culture. This makes it easier to relate the research findings in a practical way and to encourage good practices and employ interventions that will lift poor or failing practices to good and desired practices.

Testing hypothesis I

H_1 *Patients safety culture in the three hospitals will be less than the benchmark of 75% positive response*

Table 4.2 present the composite scores for each item of patient safety culture indicating poor, acceptable and good safety culture. The overall positive composite response for patient safety culture in the study hospitals was (59.07%) see (Table 4. 2). The following are the positive response rates for each of the ten domains of the safety culture scale used in this study (see table 4.2&4.3), teamwork within units (78.28%), manager expectations & actions promoting patient safety (69.03%), organizational learning and continuous improvement (73.03%), management support for patient safety (60.80%), feedback and communication about error (60.70%), communication openness (54.23%), teamwork across units (68.75%), handoffs and transitions (59.23%) staffing (33.45%) and non- punitive response to errors (33.23%). This is an indication of patient safety culture less than the ideal for patient safety as the overall was 59.07 less than the benchmark. Hence the null hypothesis of "Patients safety culture in the study hospitals will not differ from the benchmark of 75% positive response on the patient safety culture scale" was

rejected and the researcher concludes that patient safety culture in the study hospitals falls below normal levels to maintain patient safety. With regards to the individual composite areas, only teamwork within units obtained higher positive rating (78.28%). However, some of the individual items within the composite areas obtained significantly higher ratings than the overall patient safety culture. This might mean that patient safety culture is yet picking up in the study hospitals.

On the "teamwork within units" composite area, three items obtained higher positive ratings: "People support one another in this unit" (86.28%), "when a lot of work need to be done quickly, we work together as team to get the work done" (90.7%) and "in this unit, people treat each other with respect" (82.7%).

With regards to "*management expectation and actions promoting patient safety"*, this item "my supervisor says a good thing when he sees the job done according to established patient safety culture was rated good (75%).

Furthermore, *organisational learning and continuous improvement* have one items obtaining higher positive rating; "We are actively improving patient safety" (88.7%). With regards to "Management support for patient safety" feedback and communication about error, Communication openness, handoff and transitions, staffing, non-punitive response to error and teamwork across units, have all items with positive rating below the bench mark.

Table 4.2 statistics for patient safety culture composite areas

Items	poor	Acceptable	Good
Team Work Within Units	**15.46**	**6.18**	**78.28**
"People support one another in this unit"	9.3	4.4	86.3
"When a lot of work needs to be done quickly, we work together as a team to get the work done"	6.3	3.0	90.7
"In this unit, people treat each other with respect"	9.9	7.4	82.7
"When one area in this unit gets really busy others help out"	24.7	9.9	65.4
Manager Expectations & Actions promoting patient safety	**20.83**	**10.15**	**69.03**
"My supervisor/ manager says a good word when he/she sees the job done according to established patient safety procedures"	19.0	5.2	75.8
"My supervisor/manager seriously considers staff suggestions for improving patient safety"	23.1	8.2	68.7
"Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts"	24.7	14.8	60.4
"My supervisor/manager overlook patient safety problems that happen"	16.5	12.4	71.2
Organizational learning and improvement	**18.23**	**8.73**	**73.03**
"We are actively improving patient safety"	8.8	2.5	88.7
"Mistakes Have led to positive changes here"	26.9	13.2	59.9
"After we make changes to improve patient safety, we evaluate their effectiveness"	19.0	10.5	70.5
Management support for patient safety	**28.73**	**10.47**	**60.8**
"Hospital management provides a work climate that promotes patient safety"	22.8	12.4	64.8
"The actions of hospital management show that patient safety is a top priority"	22.5	10.2	67.3
"safety is a problem only after an adverse event happens	40.9	8.8	50.3
We have patient safety problems in this unit"	54.4	8.0	37.6
Feedback and communication about error	**21.63**	**17.67**	**60.7**
"We are given feedback about changes put in to place based on event reports"	23.6	24.7	51.6
"We are informed about errors that happen in this unit"	19.0	14.3	66.8
'In this unit, we discuss ways to prevent errors from happening again"	22.3	14.0	63.7

Source: author's field survey, (2018)

Table 4.3 Descriptive Statistics for patient safety culture scale

Communication openness	29.76	16.03	54.23
Staff will freely speak up if they see something that may negatively affect patient care.	15.7	14.3	70.1
"Staff feel free to question the decision or actions of those with more authority"	40.9	17.9	41.2
"Staff are afraid to ask questions when something does not seem right"	32.7	15.9	51.4
Teamwork across units	**21.10**	**10.20**	**68.75**
"There is good cooperation among hospital units that need to work together"	19.8	10.2	70.1
"Hospital units work together to provide the best care for patients" "Hospital units do not coordinate well with each other	13.2	9.1	77.7
It is often unpleasant to work with staff from other hospital units"	32.7	10.2	57.1
"There is good cooperation among hospital units that need to work together"	18.7	11.3	70.1
Handoffs and transitions	**29.18**	**11.60**	**59.23**
"Things "fall between the cracks" when transferring patient from one unit to another"	35.7	12.9	51.4
"Important patient care information is often lost during shift changes"	25.8	8.8	65.4
"Problems often occur in the exchange of information across hospital units"	36.0	15.1	48.9
"Shift changes are problematic for patients in this unit"	19.2	9.6	71.2
Staffing	**57.08**	**9.43**	**33.45**
"We have enough staff to handle the workload"	67.6	5.8	26.6
"Staff in this unit work longer hours than is best for patient care"	63.7	10.2	26.1
"We use more agency/temporal staff than is best for patient care"	41.8	8.8	49.5
"We work in "crisis mode" trying to do too much, too quickly"	55.5	12.9	31.6

Non- punitive response to errors	**54.77**	**12.03**	**33.23**
"Staff feel like their mistakes are held against them"	56.6	11.3	32.1
"When an event is reported, it feels like the person is been written up, not the problem"	48.1	13.5	38.5
"Staff worry that the mistakes they make are in their person"	59.6	11.3	29.1
Overall Patient Safety Culture	**29.68**	**11.25**	**59.07**

Source: author's field survey, (2018)

4.2.1 Patient safety culture outcomes

Percentages were calculated for the outcome variables to determine the positive response of overall perception of patient safety, patient safety grade, frequency of events reported, and the number of events reported (See Table 4.4 & 4.5). The result indicates that there was a 53% positive response in the overall perception of patient safety, 50.80% positive response of patient safety grade, 25.9 events are reported most of the time, and 67.3% majority indicated that no events have been reported in the hospitals under study.

Table 4.4 Patient safety culture outcomes

	poor	Acceptable	Good
The overall perception of patient safety	**37.85**	**9.15**	**53.0**
Patient safety is never sacrificed to get work done	32.4	5.8	61.8
Our procedures and systems are good for preventing errors from happening	24.2	12.9	62.9
It is just by chance that more serious mistakes do not happen around here	40.4	9.9	49.7
Patients safety grade	**14.8**	**34.3**	**50.8**

Source: author's field survey, (2018)

Table 4.5 statistics of outcome variables

The frequency of events reported	
Never	9.43
Rarely	23.27
Sometimes	21.90
Most of the time	25.90

Always	19.50
When a mistake is made but is caught and corrected before affecting the patient, how often is this reported?	
Never	7.7
Rarely	21.4
Sometimes	19.8
Most of the time	30.5
Always	20.6
When a mistake is made but has no potential to harm the patient, how often is this reported?	
Never	11.8
Rarely	28.6
Sometimes	25.8
Most of the time	18.4
Always	15.4
When a mistake is made that could harm the patient but does not, how often is this reported?	
Never	8.8
Rarely	19.8
Sometimes	20.1
Most of the time	28.8
Always	22.5
Number of events reported	
No events report	67.3
1-2 events report	11.8
3-5 events report	10.2
6-10 events report	6.9
11-20 events report	2.5
21 and more	1.4

Source: author's field survey, (2018)

4.3 Safety culture compared across study hospitals.

Testing of Hypotheses II of the Study.

H_0: *Staff perception of patient safety culture will not significantly differ across the study hospitals.*

H_I: *Staff perception of patient safety culture will significantly differ across the study hospitals.*

4.3. 1 ANOVA Results for the Overall Patient Safety Culture in the three Hospitals

One-way analysis of variance between groups was conducted to explore the differences in mean scores of overall patient safety culture across three hospitals in Bawku Central and West municipality and district respectively: Presbyterian, Vineyard and Zebilla hospital. Levene's test for homogeneity of variances, which tests whether the variance in scores is the same for each of the three groups, was performed. The result indicated that the assumption of homogeneity of variance has not been violated (Levene statistic=1.26, p-value=0.29). Table 4.6. There was a statistically significant difference at the $p < .05$ level in the overall patient safety culture scores for the three hospitals: $F (2, 364) = 19.84$, $p = 0.00$ (See Table 4.8). The effect size, calculated using eta squared, was 0.10, indicating a large effect in accordance with Cohen's criterion.

Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Presbyterian (*M*= 112.52, SD= 14.70) was statistically and significantly different from Vineyard (*M*=119.57, SD=12.51), and Zebilla (*M*=122.20, SD=13.06). The mean score for Vineyard hospital (*M*=119.57, SD=12.51) is not statistically significantly different from Zebilla hospital (*M*=122.20, SD=13.06).

Table 4.6 Test of Homogeneity of Variances for each of the Ten Domains of Patient Safety Culture for Presbyterian, Vineyard, and Zebilla Hospitals.

Construct	Levene Statistic	df1	df2	Sig.
Team work within units	2.56	2.00	361.00	0.53
Manager expectations & actions promoting patient safety	0.88	2.00	361.00	0.41
Organizational learning and improvement	2.31	2.00	361.00	0.10
Management support for patient safety	0.71	2.00	361.00	0.49

Feedback and communication about error	0.34	2.00	361.00	0.71
Communication openness	2.34	2.00	361.00	0.10
Teamwork across units	1.90	2.00	361.00	0.15
Handoffs and transitions	3.12	2.00	361.00	0.05
Staffing	0.72	2.00	361.00	0.49
Non-punitive response to errors	0.64	2.00	361.00	0.53

Source: author's field survey, (2018)

Table 4.7: Descriptive statistics for overall patient safety culture score

	N	***M***	***SD***	**95% CI for Mean**		***Min***	***Max***
				Lower	Upper		
1 Presbyterian hospital	169	112.52	14.70	110.29	114.75	74.00	154.00
2 Vineyard hospital	54	119.57	12.51	116.16	122.99	97.00	146.00
3 Zebilla hospital	141	122.20	13.06	120.02	124.37	92.00	156.00
Total	364	117.32	14.47	115.82	118.81	74.00	156.00

Table 4.8: ANOVA test results for overall Patients safety culture among three hospitals

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	7522.85	2.00	3761.42	19.84	.00
Within Groups	68449.82	361.00	189.61		
Total	75972.67	363.00			

Table 4.9: Post-hoc comparisons using the Tukey HSD

(I) Hospital	**(J) Hospital**	**Mean Difference (I-J)**	**Sig.**	**95% CI**	
				Lower	Upper
1 Presbyterian	2 Vineyard	-7.05*	0.00	-12.12	-1.99
	3 Zebilla	-9.68*	0.00	-13.37	-5.98
2 Vineyard	1 presbyterian	7.05*	0.00	1.99	12.12
	3 Zebilla	-2.62	0.46	-7.81	2.56
3 Zebilla	1 Presbyterian	9.68*	0.00	5.98	13.37
	2 Vineyard	2.62	0.46	-2.56	7.81

4.3.2 ANOVA results for each of the ten composite areas of Patient Safety Culture in the three Hospitals

Further ANOVA analyses were performed to ascertain how the means of each of the hospitals significantly differ from each other on the ten domains of the patient safety culture scale. The analysis revealed that the mean scores of Presbyterian, Vineyard, and Zebilla hospitals differ significantly on the following domains of patient safety culture: team work within units F (2, 363) = 11.68, p = 0.00, manager expectations and actions in promoting patient safety F (2, 363) = 5.6, p = 0.00, organizational learning and improvement F (2, 363) = 7.19, p = 0.00, management support for patient safety F (2, 363) = 6.39, p = 0.00, feedback and communication about error F (2, 363) = 4.48, p = 0.00, teamwork across units F (2, 363) = 20.33, p = 0.00, handoffs and transitions F (2, 363) = 12.02, p = 0.00, and staffing F (2, 363) = 19.40, p = 0.00. See Appendix 2 table 4.1. The mean scores of Presbyterian, Vineyard, and Zebilla hospital didn't differ significantly on the following domains of patient safety culture scale: communication openness F (2, 364) = 2.56, p = 0.08 and non-punitive response to errors F (2, 363) = 1.54, p = 0.22. Appendix 2 See table 4.1.

With regards to teamwork within units, Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Presbyterian (*M*= 12.79, SD= 2.44) was statistically and significantly different from Vineyard (*M*=14.06, SD=1.84), and Zebilla (*M*=13.76, SD=1.72) See Appendix 2 Table 4.2. The mean score for Vineyard hospital (*M*=14.06, SD=1.84) was not statistically significantly different from Zebilla hospital (*M*=13.76, SD=1.72). See Appendix 2 table 4.2. What this result means is that Vineyard hospital scored higher on teamwork within units of the patient safety culture scale.

With regard to manager expectations and actions promoting patient safety, Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Vineyard hospital (*M*=14.06, SD=1.84) was statistically significantly different from Zebilla hospital (*M*=13.76, SD=1.72). See Appendix 2 Table 4.2. The mean score for Presbyterian (*M*= 14.65, SD= 3.14) was not statistically and significantly different from Vineyard (*M*=13.80, SD=3.41), and Zebilla (*M*=15.39, SD=2.89). See Table 4.10. What the result means is that Zebilla hospital scored higher in the manager expectations & actions promoting patient safety of the patient safety culture scale.

Regarding organizational learning and continuous improvement, Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Presbyterian (*M*= 10.66, SD= 2.33) was statistically significantly different from Vineyard (*M*=11.81, SD=2.12), and Zebilla (*M*=11.31, SD=1.95). See table 4.10. The mean score for Vineyard hospital (*M*=11.81, SD=2.12) is not significantly different from Zebilla hospital (*M*=11.31, SD=1.95). See table 4.5). What the result means is that vineyard hospital scored higher in the organizational learning and continuous improvement of the patient safety culture scale.

In connection with management support for patient safety, Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Presbyterian (*M*= 9.70, SD= 2.64) was statistically significantly different from Vineyard (*M*=11.06, SD=2.40), and Zebilla (*M*=10.43, SD=2.69). See Appendix 2 table 4.2. The mean score for Vineyard hospital (*M*=11.06, SD=2.40) is not statistically significantly different from Zebilla hospital (*M*=11.31, SD=1.95).

SeeAppendix 2 table 4.2. What the result means is that vineyard hospital scored higher in the management support for patient safety of the patient safety culture scale.

Regarding feedback and communication about error, Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Presbyterian (*M*= 10.26, SD= 2.67) was statistically significantly different from Zebilla hospital (*M*=11.11, SD=2.51). See table 4.10. The mean score for Presbyterian (*M*= 10.26, SD= 2.67) was not statistically and significantly different from Vineyard (*M*=10.98, SD=2.55), and Zebilla (*M*=11.11, SD=2.51). See Appendix 2 table 4.2. What the result means is that Zebilla hospital scored higher in the feedback and communication about error of the patient safety culture scale.

Concerning teamwork across units, Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Presbyterian (*M*= 13.57, SD= 2.87) was statistically significantly different from Vineyard (*M*=15.91, SD=2.68), and Zebilla (*M*=15.07, SD=2.53). See appendix 2 table 4.3. The mean score for Vineyard hospital (*M*=15.91, SD=2.68) is not statistically significantly different from Zebilla hospital (*M*=15.07, SD=2.53). See Appendix 2 table 4.3. What the result means is that vineyard hospital scored higher in the teamwork across units of the patient safety culture scale.

In connection with handoffs and transitions, Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Presbyterian (*M*= 12.88, SD= 3.24) was statistically significantly different from Vineyard (*M*=14.65, SD=3.83), and Zebilla (*M*=14.48, SD=2.86). See Appendix 2 table 4.3. The mean score for Vineyard hospital (*M*=14.65, SD=3.83) is not

statistically significantly different from Zebilla hospital (*M*=14.48, SD=2.86). See Appendix 2 table 4.3. What the result means is that vineyard hospital scored higher in the handoffs and transitions of the patient safety culture scale.

Regarding staffing, Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Presbyterian (*M*= 10.25, SD= 2.67), Vineyard (*M*=9.15, SD=3.03), and Zebilla (*M*=11.72, SD=2.94) are statistically and significantly different from each other. See table 4.11. Zebilla hospital scored higher on the staffing of the patient safety culture scale.

4.4 The influence of structural and process factors on patient safety outcomes

Testing the third hypothesis:

H_I: *Structural and process factors will have significant influence on patient safety outcome*

To identify factors that influence patient safety outcomes; overall patient safety grade and frequency of events reported, four linear regression models were tested. Demographic characteristics, managerial structures, patient safety process were regressed on outcomes variables while controlling for socio-demographics and hospital characteristics. Demographics in this study include gender and educational qualification. The hospital characteristics were made up of the bed size, number of hours worked per week, years served and daily admissions.

The structural factors in this study were made up of managerial structures put in place to ensure the practice of patient safety culture. These include; *management support for patient safety*, *"non-punitive response to error*, staffing and *supervisor's expectations and actions promoting patient safety*. Furthermore, the process factors were made up of *teamwork within and across*

units, communication openness, feedback and communication about error, organizational learning and continuous improvement and handoffs and transitions. Finally, the outcome factors are clinical staff perception of patient safety grade and frequency of events reported.

Prior to performing the multiple linear regression, tests of associations were performed to ascertained the relationship among the structural, process and outcome variables which have statistically significant association with the outcome variables before proceeding to do multiple linear regression.

4.4.1 Correlation between process and structural factors

The analyses revealed that process factors were statistically and significantly related with structural factors except for staffing and communication openness; staffing and teamwork across units; staffing and organizational learning and continuous improvement; staffing and Feedback and Communication about error; non-punitive response to error and teamwork within units; and non-punitive response to error and organizational learning and continuous improvement. See table.

Table 4.10 Pearson correlation between process and outcome variables

		1	2	3	4	5	6	7	8	9	10	11
1	*r*	1										
2	*r*	-.05	1									
3	*r*	-.17**	.24**	1								
4	*r*	-.12*	.17**	.07	1							
5	*r*	-.07	.17**	.30**	.30**	1						
6	*r*	**-.11***	**.27****	.30**	**-.01**	**.18****	**1**					
7	*r*	**-.30****	**.22****	.07	**.06**	**.12***	**.21****	**1**				

8	*r*	**-.24****	**.23****	.01	**-.05**	**.03**	**.16****	**.26****	**1**			
9	*r*	**-.25****	**.19****	**.32****	**.13***	**.19****	**.09**	**.46****	**.16****	**1**		
10	*r*	**-.18****	**.21****	**.30****	**-.06**	**.02**	**.23****	**.34****	**.34****	**.14****	**1**	
11	*r*	**-.15****	**.37****	.01	**-.06**	**.16****	**.46****	**.33****	**.26****	**.24****	**.40****	**1**

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). *Source*: *Author's Field survey, 2018*Hospital Bed size

Structures factors

1. Manager Expectation and actions promoting patient safety
2. Management Support for patient safety
3. Staffing
4. Non-punitive Response to error

Process factors

5. Communication Openness
6. Teamwork Across units
7. Teamwork within unit
8. Handoff and Transformation
9. Organizational learning and continuous improvement
10. Feedback and Communication about error

4.4.2 Multiple Linear Regression: Evaluation of the models

The models are computed in table 4.13. In model 1, structural factors were used as predictors of overall patient safety grade, controlling for socio-demographics and hospital characteristics. The R (regression) coefficient for the first model (r=0.348) indicate the presence of a medium relationship between overall patient safety grade and managerial patient safety structures. The remaining three models have R values ranging between .392 to .442 which still remain within medium relationship between the dependent variable and the predictors. The R square is used to indicate the goodness- of- fit or the variability in the data set explained by the predictors. In model 1, the result (.121 x100) explained about 12.1 % of the variability in patient safety grade

In model 2, process factors were regressed on overall patient safety grade controlling for socio-demographics and hospital characteristics. Table 4.13 indicates a summary of the second model. The R coefficient (r=417) shows that there was a relationship between patient safety process factors and overall patient safety grade. The R Square (.174x100) means that about 17.4 % of the variance in overall patient safety grade was explained by the process factors.

The third model was a regression of structural factors on frequency of events reported. There was a medium relationship (R=.392) between structural factors and number of events reported. The R square (.154 x 100) indicates that about 15.4 % of the variation in the dependent variable was explained by the predictors.

With regards to the fourth model, process factors were used as predictors of frequency of events reported controlling for socio-demographic and hospital characteristics. The R coefficient (r=.342) indicates a relationship between frequency of events reported and the predictors. The model explained (.117 x100) that is 11.7 % of the variability in frequency of events reported was explained by the predictors.

Table 4.111: Summary of the models

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.348[a]	.121	.096	.81508
2	.417[a]	.174	.146	.79242
3	.392[a]	.154	.115	1.09680
4	.342[a]	.117	.092	1.11080

a. Predictors: (Constant), years worked, management support for patient safety, non- punitive response to error, Gender, hours worked per week, Name of hospital, Supervisor action promoting patient safety, staffing, Qualification, Daily Admissions

b. Dependent Variable: patient safety grade

a. Predictors: (Constant), Handoffs and transition, Qualification, communication openness

hours worked per week, Gender, teamwork within, years served, Name of hospital organizational learning, teamwork across units, feedback and communication, Daily Admissions **b. Dependent Variable: patient safety grade**
a. Predictors: (Constant), non- punitive response to error, management support, years served, Gender, hours worked per week, Name of hospital, Supervisor action, staffing, Qualification, Daily Admissions b. Dependent Variable: frequency of events reported
a. Predictors: (Constant), Handoffs and transition, Qualification, communication openness, how many hours per week do you work in this hospital? Gender, teamwork years served Name of hospital, organizational learning, and teamwork across units, feedback and communication, Daily Admissions. **Dependent Variable: frequency of events reported**

4.4.3 ANOVA table for regression model

In order to determine the significance of the regression relationships, ANOVA table was Computed. The results in table 4.14 indicates that the regression relationship in the first model was statistically significant (F=4.86, P=.000).

Furthermore, the regression relationship in the second model was also statistically significant. (F=6.16, P=.000). In addition, the third model had a significant relationship between structural factors and frequency of events reported (F=3.941, P=.000). Finally, the fourth model shows a statistically significant relationship between process factors and frequency of events reported, (F=4.678, p=.000).

This indicates that the hypothesis of *Structural and process factors will have no significant influence on patient safety outcomes* is rejected at the 95% confidence interval. This means that managerial patient safety structures and patient safety process influence the overall patient safety grade and the number of events reported. The researcher then concludes that structural and

process factors have statistically significant influence on overall patient safety grade and frequency of events reported.

Table 4.12: ANOVA table

Model	Sum of Squares	df	Mean Square	F	Sig.
1.Regression	32.327	10	3.233	4.866	.000b
Residual	234.519	353	.664		
Total	266.846	363			
2.Regression	46.442	12	3.870	6.163	.000[b]
Residual	220.405	351	.628		
Total	266.846	363			
3.Regression	75.858	16	4.741	3.941	.000[b]
Residual	417.428	347	1.203		
Total	493.286	363			
4.Regression	57.725	10	5.772	4.678	.000[b]
Residual	435.561	353	1.234		
Total	493.286	363			

4.4.4 Multiple Linear Regression Testing of Hypotheses

To identify factors that influence patient safety outcomes; overall patient safety grade and frequency of events reported, four linear regression models were tested. In model 1, structural factors were used as predictors of overall patient safety grade, controlling for socio-demographics and hospital characteristics. Hospital characteristics were used to control for the differences that existed among the hospitals in terms of size, staffing, attendance and admissions. Table 4.14 presents the result. Multiple linear regressions were used to assess the impact of structural factors on the overall patient safety grade perceived by clinical staff of three hospitals in Bawku Central and West municipal and Districts respectively.

The result indicates that Manager's Expectations and actions promoting patient safety, management support for patient safety and non-punitive response to error made statistical

significance contribution to the model. One unit increase in management support for patient safety (.188, p=.000) will result in .188 increase in the overall patient safety grade. Likewise a unit increase in manager's expectations and actions promoting patient safety (.118, p=.017) will lead to .118 increase in overall perception of patient safety grade. Furthermore, one unit increase in the score of non-punitive response to error (.092, p=.014) will result in .092 increase in overall patient safety grade. None of the hospital and demographic characteristics has a statistically significant influence on the overall perception of patient safety grade. The result further indicates that increasing number of staffs will not result in creasing staff ratings on patient safety grade.

Table 4.13: Regression of structural factors on overall patient safety grade.

Coefficients					
Model 1	Unstandardized Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.318	.457		7.268	.000
Staffing	.019	.049	.021	.379	.705
Management support	.188	.041	.241	4.548	.000
Supervisor action	.118	.049	.127	2.400	.017
Non-punitive response	.092	.037	.127	2.468	.014
Qualification	-.034	.090	-.020	-.381	.703
Daily Admissions	.007	.005	.117	1.570	.117
Gender	.045	.088	.026	.516	.606
Name of hospital	.085	.071	.091	1.197	.232
hours per week	.044	.041	.055	1.073	.284
Years served	-.038	.055	-.038	-.698	.486

a. Dependent Variable: Patient safety grade

4.4.5 Multiple Linear Regression

Multiple linear regressions were used to assess the impact of process factors on overall patient safety grade among clinical staff in the study hospitals. The model indicates that a unit increase

in feedback and communication about error (.01, p=.035) will result in .10 increase in staff overall perception of patient safety grade. Also, a unit increase in teamwork across units (.288, p=.000) will lead to .288 increase in overall perception of patient safety grade. With regards to the remaining items, some have positive and others have inverse effect on patient safety grade. However, they were not statistically significant. None of the demographics and hospital characteristics made a statistically significant influence on patient safety grad

Table 4.14: Regression of process factors on overall patient safety grade.

Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.298	.513		8.380	.000
	Qualification	-.045	.088	-.027	-.512	.609
	Daily Admissions	.003	.004	.050	.692	.489
	Gender	-.007	.087	-.004	-.086	.932
	Name of hospital	.093	.066	.100	1.416	.158
	Hours worked per week	.055	.040	.068	1.359	.175
	Years served	-.030	.053	-.030	-.565	.572
	Teamwork within	.015	.058	.014	.253	.800
	Organizational learning	-.078	.058	-.078	-1.351	.178
	feedback and communication	.100	.047	.122	2.119	.035
	Communication openness	-.073	.038	-.103	-1.912	.057
	teamwork across units	.288	.059	.274	4.856	.000
	Handoff and transition	-.031	.046	-.036	-.673	.502

a. Dependent Variable: patient safety grade

4.4.6 Multiple Linear Regression of structural factor on frequency of event reported

Multiple linear regressions were used to assess the impact of process factors on overall patient safety grade among clinical staff in the study hospitals. Furthermore, the result indicates that Compared to degree holders, clinical staff who hold a diploma (.251, p=.042) will report .251 less on the frequency of events reported indicating that higher education will improve upon staff boldness to report a medical error. Moreover, a unit increase in supervisor's expectation and actions promoting patient safety (.287, p=.000) will lead to an increase in the frequency of events reported by .287. Also, a unit increase in management support for patient safety (.145, p=.010) will result in .145 increase in frequency of events reported. With regards to the remaining items, some have positive and others have inverse effect on the frequency of events reported. See table 4.18). However, these effects are statistically insignificant. None of the hospital characteristics made a statistically significant effect on frequency of events reported.

Table 4.15: Regression of structural factors on frequency of events reported

Coefficient					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	1.969	.622		3.164	.002
Qualification	-.251	.123	-.109	-2.039	.042
Daily Admissions	.001	.006	.007	.088	.930
Gender	-.216	.120	-.092	-1.802	.072
Hours worked per week	.014	.056	.013	.257	.797
Years served	.144	.075	.104	1.915	.056
Supervisor action	.287	.067	.227	4.274	.000
Management support	.145	.056	.137	2.575	.010
Staffing	-.017	.067	-.014	-.254	.800

Non-punitive response to error	.032	.051	.032	.618	.537

a. Dependent Variable: frequency of events reported

4.4.7 Multiple Linear Regression of process factor on frequency of event reported

Multiple linear regressions were used to assess the impact of process factors on overall patient safety grade among clinical staff in the study hospitals. Furthermore, the result indicates that Compared to degree holders, clinical staff who hold a diploma (.246, p=.048) will report .246 less on the frequency of events reported indicating that higher education will improve upon staff boldness to report a medical error. Furthermore, a unit increase in feedback and communication about errors (.232, p=.000) will result in an increase in the frequency of events reported by .232. Moreover, a unit increase in teamwork across units (.191, p=.022) will result in .191 increase in frequency of events reported. With regards to the remaining items, some have positive and others have inverse effect on the frequency of events reported. However, these effects are statistically insignificant. None of the hospital characteristics causes a statistically significant effect on frequency of events reported.

Table 4.16 Regression of process factors on frequency of events reported

		Coefficient				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.792	.721		2.484	.013
	Qualification	-.246	.124	-.107	-1.985	.048
	Daily Admissions	.005	.006	.055	.741	.459
	Gender	-.150	.122	-.064	-1.229	.220
	Hours worked per week	.010	.057	.009	.180	.857
	Years served	.136	.075	.098	1.809	.071
	Teamwork within	-.030	.081	-.022	-.374	.709
	Organisational learning	.058	.082	.042	.713	.476

Feedback and communication	.232	.066	.210	3.516	.000
Communication openness	.050	.054	.051	.920	.358
teamwork across units	.191	.083	.134	2.296	.022
Handoffs_ and transition	-.102	.065	-.086	-1.574	.116

a. Dependent Variable: frequency of events reported

4.5 The challenges staff encounter in their quest to practice patient safety culture.

This section presents findings that were gathered from the views of respondents regarding challenges associated with patient safety culture. The study found nine thematic areas as staff challenges on patient safety culture. These areas includes Logistics and infrastructural challenges, Staffing challenges, infrequent monitoring and supervision, lack of Safety committee, Blame Culture, poor emergency preparedness, Lack of staff motivation, heavy workload and patient non-compliance. Some of the challenges are similar across the study facilities. For the principle of confidentiality, the study facilities are represented with alphabets, **X, T and Q**.

4.5.1 Logistics and infrastructural challenges

Respondents had the opinions that logistics and infrastructural deficit was an area of challenge to the efforts of clinical staff on patient safety culture. Some staff wrote the following remarks.

"There are shortages of consumables. For example, cannulas, cotton, syringes and needles. It becomes worse when we are ready to do surgery and consumables are completely out of stock." **theatre staff from facility X**. Other respondents also pointed out the challenges they encounter in transferring cases from one ward to the other as far as infrastructural issues are concern. Staff had this to say.

"Transporting patients from one unit to another is a serious safety issue in this hospital because there is inadequate patients transport equipment. For example, wheelchairs and stretchers. There is also congestion in the word with beds that are damaged and have no bed side rails. With this, how do we maintain a constant good practice to ensure safety culture?" **A nurse from facility T.**

A Senior nursing officer (SNO) also described the situation of infrastructural deficit and lack of logistics to be a hindering factor for sound patient safety culture. He made the following statement

"We are actually struggling here. No disinfectants to decontaminate equipment and dress wounds. At times we use our bare hands to work on patients without gloves." **A senior nurse at facility Q.**

Some staff also lamented on the issue of ward space. He presents the following statement: *Our bed capacity in the word is very small. Only 14 bed yet we receive cases from the sub-district. We at times pair two or three patients on one bed. This usually results in to fight between patient relative and we the staff for the sake of privacy. In fact, cross-infection is common among the children. Some patients are even forced to sleep on beds without mattresses."* **Senior staff nurse from facility T**

Other staff encountered similar challenges and presented their views as stated below.

"I feel worried when patients bring laboratory request forms that need urgent investigations and there are no laboratory reagents to carry out the investigation." **Laboratory staff from facility Q).**

A similar statement that has to do with factors that hinder staff in observing patient safety culture stems from the infrastructural issues in keeping certain categories of patient separately from others. A staff has this to say *"We do not have isolation unit for clients who need to be isolated, for example, TB. We keep them together due to lack of physical space. You can imagine why we have not eliminated TB."*

Nursing officer from facility T.

In addition, a staff wrote about his encounter at the outpatient department and on the ward he works; *"There are instances where a patient passed on whiles queuing to take a folder. Even sometimes in the ward, a patient is on oxygen and the light goes off for hours, no alternative source of power and the final results are too pathetic"* **Senior staff from facility X**

4.5.2 Staffing challenges

Respondents maintained that staffing is a major issue with regards to patient safety. Lack of staff, as well as lack of skilled mix, are challenges confronting clinical staff provision of quality and safety healthcare. The following issues were raised.

"There exist a very low patient/staff ratio in this hospital. More especially, doctors. So when a doctor is called to review a case, it takes a long time. At times before the doctor comes, the unfortunate happens." **Senior nurse from facility Q**

"*Late interventions by doctors to obstetrics and gynaecological referral cases, communication gap with failure to answer phone calls in times of critical need are huge challenges to building a patient safety culture in our hospital."* **Midwife from facility X.**

4.5.3 Blame Culture

On this subtheme, respondent felt that issues arising from errors are always handled in a biased manner. Mostly they are blamed and named. Some respondents have this to say;

Issues relating to patient injuries are mostly touted that "you caused it so, solve it" This has been a reason for many of us failing to report errors we commit. **Pharmacy staff from facility T**.

"Blame is always on us (the junior staff) by the higher authority which is always not the issue. Most events occur not because the staff is irresponsible but because certain things are not put in place by the hospital management. The systems are not working" **Midwife from facility X**

Another staff has this to say

I think patient safety will increase if we report errors and the staff involved are not viewed as incompetent but rather praise for taking such a bold step. However, it is difficult because management is always quick to blame staff for any error committed" **senior staff from Q.**

Study participants maintained that an inadequate number of staff to meet the high demand of patient in terms of safety, quality and a large number of daily client attendance contribute to the low level of patient safety culture in the study settings.

4.5.4 Emergency preparedness

'There is no emergency unit, so critically ill patients are managed on a stretcher without side rails in a corner when a lot of patients pass and disturb couple up with faulty and difficult to use wheelchairs and stretchers which can even injure patient' **Senior nursing officer from facility T**

"We do not have emergency drugs to attend to cases of serious emergencies. This is because most of the drugs are not in the facility's pharmacy. There is also very low patient/staff ratio more especially, doctors. So, when a doctor is called to review a case, it takes a long time" **consulting room staff from facility Q.**

"My facility needs to improve upon the managerial skills, pay staff regularly and also motivate them. A very challenging situation is when you sit in the dispensary and there is no medicine to serve patients. If drugs are available, staff will have the peace of mind to understand, validate and dispense drugs without any dispensing error" **Dispensary staff from facility Q**

Most at times, the source, brand and quality of some drugs and consumables are sometimes in contention. Once culture relates to the way we do things, a constant supply of consumables, drugs and the regular payment of staff salaries plus a clear-cut facility policy on patient safety culture will be essential" ***physician*** **from facility Q.**

4.5.5 Heavy workload

Another theme emerged with regards to the workload that staff embattled within their daily quest to work and maintain patient safety culture

We are suffering here. There is too much workload over here with inadequate staffing. This makes things more difficult to avoid committing an error" **Nurse from facility Q.**

4.5.6 Patient factors

"Patient's relatives make things difficult by trying to beat us up in the name of patients' rights. The language barrier makes it difficult to understand what my client is trying to put across". Senior staff nurse from. **Senior nurse from facility T.**

There is also noncompliance of patients in terms of their medication. Some patients concurrently take concoctions alongside our medication causing long-term complications. Some clients refuse to take health education and relatives seriously refusing to obey visiting regulations regarding visiting hours" **senior nursing officer facility X.**

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This section of the thesis discusses the findings of the study with regards to the research objectives and exiting literature.

5.1 Demographic and hospital characteristics of clinical staff

This section presents a summary of the findings on demographic characteristics in relation to relevant literature. The results indicate more female respondents than males and the dominant professional group was nurses. This findings are in line with the findings of (Abdou, 2011; Ali et al., 2018). This could be due to the fact that nurses were the majority and nursing is noted as a female-dominated profession. Furthermore, majority of the respondents have direct contact with patients which is in agreement with (Ali et al., 2018) whose findings indicated majority of respondents attesting to the fact that they have direct contact or interaction with patients. This could be due to the fact that the hospital setting is an establishment for patient interaction and their welfare. The study further indicates that majority of respondents worked in the hospitals for one to five years whiles minority worked for more than five years. This also agree with the findings in Saudi Arabian hospitals where majority of respondent serve within similar brackets (Alahmadi, 2010). This might be an indication that those who work for fewer years are always enthusiastic to obey protocols and operate on laydown norms and principles.

With regards to bed size, even though the study facilities are all primary hospitals, Presbyterian hospital has large bed size (388), followed by Zebilla (110) and Vineyard (105). These hospital

size differ from a study carried out at Ethiopia (Wami et al., 2016) which recorded high bed capacity to be associated with Government hospitals. This difference might be due to the fact that Presbyterian hospital was the first hospital and was almost used as the municipal hospital for many years.

5.2 The prevailing patient safety culture in study hospitals

The perception of clinical staff on patient safety culture reflected their efforts in preventing errors, learning from their mistakes and building a resilient team to enhance patient safety. The scores the respondents rated to each patient safety culture composite area is an indication of the state of the prevailing patient safety culture in the hospitals**.** The overall state of patient safety culture in this study was (59.07%) which is below the benchmark for positive patient safety culture (75%). Furthermore, the overall negative response (29.68%) was within the critical level of negative response (30%).

The result is an indication that the hospitals patient safety culture is less than standard and have many safety culture domains that require interventions for improvement, except for teamwork within units which indicated positive response for patient safety culture. The result is similar to the findings of a study in Ethiopia which recorded lower overall patient safety culture (Wami et al., 2016). This similarity might be due to the similarities within countries and the infrastructure relationship of same continent. Other studies carried out in China also recorded a score slightly higher than the current study (Yanli Nie et al., 2004). In Japan, all constructs obtained high positive scores (Fujita et al., 2014). These differences might be an indication of the fact that Japan have much infrastructural development, adherent and reliable patient safety culture such as

non-punitive response to error, communication openness, than it is in the current study facilities in Ghana. In addition, these countries might have better economic development than the current study setting.

Moreover, the composite areas scores further indicate that beside teamwork within units, positive observations were also perceived among the following composite areas; "*management expectation and actions promoting patient safety"*, "*teamwork across units"*, "*organisational learning and continuous improvement* and *management support for patient safety"*. This could mean that the study setting is now picking up on patient safety culture and are ready to learn from their errors in order to develop positive sense of patient safety. The result also reflects good team spirit which is a prerequisite for positive patient safety. This finding has fallen short of the study in Saudi Arabia which recorded higher organizational learning and continuous improvement and have also maintain a higher record of positive composite areas than the current studies in teamwork within units and feedback and communication about errors (Alahmadi, 2010).

However, on the individual item level, some of the items achieved a higher percentage positive score. Respondents perceived that People support one another in their units and that people treat each other with respect. On the organisational leaning and continuous improvement composite area, the study revealed that participants were actively doing things to improve patient safety. A study in Ethiopia (Wami et al., 2016) obtained similar results. Furthermore, on the management expectation and actions promoting patient safety composite indicate that supervisors "*overlook patient safety problems that happen and after we make changes to improve patient safety, we*

evaluate their effectiveness". Other domains include; "Communication openness, Staff will freely speak up if they see something that may negatively affect patient care, on teamwork across units, good cooperation, and working together to provide the best care and good cooperation among hospital units that need to work together were rated high. These findings are similar to several studies (Abu-hamad, Hamdan & Al-saqqa, 2016; Hamdan & Saleem, 2013b). This might mean that since within the composite areas certain items are perceived positively, with safety policies and management interventions patient safety culture would attain the maximum contribution to patient safety.

Furthermore, the study indicates large number of participants failing to report an event for the period of one year. This might be an indication that punitive response to error and blame culture is prevailing in these hospitals. This agrees with the findings of (Hamdan & Saleem, 2013c) where majority of respondents did not report a case for the period under review. It, therefore, suppose that as management continue to hold punitive response to errors committed, staff will continue to shelve their errors which will inadvertently reduce patient safety outcomes.

The respondents were asked to give a safety grade for their hospitals on five Likert scale; poor to excellent. The result indicates that half of the respondents rated their hospital as having very good or excellent patient safety culture, less than half hold the view that patient safety culture is only acceptable in their facilities and few of the respondents perceived that patient safety culture is poor or failing. These findings are a reflection of the lack of measures to in steal patient safety in the hospitals. It further indicates that infrastructure and human resources development are not adequate to provide excellent care (Mayeng & Wolvaardt, 2015). This confirmed the statement a

respondent made in the current study "*Our bed capacity in the ward is very small. We have Only 14 beds to receive cases from the sub-district. We at times pair two or three patients on one bed. This usually results in to fight between patient relative and we the staff for the sake of privacy. In fact, cross-infection is common among the children. Some patients are even forced to sleep on beds without mattresses"*

Similarly, the overall perception of patient safety was perceived less positive among respondents, lower than the threshold. This finding is in line with a study to assess developing countries patient safety culture where they found that fundamental safety action to improve patient safety has been infrequent and limited in scope (Wilson et al., 2012). This similarity is due to the fact that Ghana is a developing country and by extension, the study facilities.

In addition, number and frequency of events reported seems to be very low. Majority of the respondents did not report a case for the period of one year. This could be due to the fact that there is punitive and blame culture. This in steal fear and lack of confidence to disclose an error one has committed. This study agrees with (Wami et al., 2016) where more than half of the respondents did not report an error within the period of one year. This agrees with the qualitative findings of this study where a respondent stated; *"Issues relating to patient injuries are mostly touted that "you caused it so, solve it" This has been a reason for many of us failing to report errors we have committed."*

5.3 Patient safety culture in study hospitals compared

With regards to the patient safety culture in the various study hospitals, the researcher investigated their differences by conducting multiple comparative tests, one-way ANOVA. This was to determine whether there is a significant difference among the three hospitals on the four patient safety culture outcomes and the other ten patient safety culture construct.

The findings indicate that the overall patient safety culture score was statistically significant at the $p<.05$ level for the overall patient safety score for the three hospitals. There statistically significant difference was driven by Presbyterian hospital as compared to Vineyard and Zebilla. Vineyard and Zebilla hospitals mean scores were not significantly different from each other. This findings agrees with a study carried out to assess patient safety culture among nurses in a university hospital in Egypt(Abbas et al., 2008). They found that patient safety culture differs across hospitals and departments. This difference could exist because the culture in private hospitals is "work and pay your selves" As such; they are more concern with safety issues to prevent shame and legal suit. Also, to generate enough funds in order to get their pay since salaries depend on internally generated funds. This was confirmed by a respondent stating that "*We always want to maintain patient safety as a routine duty to increase attendance and revenue in order to secure our salary. However, it is difficulty because of resource constrains"* This further agree with a study conducted in Tunisia to assess patient safety culture in private and public hospitals. They found that most of the safety constructs were positively rated in private than public hospitals.

Further ANOVA analysis indicates statistically significant difference between the three hospitals in the following constructs; team work within units, manager expectations & actions promoting patient safety, organizational learning and continuous improvement, management support for patient safety, feedback and communication about error, teamwork across units' handoffs and transitions as well as staffing. These findings were similar to (Wami et al., 2016) who also identify similar constructs to have significantly different means.

However, Vineyard hospital seems to be doing well with significantly different means from Presbyterian and Zebilla hospitals in the areas of teamwork within units, organizational learning and continuous improvement, management support for patient safety, teamwork across units and handoffs and transitions.

Zebilla hospital obtained higher significantly different means in the following domains; manager expectations & actions promoting patient safety, feedback and communication about error and staffing. Communication openness and nun punitive response to error do not significantly differ from each of the hospitals. Presbyterian hospital did not obtain statistically significantly different mean than any of the study hospitals.

These findings agree with the findings of (Abu-hamad et al., 2016) were the hospital with small size obtain statistically significant means than larger hospitals. They further discovered that staff in non-governmental hospitals perceived higher safety culture than their colleagues in government hospitals**.** These findings might be due to the fact that there is more accountability in

private hospitals than government hospitals since every cost in private hospitals is been born by internal generated fund.

However, the findings of (Hamdan & Saleem, 2013b) disagree with the current studies as it recorded higher significantly different means in the following domain in favour of large hospitals; manager or supervisor's expectation and actions promoting patient safety, feedback and communication about error, frequency of event reported and hands off and transition.

These differences might be due to the fact that large hospitals in the current study lack the needed staff, infrastructure and supervisory roles to tract who did what at a given point in time. This is in line with (Hamdan & Saleem, 2013) who states that "Leadership commitment to patient safety as a priority is crutial and leadership support in training and provision of necessary resources is fundamental for the success of patient safety program" This further agree with the qualitative aspect of the current study as a participant wrote; *"There is no cordial relationship between staff and management in the hospital, there is no adequate supervision from management. This allows staff to have poor attitude towards work, such as lateness and absenteeism. In my view, this will have a greater negative impact on the kind of safety culture we establish"*

A closer look at the mean deference indicates that even though Vineyard hospital appears to have higher significant means in most of the composite areas, the overall perception of safety culture of all the hospitals fell below the standard for international comparison. An indication that all the

study hospitals need vigorous interventions to put the hospitals in the level of high patient safety culture institutions.

5.4 The influence of structural and process factors on patient safety outcomes

Multiple linear regressions were performed to test the fourth hypothesis of the study. Structural and process factors were used as predictors of two outcome variables; patient safety grade and frequency of events reported. Four models were tested and the results indicated that about 56.6% of the variability of patient safety culture was explained by the two main patient safety outcomes variables; patient safety grade and frequency of events reported.

5.4.1 Patient safety grade

With respect to patient safety grade, team work within groups, manager expectation and action promoting patient safety, organizational learning and continuous improvement, management support for patient safety, feedback and communication about error, communication openness, teamwork across units, and handoffs and transition, had statistically significant correlation with patient safety grade. This findings agree with a study in Japan on *the characteristics of unit level patient safety culture in hospitals, a cross sectional study,* which recorded majority of the patient safety composite areas with good overall perception (Fujita et al., 2014; Abdou, 2011). This might imply that when staff rates their hospital with good patient safety grade, safety culture is strongly practiced.

In addition, the results revealed that managerial structural factors including "management support for patient safety, supervisor actions promoting patient safety and non-punitive response

to error have effect on patient safety grade rated by staff. However, demographic and hospital characteristics that were used as control factors did not have statistically significant relationship with patient safety grade. This contravenes the findings of a study in the United States where hospital characteristics influence rating of patient safety grade. This indicates that effort from management with reduced punitive measure will result in higher ratings of patient safety grade. Positive safety grade also implies good patient care. The results further indicate that increasing staff will not significantly increase their perception of assigning higher ratings on patient safety great. This confirm a study in China where larger size hospitals assigned less positive safety grade than the smaller size hospital (Yanli Nie, Xuanyue Mao & Hao Cui, 2004).

Organizational learning and continuous improvement, management support for patient safety, and teamwork across units made statistically significant contribution to the model. This finding is similar to the findings of a study in East Mediterranean hospitals on predictors and outcomes of patient safety culture in hospitals (El-jardali et al., 2011). This significant relationship indicates the likelihood of staff reporting high patient safety grade.

Another study in Lebanon agrees with this findings of a good relationship between management support and patient safety outcomes (Wami et al., 2016). This is an indication that as managers support patient safety culture, clinical staff would be more vigilant in providing safety care to improve upon the overall patient safety. Furthermore, another study carried out to assess patient safety culture in a district hospital indicated that when punitive response to error is high, staff will be afraid to report errors. Failure to report errors will consequently reduce patient safety grade. This is in tandem with the current study findings where a respondent stated that; *"There is*

Lack of clear patient safety policy in the facility to compel us to practice patient safety culture. Mistakes are always concealed and safety issues are discussed only when there is a problem" This further implies that staff actions and inactions will largely depend on formidable management structure with regular monitoring and executive work rounds. Moreover, the model also explains 12.1 % of the variability in the patient safety grade indicating a significant impact on patient safety outcome.

Furthermore, process factor also indicates relationship and influence on the rating of patient safety grade by staff. This study revealed that feedback on staff activities (B=.100, P=.035) errors reported and team spirit (B=.288, P=.000).

5.4.2 Frequency of events reported

At the test for association level, the results indicate that most of the composite areas have significant correlation with frequency of event reported, teamwork across and within units and "management support for patient safety. Organizational learning and feedback and communication about error that can influence the frequency staff report events. This agrees with (Pronovost, 2003) who argue that leaders convey their action plan regarding patient safety with prudent allocation of scarce resources and feedback they provide with regards to patient safety culture (Pronovost, 2003). It is further noted that theme work is enhanced and staff confidence busted when managers are constantly engaged with workers (Pronovost, 2003). The findings can be linked to the response to items in the frequency of events reported composite area. It shows few staff always report cases. This is in line with literature where event reporting is linked to fear of been blamed punished and humiliated (El-jardali et al., 2011).

Furthermore, the model explained 11.7 % of the variability of frequency of event reported. It further indicate that feedback and communication about error made statistical significant contribution to the model. Implying that proper communication and clearer feedback of issues discussed will promote staff confidence and encourage them to report any mistake they commit to their supervisor or clinical head. This findings agree with previous studies in different countries (Nieva & Sorra, 2003). Their findings indicate that, when feedback and communication are incorporated into strategic planning, institutions get the best results of staff safety outcome.

This study further indicates that most of the patient safety culture composite areas though not statistically significant, have positive contributions to frequency of event reported; organizational learning and continuous improvement and manager's expectation and actions promoting patient safety. This fall in line with (Nieva & Sorra, 2003) whose findings indicate that safety supervision was the most proximal antecedent to safety behaviour.

5.5 Challenges associated with patient safety culture of staff

A number of issues immerged from the findings from the qualitative aspect of the study. These issues revealed several hindering factors to patient safety culture in the study hospitals. It further affirms the value staff concerns add to patient care in all clinical settings. Respondents state aspirational views of patient safety culture in line with findings of similar developing countries and facilities.

Respondents stated the challenges they encounter at the point of rendering care to patients. Lack of materials to facilitate care like gloves and cotton.

Respondents stated and express their frustration especially when they are ready for surgery and cannot find consumables. This agrees with the findings of (Aveling et al., 2015) who indicated that patient safety culture is impeded since there exist material shortages and culture of behaviour short falls prevailed.

Furthermore, the respondents expressed a serious challenge regarding equipments and logistics to aid staff maintain patient safety. It was quite serious when all the three hospitals have respondent complaing bitterly about lack of wheel chairs, stretchers and beds. Which are either inadequate or are not in a good condition to do the work it is ment to do. These led to pairring patients on one bed leading to nosocomial infections; putting patient on a faulty strecher which usually results in falls; and putting children on beds without side rails resulting in falls and at times injuries. These findings concurs with (Aveling et al., 2015). Their findings indicated conspicuous resemblance of patient safety culture in the current study as they identify infrustructural and inadequate organisational systems as factors militating against well extablish patiemnt safety culture.

In addition, blame culture constitude a large hinderance to the effort of cliincal staff regarding patient safety. Respondents repeadedly expressed their inability to report errors, take risk and add value to their professional skills. This is because when in doing that results in an error, one is blamed, shamed and named. This makes staff, not to dear and if the unfortunate happens, they try to shelve it. This finding is in line with the findings of (El-jardali et al., 2011) who showed that most clinical staff allow most errors to go unreported due to the difficulties they will face after reporting a case. This is an indication that, punitive and blame culture have gain grounds in the

African health system. Therefore, to improve upon patient safety, staff should be encouraged to report and take rsiky actions that are likely to benefit the the patient without fear.

Another issue respondents vehemently noted as an area of concern is in relation to shortage of staff and inadequate staff mix. Respondents lamented on the fact that patient to staff ratio is very low, expecially doctors. Due to the inadequate number of doctors, a doctor who has just left the facility could be called for emmergency and by the time he returns, the unfortunate might have happened. This results is in sinch with (Wilson, 2007) whose findings revealed that inadequate staffing and staff tuenover degrade the integrity, cohension and collective experience of a unit staff thereby affecting the safety of patients. The current findings further agree with several studies indicating lack of staff as a major issue restraining patient safety culture in Riyadh (El-Jardali et al., 2014; WOH, 2008). This minght be an indication that staff strenght and staff mix is a basic determing factor in ensuring patient safety worldwide.

Not withstanding, enough staff can not eliminate the militating foctors for patient safety if monitoring, supervision and executive walk rounds are not instituted. The findings of this study indicate that cordial relationship between management and staff with structured supervision is necessary to maintain patient safety. This findings is in consonance with the findings of (Pronovost, 2003). He discovered that theme work is enhanced and staff confidence busted when managers are constantly engaging with workers. This may in turn influence staff relationship with patients, increase bonding and plight for patients and consequently improve their safety.

In addition, the study revealed that the absence of patient safety committee creates a bigger gap in relation to patient safety. Participants indicated that safety committee will help in educating staff (in service training) in the aspect of patient safety. This will reduce safety related cases such as falls, delay in attending to emergency cases and errors relating to medications.

Moreover, emergency preparedness was also identified by participants as an area that when not well develop pause a challenge on patient safety culture. Respondents from some of the study institutions indicated that emergency unit and emergency cases are managed at a veranda on a stretcher without side rails. Furthermore, Emergency drugs are usually out of stock with either no oxygen or suction machines or they may be there, but faulty. These findings agree with a study in Sweden which indicates that the Emergency Department (ED), should have highly skilled staff, well equipped with emergency drugs and have good resuscitating equipment (Burström et al., 2014). This requirement may be necessary because emergency cases require urgent medical intervention to yield a good result.

In addition, respondents indicated that lack of staff motivation limits staff enthusiasm to maintain safety culture and patient safety. The financial peace and job satisfaction when lacking, create a disequilibrium in the mind set of clinical staff making it difficult to focus on patient safety culture. Furthermore, respondents opined that, when motivation is lacking coupled up with heavy work over load, errors become inevitable. This is in agreement with a study in the United Kingdom which revealed that an institution where work pressure is high, few clinical staff, communication gaps, lack of privacy and respect resulted in poor quality care and lack of patient safety (Dixon-Woods et al., 2014)

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter conveys a summary of the thesis and deduce conclusions with regards to the findings of the study. Recommendations, contribution of the study to literature and suggestions for future studies are also presented.

6.1 Summary of findings

The findings are summarised with regards to the study objectives. The aim of the study was to assess clinical staff perception of patient safety culture and to explore the challenges regarding patient safety culture in selected hospitals in Bawku central and Bawku west municipality and districts respectively. In this regard, the summary reflects the specific objectives of the study.

The specific objectives of the study are stated below:

i. To assess clinical staff perceptions of the prevailing patient safety culture in the study hospitals.

ii. To compare staff perceptions of patient safety culture among the study hospitals

iii. To investigate the factors that determines patient safety culture

iv. To identify challenges facing patient safety culture.

6.2 Prevailing patient safety culture

The researcher administered questionnaire to 364 participants made up of clinical staff from the Presbyterian, Zebilla and Vineyard hospitals to elicit their perception on patient safety culture.

The results indicate that the overall perception of patient safety fell below the benchmark of 75% positive rating. The result is an indication of less desirable patient safety culture in the study hospitals. However, teamwork within units and organisational learning and continuous improvement were rated high 78.28 and 73.03 respectively. The study also indicates that forty to fifty-nine hours and sixty to sixty-nine hours per week were the time most staff work in the study facilities which might have been too long to ensure patient safety. The study further revealed that punitive response to error reported, lack of communication openness, shortage of staff were areas that received poor patient safety culture ratings. However, some items within composite areas score positive safety rating including the following: People support one another in this unit and that when a lot of work is to be done quickly they work together as a team to get the work done an indication of good team spirit.

6.3 Safety culture in study hospitals compared

The study indicates that there exists a statistically significant difference in the mean scores of patient safety culture among the study hospitals. Furthermore, the results revealed that Vineyard hospital (private) does better in five composite areas of the patient safety culture scale; Teamwork within units, organisational learning, management support for patient safety, teamwork across units, hands of and transition. This indicates that private hospitals do better in aforementioned composite areas than public and faith-based hospitals. Furthermore, Zebilla hospital obtained higher mean difference in management expectations and actions promoting patient safety, staffing and feedback and communication about errors. This also indicates that government hospitals do better in these composite areas than private and faith-based hospitals. However, communication openness and non-punitive response to error composite areas were not

statistically significantly different from either of the hospitals. The study also showed that smaller facilities have better patient safety culture. This implies that larger hospitals need to be pre-armed against the militating factors for safety culture and run an open system that foster teamwork within and across hospital units, and free flow of communication among staff and management. As such it is of relevant importance to all stage holders regarding healthcare in Ghana and beyond.

6.4 Factors that determines patient safety culture

Managerial structures were used as predictors for patient safety grade whiles controlling for socio-demographics and hospital characteristics. In model one, 16% of the variability in patient safety grade was explained by the predictors. The study further indicate that every unit increased in management efforts to employ actions promoting patient safety, will lead to 0.18 increase in staff rating of positive patient safety grade. Likewise, one unit increase in management support for patient safety will result in 0.15 increase in patient safety grade. In addition, number of hours work per week, gender and staffing have positive effect on perceived patient safety grade. However, the influence is not statistically significant. Education and gender influence a person courage to report a case. As male have the courage to report a case as compared to their female counterpart and highly educated does same compared to the less educated.

6.5 Challenges facing patient safety culture.

Lack of confidence to report an error that clinical staff commits are areas of much concerns. Furthermore, poor maintenance, with numerous non-functioning emergency equipment, absence of patient safety teams and lack of drugs emerged as challenges confronting clinical staff in their

quest to practice good patient safety culture. Respondent's opinions further indicate that several factors hinder clinical staff from practicing patient safety culture including resource constrains, lack of management commitment to patient safety, inadequate physical space and patient factors.

6.6 Conclusion

Patient safety culture is yet emerging in Ghana's agenda setting for public policy regarding healthcare services. However, patient safety and their rights are enshrined in the patient chatter which every healthcare professional is expected to comply with to ensure safe and quality care to clients seeking healthcare. The study found Organisational learning and continuous improvement, Supervisor or manager expectations and actions promoting patient safety, Teamwork across units as composites with an acceptable level of patient safety culture practice in the study hospitals. Furthermore, Teamwork within units, the overall perception of patient safety, Feedback and communication about error, Communication openness, Handoffs and transitions and Management support for patient safety as areas less developed and needed support for improvement. However, areas such as Non- punitive response to errors, The frequency of events reported and Staffing were perceived by staff to have failed. These areas needed vigorous interventions for their effects to be felt which will consequently lead to patient safety. Over all, the three hospitals need to institute executive walk rounds and patient safety committee to enable them strengthen patient safety culture.

6.7 Contribution of the study to literature

The findings from the study indicate that private facilities have better patient safety culture compared to public and faith-based health facilities. Punitive response to error diminishes patient safety culture.

6.8 Recommendation

The study revealed that patient safety culture in the study hospitals is below the level to maintain patient safety. In this regard, the study provides the following recommendations based on the findings of the study to help improve upon patient safety culture.

In order to improve upon practice and to achieve a high standard of patient safety, hospitals should develop patient safety plans and involve leadership in various department of clinical care. Physicians and physician assistant, nurses, pharmacy staff, laboratory staff and anaesthesia. Management should make the hospital settings a non-punitive environment where staffs are encouraged to vent out their feelings and be at ease to report any error they commit in the cause of duty. This will remove fear and intimidation and promote organisational learning and continuous improvement of staff.

Executive walk rounds, patient safety culture themes should be established to discuss safety issues on a regular bases to indicate the seriousness of issues relating to patient safety.

Incentives and positive motivations should be instituted to encourage staffs who demonstrate seriousness and dedication to patient safety issues. However, irresponsible and reckless actions leading to the causation of errors should be discouraged.

Infrastructural and staffing issues should be looked at with all the seriousness it deserves to curtail system problems which largely results in errors and consequently result into adverse event

6.9 The implication for patient safety

The Donabedian framework for assessing healthcare systems quality and safety argues that interrelationships among hospital characteristics, clinical staff characteristics, and patient safety practices such as event reporting teamwork non-punitive response to error are complex phenomena. The findings in this study provides support for the theoretical proposition that, organizational structures and process influence the outcome of patient safety events reporting practices of clinical staff working in selected hospitals in Bawku.

Furthermore, the findings from this study also imply that to improve upon patient safety culture, clinical staff development, robust healthcare system and resilient hospital management system are needed. Also, the study findings also indicate the important need for managers and clinical staff within hospitals in Bawku central and west to create and maintain patient safety culture that focuses particularly on just, learning and reporting culture for clinical staff and other employees of the institutions.

An organization's safety culture has a significant influence on efforts to identify policies, practices, omissions, and assumptions that could lead to medical errors (Clancy, 2011b). The AHRQ (2009, 2014b) recommends annual assessments of safety culture as one of its ten top safety tips for hospitals in order to provide safer medical care to the general public.

6.10 Limitations of the Study

There are a number of limitations to the study. First of all, objective patient safety indicators such as surgical wound infections, injection abscess, falls and medication errors have not been

assessed, and therefore it will be difficult to establish a direct link between patient safety culture of staff and adverse events.

The study is limited in scope, as only two adjacent districts are selected for the study. The study population and sample size is therefore not nationally representative.

6.11 Suggestions for future studies

With regards to future studies and further improvement, qualitative inquiry of clinical staff perceptions on nun punitive response to error, the frequency of event reported and staffing should be conducted to ascertain in-depth reasons for the very low scores on patient safety culture.

An elaborate exploration of how nurse interpret an event or near miss reporting and the Completion of event report requirements. The importance of patient safety event reporting for staff, patients, and the hospital also need to be looked at. Study replication including all hospital characteristics management and paramedics would be necessary to determine the full skill current state of patient safety culture in the healthcare facilities.

A replication of this research across the whole of Ghana health service institutions, Christian health associations of Ghana (CHAG) health institutions and private hospitals is necessary for the improvement of patient safety.

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APPENDIX 1

QUESTIONNAIRE

I am Alexander Akologo, undertaking a study leading to the award of master of philosophy (Mphil) in health services management at the University of Ghana. This study asks for your opinion about patient safety issues medical errors, and event reporting in your hospital and will take about 25-30 minutes to complete. I would be grateful if you could spend part of your time to complete the questionnaire. If you do not want to take part, your decision would be respected

- 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 reversing from the processes of health care delivery.

Demographic Data of respondents.

Sex	1. Male	2. Female
Name of Hospital	[ ] Presbyterian hospital	[ ] Vineyard hospital [ ] Zebilla hospital
Qualification	1. Certificate [ ] 2. Diploma [ ]	3. Degree [ ]
Number of years served	[ ] 1-5 [ ] 6-10 [ ] 11-15 [ ] 16-20	[ ] 21-25 [ ] 26-30

SECTION A: Your Work Area/Unit

In this survey, think of your ‘’unit’’ as the work area, department, or clinical area of the hospital where you spend most of your work time or provide most of your clinical services.

What is your primary work area or unit in this hospital? Select ONE answer.

a. Many different hospital units/No specific unit.

b. Medicine (non-surgical) Other, please specify:

c. Surgery d. Obstetrics.

e. Paediatrics. f. Emergency department. g. Pharmacy h. laboratory

I. Pharmacy j. Laboratory k. Anaesthesiology.

Please indicate your agreement or disagreement with the following statements about your work area unit.

Think about your hospital work area/unit…	Strongly disagree	Disagree	Neither	Agree	Strongly Agree
1.People support one another in this unit……	1.	2.	3.	4.	5.
2. We have enough support to handle the workload……	1.	2.	3.4		5.
3. 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.
4.In this unit, people treat each other with respect……	1.	2.	3. 4.		5.
5.Staff in this unit work longer hours than is best for Patient care……	1.	2.	3.	4.	5.
6.We are actively doing things to improve patient safety……	1.	2.	3.	4.	5.
7. We use more agency/temporary staff than Is best for					

Patient care…… 1. 2. 3. 4. 5.

8. Staff feel like their mistakes are held against them…… 1. 2. 3. 4. 5.

9. Mistakes have led to positive changed here…..…… 1. 2. 3. 4. 5.

10. It is just by chance that more serious mistake don't happen around here…… 1. 2. 3. 4. 5.

11. When one area in this unit gets really busy, others help out…… 1. 2. 3. 4. 5.

12. When an event is reported, it feels like the person Is being written up, not the problem…… 1. 2. 3. 4. 5.

13. After we make changes to improve patient safety, we evaluate their effectiveness…… 1. 2. 3. 4. 5.

14. We work in ''crisis mode'' trying to do much, too quickly……..... 1. 2. 3. 4. 5.

15. Patient safety is never sacrificed to get more work done…… 1. 2. 3. 4. 5

16. Staff worry that mistakes they make are kept in their personnel file…….... 1. 2. 3. 4. 5

17. We have patient safety problems in this unit……..... 1. 2. 3. 4. 5

18. Our procedures and systems are good at preventing errors from happening…….. 1. 2. 3. 4. 5

SECTION B: Your Supervisor/Manager

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

Never Rarely Sometimes Most of the time Always

1.My supervisor/manager says a good word when he/she Sees a job done to establish patient safety procedures…….... 1. 2. 3. 4. 5

2.My suprvisor/manager seriously considers staff Suggestions for improving patient safety…… 1. 2. 3. 4. 5

3.Whenever pressure builds up, my supervisor/manager Wants us to work faster, even if it means taking shortcuts….. 1. 2. 3. 4. 5

4.My supervisor/manager overlooks patient saftey 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?

Never Rarely Sometimes Most of the time Always

1.We are given feedback about changes put into place based

On event reports…… 1. 2. 3.
4. 5

2.Staff will freely speak up if they see something that may
Negativey affect patient care…… 1. 2. 3.
4. 5.

3.We are informed about errors that happen in this unit…….. 1. 2. 3.
4. 5.

4. Staff feel free to question the decisions or actions of
those with more authority…….... 1. 2. 3.
4. 5

5.In this unit, we discuss ways to prevent errors from
Happening again…… 1. 2. 3.
4. 5

6.Staff are afraid to ask questions when something does
Not seem right…….. 1. 2. 3.
4. 5.

SECTION D: Frequency of Events Reported

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

Never Rarely
Sometimes Most of the time Always

1.When a mistake is made, but is caught and corrected
Before affecting the patient, how often is this reported?..... 1. 2. 3.
4. 5.

2.When a mistake is made, but has no potential
To harm the patient, how often is this reported?..... 1. 2. 3.
4. 5.

3.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

Please give your work area/unit in this hospital an overall grade on patient safety.

A	B	C	D	E
Excellent	Very Good	Acceptance	Poor	Failing

SECTON F: Your Hospital

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

Strongly disagree Disagree Neither Agree Strongly Agree

Think about your hospital…

1.Hospital manaement provides a work climate

That promotes patient safety……..... 1. 2. 3. 4. 5

2.Hospital units do not cordinate well with each other…… 1. 2. 3. 4. 5

3.Things ‘’fall between the cracks’’ when

Tansferring patients from one unit to another…….. 1. 2. 3. 4. 5

4.There is good cooperation among

Hospital units that need to work together……. 1. 2. 3. 4. 5

Think about your hospital…

5.Important patient care information is often lost

During shift changes…… 1. 2. 3. 4. 5

6.It is often unpleasant to work with staff from other

Hospital units…….. 1. 2. 3. 4. 5.

7.Problems often occur in the exchange of information

Across hospital units…… 1. 2. 3. 4. 5

8. The actions of hospital management show that

Patient safety is a top priority…….. 1. 2. 3. 4. 5

9.Hospital management seems interested in patient

Safety only after an adverse event happens……. 1. 2. 3. 4. 5

10. Hospital units work well together to provide the

Best care for patients……... 1. 2. 3. 4. 5

11. Shift changes are problematic for patients

In this hospital……... 1. 2. 3. 4. 5

SECTION G: Number Of Events Reported

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

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

SECTION H: Background Information

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

1.How long have you worked in this hospital?

- a. Less than 1 year
- b. 1 to 5 years
- c. 6 to 10 years
- d. 11 to 15 years
- e. 16 to 20 years
- f. 21 years or more

2. How long have you worked in your current hospital work area/unit?

- a. Less than 1 year
- d. 11 to 15 years

- b. 1 to 5 years
- c. 6 to 10 years
- e. 16 to 20 years
- f. 21 years or more

3. Typically, how many hours per week do you work in this hospital?

- a. Less than 20 hours per week
- b. 20 to 39 hours per week
- c. 40 to 59 hours per week
- d. 60 to 79 hours per week
- e. 80 to 99 hours per week
- f. 100 hours per week or more

SECTION H: Background Information (continued)

4.What is your staff in this hospital? Select ONE answer that best describes your staff position.

- a. Registered Nurse
- b. Physician Assistant/ Nurse Practitioner
- c. Technician (Eg. Lab, Radiology)
- d. Attending/Staff Physician
- e. Other, please specify.
- f. Pharmacist

5.In your staff position, do you typically have direct interaction or contacts with patients?

- a. YES, I typically have direct inteaction or contacts with patients.
- b. NO, I typically do not have direct interaction or contact with patients.

6.How long have you worked in your current specialty or profession?

- a. Less than 1 year
- b. 1 to 5 years
- c. 6 to 10 years
- d. 11 to 15 years
- e. 16 to 20 years
- f. 21 years or more.

SECTION I

Please state as much as you know about the following:

1.The challenges you encounter in ensuring patient safety and maintaining safety culture

i……
…

ii……
…....

Please feel free to write any other comments about patient safety, error, or event reporting in your facility.

i……
……

ii……
…

APPENDIX 2 ANOVA TABLES

Appendix 2Table 4.1 ANOVA test results

		Sum of Squares	df	Mean Square	F	Sig.
Team work within units	Between Groups	102.90	2.00	51.45	11.68	.00
	Within Groups	1590.39	361.00	4.41		
	Total	1693.28	363.00			
Manager expectations & actions	Between Groups	107.21	2.00	53.61	5.63	.00
	Within Groups	3438.71	361.00	9.53		
	Total	3545.92	363.00			
Organizational learning and improvement	Between Groups	67.02	2.00	33.51	7.19	.00
	Within Groups	1682.51	361.00	4.66		
	Total	1749.53	363.00			
Management support	Between Groups	88.16	2.00	44.08	6.39	.00
	Within	2488.51	361.00	6.89		

for patient safety	Groups					
	Total	2576.67	363.00			
Feedback and communication about error	Between Groups	60.22	2.00	30.11	4.48	.01
	Within Groups	2424.93	361.00	6.72		
	Total	2485.15	363.00			
Communication openness	Between Groups	32.78	2.00	16.39	2.56	.08
	Within Groups	2309.97	361.00	6.40		
	Total	2342.76	363.00			
Teamwork across units	Between Groups	299.70	2.00	149.85	20.33	.00
	Within Groups	2661.30	361.00	7.37		
	Total	2961.00	363.00			
Handoffs and transitions	Between Groups	245.09	2.00	122.55	12.02	.00
	Within Groups	3681.11	361.00	10.20		
	Total	3926.21	363.00			
Staffing	Between Groups	310.67	2.00	155.34	19.40	.00
	Within Groups	2891.09	361.00	8.01		
	Total	3201.76	363.00			
Non-punitive response to errors	Between Groups	22.85	2.00	11.42	1.54	.22
	Within Groups	2679.53	361.00	7.42		
	Total	2702.38	363.00			

Appendix 2 Table 4.2 Post-hoc comparisons using the Tukey HSD

Dependent Variable	(I) Hospital	(J) Hospital	Mean Difference (I-J)	Sig.	95%CI	
					Lower	Upper

Team work within units	1 presbyterian	2 Vineyard	**-1.26***	0.00	-2.03	-0.49
		3 Zebilla	**-0.97***	0.00	-1.53	-0.40
	2 Vineyard	1 presbyterian	**1.26***	0.00	0.49	2.03
		3 Zebilla	0.30	0.65	-0.49	1.09
	3 Zebilla	1 presbyterian	**0.97***	0.00	0.40	1.53
		2 Vineyard	-0.30	0.65	-1.09	0.49
Manager expectations & actions promoting patient safety	1 presbyterian	2 Vineyard	0.85	0.18	-0.28	1.99
		3 Zebilla	-0.74	0.09	-1.57	0.09
	2 Vineyard	1 presbyterian	-0.85	0.18	-1.99	0.28
		3 Zebilla	**-1.59***	0.00	-2.76	-0.43
	3 Zebilla	1 presbyterian	0.74	0.09	-0.09	1.57
		2 Vineyard	**1.59***	0.00	0.43	2.76
Organizational learning and improvement	1 presbyterian	2 Vineyard	**-1.16***	0.00	-1.95	-0.36
		3 Zebilla	-0.66*	0.02	-1.23	-0.08
	2 Vineyard	1 presbyterian	1.16*	0.00	0.36	1.95
		3 Zebilla	0.50	0.31	-0.31	1.32
	3 Zebilla	1 presbyterian	0.66*	0.02	0.08	1.23
		2 Vineyard	-0.50	0.31	-1.32	0.31
Management support for patient safety	1 presbyterian	2 Vineyard	-1.35*	0.00	-2.32	-0.39
		3 Zebilla	-0.72*	0.04	-1.43	-0.02
	2 Vineyard	1 presbyterian	1.35*	0.00	0.39	2.32
		3 Zebilla	0.63	0.29	-0.36	1.62
	3 Zebilla	1 presbyterian	0.72*	0.04	0.02	1.43
		2 Vineyard	-0.63	0.29	-1.62	0.36
Feedback and communication about error	1 presbyterian	2 Vineyard	-0.72	0.18	-1.67	0.23
		3 Zebilla	-0.85*	0.01	-1.54	-0.15
	2 Vineyard	1 presbyterian	0.72	0.18	-0.23	1.67
		3 Zebilla	-0.12	0.95	-1.10	0.85
	3 Zebilla	1 presbyterian	0.85*	0.01	0.15	1.54

		2 Vineyard	0.12	0.95	-0.85	1.10

Appendix 2 Table 4.3 Post-hoc comparisons using the Tukey HSD

Dependent Variable	(I) Hospital	(J) Hospital	Mean Difference (I-J)	Sig.	95%CI	
					Lower	Upper
Communication openness	1 presbyterian	2 Vineyard	-0.33	0.69	-1.26	0.60
		3 Zebilla	-0.65	0.06	-1.33	0.03
	2 Vineyard	1 presbyterian	0.33	0.69	-0.60	1.26
		3 Zebilla	-0.33	0.70	-1.28	0.63
	3 Zebilla	1 presbyterian	0.65	0.06	-0.03	1.33
		2 Vineyard	0.33	0.70	-0.63	1.28
Teamwork across units	1 presbyterian	2 Vineyard	-2.34*	0.00	-3.34	-1.34
		3 Zebilla	-1.50*	0.00	-2.23	-0.77
	2 Vineyard	1 presbyterian	2.34*	0.00	1.34	3.34
		3 Zebilla	0.84	0.13	-0.19	1.86
	3 Zebilla	1 presbyterian	1.50*	0.00	0.77	2.23
		2 Vineyard	-0.84	0.13	-1.86	0.19
Handoffs and transitions	1 presbyterian	2 Vineyard	-1.77*	0.00	-2.94	-0.59
		3 Zebilla	-1.59*	0.00	-2.45	-0.74
	2 Vineyard	1 presbyterian	1.77*	0.00	0.59	2.94
		3 Zebilla	0.17	0.94	-1.03	1.38
	3 Zebilla	1 presbyterian	1.59*	0.00	0.74	2.45
		2 Vineyard	-0.17	0.94	-1.38	1.03
Staffing	1 presbyterian	2 Vineyard	1.11*	0.03	0.07	2.15
		3 Zebilla	-1.47*	0.00	-2.23	-0.71

	2 Vineyard	1 presbyterian	-1.11*	0.03	-2.15	-0.07
		3 Zebilla	-2.58*	0.00	-3.64	-1.51
	3 Zebilla	1 presbyterian	1.47*	0.00	0.71	2.23
		2 Vineyard	2.58*	0.00	1.51	3.64
Non-punitive response to errors	1 presbyterian	2 Vineyard	-0.09	0.98	-1.09	0.91
		3 Zebilla	-0.53	0.20	-1.26	0.20
	2 Vineyard	1 presbyterian	0.09	0.98	-0.91	1.09
		3 Zebilla	-0.44	0.57	-1.47	0.58
	3 Zebilla	1 presbyterian	0.53	0.20	-0.20	1.26
		2 Vineyard	0.44	0.57	-0.58	1.47

APPENDIX 3

ETHICAL CLEARANCE

UNIVERSITY OF GHANA
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)
P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No.....

21st February, 2018

Mr. Alexander Akologo
Department of Public Administration and Health Services Management
University of Ghana
Legon

Dear Mr. Akologo,

ECH 085/17-18: ASSESSING PATIENT SAFETY CULTURE AMONG CLINICAL STAFF OF SELECTED HOSPITALS IN BAWKU

This is to advise you that the above reference study has been presented to the Ethics Committee for the Humanities for a full board review and the following actions taken subject to the conditions and explanation provided below:

Expiry Date:	20/08/18
On Agenda for:	Initial Submission
Date of Submission:	15/01/18
ECH Action:	Approved
Reporting:	Quarterly

UG/ISSER/ECH VALID UNTIL 20 AUG 2018 APPROVED DOCUMENT

Please accept my congratulations.

Yours Sincerely,

Rev. Prof. J. O. Y. Mante
ECH Chair

CC: Prof. Justice N. Bawole, Department of Public Administration and Health Services Management, University of Ghana.

Tel: +233-303933866 Email: ech@ug.edu.gh | ech@isser.edu.gh

UNIVERSITY OF GHANA
BUSINESS SCHOOL
DEPARTMENT OF PUBLIC ADMINISTRATION
AND HEALTH SERVICES MANAGEMENT

UGBS
University of Ghana Business School

Ref. No.: *PAHS/26*

RECEIVED
BAWKU PRESBY HOSPITAL
BOX 45, BAWKU
DATE: 05/01/18

15th December, 2017

The General Manager
Presbyterian Health Services - North
P. O. Box 45
Bawku, UER

Dear Sir/Madam,

LETTER OF INTRODUCTION

The bearer of this letter, Mr. Alexander Akologo, is an MPhil year two student of the University of Ghana Business School, Legon. He is undertaking a course leading to the award of Master of Philosophy (MPhil) in Health Services Management. As part of the requirements of the programme, he has chosen to research on the topic: ***"Assessing Patient Safety Culture among Clinical Staff of Selected Hospitals in Bawku".***

I would be most grateful if you would give him the necessary assistance, to enable him collect data for the study.

Please, note that information obtained is solely for academic purposes.

Thank you for your cooperation.

Yours faithfully,

Dr. Aaron Abuosi
(Principal Supervisor)

(2) Admin Manager/Med Adm/NHIA
Kindly accord Student (Researcher) the necessary cooperation.
8/1/18

COLLEGE OF HUMANITIES
P. O. Box LG 78, Legon, Accra, Ghana.
• Telephone: +233 (0) 303 963 735 • Email: pohsm@ug.edu.gh • Website: ugbs.ug.edu.gh

UNIVERSITY OF GHANA
BUSINESS SCHOOL
DEPARTMENT OF PUBLIC ADMINISTRATION
AND HEALTH SERVICES MANAGEMENT

UGBS
University of Ghana Business School

Ref. No.: *PAHS/26*

15th December, 2017

The Medical Superintendent
Zebilla District Hospital
P. O. Box 50
Zebilla, UER

Dear Sir/Madam,

LETTER OF INTRODUCTION

The bearer of this letter, Mr. Alexander Akologo, is an MPhil year two student of the University of Ghana Business School, Legon. He is undertaking a course leading to the award of Master of Philosophy (MPhil) in Health Services Management. As part of the requirements of the programme, he has chosen to research on the topic: ***"Assessing Patient Safety Culture among Clinical Staff of Selected Hospitals in Bawku".***

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Thank you for your cooperation.

Yours faithfully,

Dr. Aaron Abuosi
(Principal Supervisor)

Seen
For Management to discuss.
Considered to proceed with the research B. cf
and submit ethical clearance as soon as
it is ready as the researcher is behind time 9/1/18.

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UNIVERSITY OF GHANA
BUSINESS SCHOOL
DEPARTMENT OF PUBLIC ADMINISTRATION
AND HEALTH SERVICES MANAGEMENT

UGBS
University of Ghana Business School

Ref. No.: *PAHS/26*

15th December, 2017

The Chief Executive Officer
Vineyard Hospital
P. O. Box 123
Bawku, UER

Dear Sir/Madam,

LETTER OF INTRODUCTION

The bearer of this letter, Mr. Alexander Akologo, is an MPhil year two student of the University of Ghana Business School, Legon. He is undertaking a course leading to the award of Master of Philosophy (MPhil) in Health Services Management. As part of the requirements of the programme, he has chosen to research on the topic: ***"Assessing Patient Safety Culture among Clinical Staff of Selected Hospitals in Bawku".***

I would be most grateful if you would give him the necessary assistance, to enable him collect data for the study.

Please, note that information obtained is solely for academic purposes.

Thank you for your cooperation.

Yours faithfully,

Dr. Aaron Abuosi
(Principal Supervisor)

All staff should take notice and extend to the above-named student all necessary assistance and courtesy. Thanks 19/01/18

19/1/18

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