

UNIVERSITY OF GHANA
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY



**ASSESSMENT OF PATIENT SAFETY CULTURE AMONG
NURSES OF SELECTED HOSPITALS IN THE SAVANNAH
REGION, GHANA**

BY

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DECLARATION

I, Alhassan Samson, hereby certify that this thesis work is my personal and original thesis towards the award of Master of Philosophy Degree in Nursing, School of Nursing and Midwifery, University of Ghana. I also certify that I have written this thesis and all references cited in this study from authors of books, articles and theses have been duly acknowledged.

This study was taken under the guidance and supervision of Dr. Adelaide Maria Ansah Ofei and Dr. Atswei Adzo Kwashie, both of the Department of Research, Education and Administration, School of Nursing and Midwifery, College of Health Sciences, University of Ghana.

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ABSTRACT

Millions of people are harmed while receiving care in hospitals, thus making patient safety a global concern for both health professionals and the public. Patient safety scholars agree that one way of ensuring a successful patient safety system is through patient safety culture. The care nurses render strategically places them at the centre of patient safety promotion; thus, making them the drivers of patient safety. The study assessed patient safety culture among nurses at the hospital and the unit levels. The researcher used a quantitative cross-sectional design to collect data from 210 respondents who were randomly selected from 3 hospitals in the Savannah Region. SPSS version 20 was used for data analysis. Both descriptive and inferential statistics were employed in this study. This study found teamwork within units as the highest with a positive response score of 82.9%. Other equally important patient safety variables with good rating scores were: manager's support for patient safety, managers' expectations and actions in promoting patient safety, feedback about errors, teamwork across units, and hand and transition of care. Areas with weak patient safety practices were staffing levels, open communication, and non-punitive response to errors. Again, nurses' attitude towards adverse events reporting was generally low. Furthermore, the qualification of nurses significantly predicted adverse events reporting with nurses in the first-degree category two times more likely to report adverse events. Also, non-punitive response to errors and feedback about errors had significant influence on adverse events reporting. It is recommended that healthcare managers should strengthen patient safety areas with good rating scores to further enhance patient safety. Again, healthcare managers should provide the needed work environment that is non-punitive and blame-free. Finally, healthcare managers should encourage more nurses in Ghana to pursue higher-level nursing education.

DEDICATION

This thesis work is dedicated to Rev. Danny Jaynes and his family, USA and the management of West Gonja Hospital, for their enormous support and encouragement. I also dedicate this work to my beloved wife; Mariama Nluki, my children; Godwin, Bernard and Mamaliya, and my brother; David Doliba for their encouragement, prayers and emotional support.

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LIST OF ABBREVIATIONS

AHRQ	Agency for Healthcare Research and Quality
Dr	Doctor
CHPS	Community-based Health Planning Services
α	Cronbach alpha coefficient
GHS	Ghana Health Service
GHS-ERC	Ghana Health Service Ethics Review Committee
HSOPSC	Hospital Survey On Patient Safety Culture
ICU	Intensive Care Unit
LMICs	Low and Middle-Income Countries
Mphil	Master of Philosophy
MoH	Ministry of Health
NMC	Nursing and Midwifery Council
Prof.	Professor
USA	United States of America
SPSS	Statistical Package for Social Sciences
WGH	West Gonja Hospital
WHO	World Health Organisation

CHAPTER ONE

1.0 Introduction

This chapter presents the background to the study, the problem statement, the study purpose, specific objectives, study questions and hypotheses. Finally, this section concludes with the significance of the study and operational definition of key terms used.

1.1 Background to the Study

Patient safety has been defined as the prevention of errors and adverse effects to patients associated with health care (World Health Organization, 2011). Good patient safety can free patients from harm and avoidable adverse events, ensure high-quality medical care and treatment, and increase the level of patient satisfaction (Gluck, 2012). Ideally, healthcare delivery is supposed to be safe; however, it is not always as safe as it should be (Berwick, Shojania, & Atchinson, 2015; Smith, 2000). Therefore, the safety of patients has become a global concern for both health professionals and the public (Fujita et al., 2013; Goh, Chan, & Kuziemy, 2013).

Globally, it is estimated that as many as 1 in 10 patients (i.e. 10% of patients) are harmed while receiving care in the hospital (World Health Organization, 2017). This accounts for 427 million hospitalisations annually worldwide with an approximation of 43 million adverse events occurring in patients during these hospitalisations. Again, statistics have shown that on average, one patient gets injured every 35 seconds in the United Kingdom (Mauro, 2016). In

Canada, approximately 185,000 harmful incidences are recorded every year, and about 38 per cent of these incidences are preventable (Baker et al., 2004). In the United States of America, about 44,000 to 98,000 patients die of preventable medical errors (Donaldson, Corrigan, & Kohn, 2000). In the low and middle-income countries (LMICs), it is estimated that 134 million adverse events occur in hospitals due to unsafe care, contributing to 2.6 million deaths annually (National Academies of Sciences Engineering Medicine, 2018, pp. 135-136). In Sub-Saharan Africa, especially in Nigeria and Uganda, evidence suggests that at least 30% of the patients attending hospitals are likely to experience an adverse event (Ente, Oyewumi, & Mpora, 2010). In Ghana, approximately 8.7% of Ghanaians seeking health care on daily bases are accidentally harmed (Ocran & Tagoe, 2014). These harms include hospital acquired infections such as urinary tract infection, respiratory tract infection, adverse drug reactions among others as the common daily patient experiences in hospitals. This implies that patient safety is compromised in high, middle, and low-income countries and therefore, requires global priority.

One key determinant of patient safety is safety culture (World Health Organization, 2008). Patient safety culture has been defined as the set of shared values, attitudes, perceptions, beliefs, and behaviours that support safe practices among individuals in healthcare organisations (Khoshakhlagh, Khatooni, Akbarzadeh, Yazdanirad, & Sheidaei, 2019; World Health Organization, 2008, p. 54). Mostly, safety practice is used interchangeably with safety culture. Safety culture allows healthcare delivery institutions to have a clear assessment of patient

safety, identify the strengths and weaknesses of healthcare organisations, help caregiving units identify their existing patient safety problems, and benchmark their scores with other hospitals (Stavrianopoulos, 2012). Thus, there is a link between positive patient safety culture and patient safety outcomes (Fujita et al., 2013). High level of patient safety culture is associated with low patient mortality rates (Huang et al., 2010), high percentages of medical error reporting, and positive patient care assessments (Braithwaite, Westbrook, Travaglia, & Hughes, 2010).

The consequences of poor patient safety culture cannot be underestimated. It can result in inpatient mortality, disability, and patients' distrust of the healthcare system (World Health Organization, 2017). Again, frequent visits to the hospital, readmission to hospitals, prolonged patient stay, pain, and increased unnecessary healthcare costs are also cited as the consequences of poor patient safety (Makary & Daniel, 2016).

In Africa, the effect of community engagement interventions on patient safety and risk reduction efforts in primary health facilities were examined. Alhassan et al. (2015) found inadequate resources to meet high patients' demands as the causes of poor patient safety. Again, Ente et al. (2010) investigated the levels of healthcare professionals' awareness of patient safety and care quality issues in African hospitals. They found that limited knowledge of patient safety, coupled with lack of data to measure the prevalence of medical errors accounted for poor patient safety. Additionally, Wilson et al. (2012) examined patient safety in developing countries using retrospective estimation. The study discovered that inadequate training, supervision for clinical staff, and failure to observe protocols

or policies were reasons for poor patient safety. In Ghana, the few studies conducted focused on work pressure and safety behaviour in hospitals (Amponsah-Tawaih & Adu, 2016) and assessment of patient safety systems, structures, and practices in the Sunyani Municipal Hospital (Yeboah, Mensah, Letsa, & Owusu–Dabo, 2017).

However, nurses have not been the focus of Ghanaian studies on patient safety and safety culture. Even though nurses are the frontline workforce in the Ghanaian healthcare industry, assessment of patient safety culture from the perspective of the nurse is unclear. Therefore, it is imperative to assess patient safety culture among nurses using the Patient Safety Culture Model (Vogus, Sutcliffe, & Weick, 2010) as an organising framework for this study.

1.2 Problem Statement

Adverse events are threats to the quality of healthcare delivery, particularly in countries like Ghana, that is struggling with limited resources. These events may directly or indirectly affect patients and healthcare professionals. Healthcare professionals encounter these adverse events daily irrespective of whether they are in the developed or developing country. For instance, in the United States, medical errors account for the third leading cause of deaths (Makary & Daniel, 2016). Statistics in Africa suggest the worst trends in adverse events. In Sub-Saharan Africa, patients experience one form of adverse events or another while attending hospitals (Ente et al., 2010). On a daily basis, Ghanaians are accidentally harmed while seeking health care (Ocran & Tagoe, 2014).

Anecdotal evidence and also evidence from the researcher's experiences and personal observation suggests that a number of adverse events occur in most

health care facilities in Ghana. These include administration of wrong medications, adverse drug reactions, injection abscesses, falls from hospital beds, bedsores, surgical wound infections, and transfusion reactions. Otchi, Bannerman, Larrey, Amoo, and Odame (2018) in a Ghanaian study in ten healthcare facilities including two Teaching Hospitals estimated that at least 10% of patients admitted to healthcare facilities experienced hospital-acquired infections. Common among these hospital-acquired infections are respiratory tract infection, urinary tract infections, surgical wound infections, medical error, and adverse drug reactions. Similarly, in one referral hospital in Northern Ghana, the predominant adverse event was wrongful documentation, and the least was wrong blood transfusion or intravenous fluids (Alhassan et al., 2019). Others were falls from height, falls from slippery floor, assault incidences in the ward, transfusion reactions, and equipment-related injury. Moreover, in North West England, similar observations of adverse events were made (Ahmed et al., 2013); thus, reaffirming the observations made by the researcher.

It can be argued that the safety of patients in most healthcare facilities in Ghana and outside its borders is often threatened. The direct effect of poor patient safety is poor care outcomes which are associated with additional hospitalization, litigation, hospitals acquired infections, disability, and other medical expenses. Therefore, the safety outcomes of patients who report to Ghanaian hospitals must be addressed.

Notwithstanding the high incidence of adverse events, patient safety and safety culture have attracted little interest and commitment in Ghana (Avortri,

2015). Although, few of the studies conducted on patient safety included all categories of healthcare professionals, priority has not been given to assessing patient safety culture among nurses in Ghana. To address this gap, this study was aimed at assessing patient safety culture among nurses of some selected hospitals in the Savannah Region of Ghana.

1.3 Purpose of the Study

The purpose of the study was to assess patient safety culture among nurses of some selected hospitals in the Savannah Region of Ghana.

1.4 Specific Objectives

The objectives of the study were to:

- i. Determine enabling safety practices that influence patient safety outcomes among nurses of selected hospitals in the Savannah Region.
- ii. Determine enacting safety practices that influence safety outcomes among nurses of selected hospitals in the Savannah Region.
- iii. Evaluate patient safety outcomes (adverse events reporting) by nurses in the Savannah Region.

1.5 Research Questions

- i. What are the enabling safety practices of nurses of selected hospitals in the Savannah Region?
- ii. What are the enacting safety practices of nurses of selected hospitals in the Savannah Region?
- iii. What are the patient safety outcomes among nurses in the Savannah region?

1.6 Research Hypotheses

- i. Patient safety practices (enabling and enacting) would have a significant relationship with patient safety outcomes.
- ii. Patient safety practices (enabling and enacting) would significantly predict patient safety outcomes.

1.7 Significance of the Study

Although studies have been conducted on patient safety in Ghana, there is paucity of literature on assessing patient safety culture among nurses. Findings from this study would offer useful information for the study institutions to formulate policies on patient safety culture. This policy formulation would help healthcare managers to identify the weaknesses and strengths of hospitals' safety issues and fashion out effective strategies to improve patient safety and quality of care. Again, the findings would raise awareness among nurses about the essence of ensuring patient safety. This finding would aid nurses to develop a positive attitude towards patient safety and improve upon their safety practices to minimize the occurrence of adverse events. Besides, the outcomes would add to existing knowledge about patient safety culture.

1.8 Operational Definitions

Conceptual and operational definition of key variables were established for this study. This was needed to provide a brief contextual definition of the study variables. Details are shown in Table 1.1.

Table 1.1 Conceptual and operational definitions of variables

Variable	Conceptual definition	Operational definition
Assessment	It is the action or an instance of making a judgement about something (Merriam-Webster, n.d)	It is the act of assessing or evaluating someone or something
Safety	It is the reduction of risk of unnecessary harm to an acceptable minimum (World Health Organization, 2011).	It is the act of being freed from injuries; whether intentionally or unintentionally.
Culture	It is the values, beliefs, behaviours and practices of an organization and how people communicate (World Health Organization, 2011).	The way things are done in a healthcare setting (hospital)
Patient safety	It is the prevention of errors and adverse effects to patients associated with health care (World Health Organization, 2011).	Making sure patients do not experience harm while receiving healthcare
Patient safety culture	A set of shared values, attitudes, perceptions, beliefs, and behaviours that support safe practices among individuals in healthcare organizations (Khoshakhlagh, Khatooni, Akbarzadeh, Yazdanirad, & Sheidaei, 2019; World Health Organization, 2008, p. 54)	A practice put in place by healthcare organisations to ensure patients are not harmed while receiving healthcare

Nurse	A nurse is a healthcare professional who has graduated with a certificate, diploma, or degree from an approved nursing program, passed the Nursing and Midwifery Council (NMC) examination and granted a license by the council to practice professional or auxiliary nursing in Ghana	A full-time employee who are professional or auxiliary nurses with a minimum professional qualification of a certificate in nursing or midwifery and have had direct interaction with patients admitted to the wards
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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section is a description of patient safety culture model and a review of empirical literature. The first part of the chapter deals with the explanation of the model that was used to organise this study. The second part reviewed related studies on the constructs and objectives of the study.

2.1 Conceptual Framework (Patient Safety Culture Model)

In choosing a model for this study, the researcher considered several models such as Swiss Cheese Model (Reason, 1990), Quality of Healthcare Model (Donabedian, 1980), and Patient Safety Culture Model (Vogus et al., 2010).

The Swiss Cheese Model by Reason (1990) 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 it differs in that the holes are constantly opening, closing, and shifting their positions. An error occurs when holes on several layers open through each other continually and create an opportunity for harm to reach the patient (Reason, 1990). This can happen through active failures or latent failures. Accordingly, active failures are unsafe acts committed by people who are in direct contact with patients or systems which take the form of slips, lapses and mistakes (Reason, 1990; Reason 2000). Reason indicated that latent failures emanate from top-level management who fail to provide systems and infrastructure (Reason, 2000). Although the Swiss Cheese model has gained predominant acceptance, the model is too broad and does not account for detailed

interrelationships among the causal factors. Without these linkages, it is too vague to have practical significance; thus, this model was inappropriate to guide this study.

The model on the Quality of Healthcare by Donabedian (1980) was also reviewed. This model has three main constructs: structure, process and outcomes. According to Donabedian (1980), structures are the physical, organisational property in the work environment where care is rendered. The process refers to the kind of services offered while outcomes are regarded as the results of healthcare. This model allows for scrutiny of risk, errors, and hazards entrapped in the structures of the health care system and the process; thus, actions and inactions of both system and persons lead to patient safety outcomes. However, this model has limited utility in recognising how the three domains influence and interact with each other. Hence, it was deemed inappropriate for this study.

The Patient Safety Culture Model was selected because its constructs best accommodate the researcher's objectives. Besides, it provides a comprehensive and integrative approach to patient safety through safety culture.

Patient Safety Culture Model was developed by Vogus, Sutcliffe, and Weick (2010). The model proposes that patient safety culture comprises of actions that focus on cultural practices that reduce harm. These actions are enabling, enacting, and elaborating practices that prioritise safety. The model further explains that each safety practice comprises of actions that influence patient safety outcomes. According to Singer and Vogus, "Isolated interventions that enable, enact, or elaborate culture of safety are unlikely to reduce the underlying causes of

hospital errors” (Singer & Vogus, 2013, p. 375). This means that hospitals can never be entirely error-free; hence, an ongoing and iterative process of a safety culture can help minimise errors. Thus, as an alternative, patient safety requires interventions that simultaneously address all three aspects of culture rather than only one.

To enable a safety culture is to consolidate and direct those features of an organisation’s culture that pertain directly to patient safety (Vogus et al., 2010). Enabling safety culture focuses on leader actions that direct attention to patient safety and makes it safe for people to speak up and act in ways that improve safety. Leaders enable safer practices on the frontline in two ways. Firstly, by directing attention to safety, and secondly, by creating contexts where practitioners feel safe to speak up and act in ways that improve safety. Vogus et al. (2010) stated that safety starts with perceptions of patient safety climate. These perceptions are based on leaders’ commitment to safety, the priority placed on safety, and the dissemination of safety information. Also enabling culture include visiting care areas to observe and discuss safety issues, pardoning employees who disclose unintentional mistakes, creating a structure that encourages open discussion with workers and providing adequate human resources that are needed for patient safety. Other enabling safety practices include appreciating other contributions, providing feedback and changing the language used in referring to errors due to accidents.

From the model, to enact a safety culture implies highlighting threats to safety and effectively mobilising resources to resolve threats (Vogus et al., 2010). It involves translating safety guidelines into meaningful practices. These practices

include interpersonal processes such as encouraging teamwork, deploying checklist, establishing standardised protocols to coordinate care during transition (handover) and mindful organizing (Singer & Vogus, 2013; Vogus et al., 2010).

Furthermore, Vogus et al. (2010) explained that to elaborate safety culture is about expanding or enlarging the initial set of safer practices extracted from the safety climate. Elaborating consists of learning practices that reflect on safety outcomes and uses feedback to modify safety practices. These practices include case-based analysis, simulation, learning-oriented interventions, and systems monitoring. Figure 2.1 shows a theoretical model, which highlights the interrelationships among interventions that enable, enact, and elaborate patient safety culture. The arrows in this model indicate that safety culture is a dynamic process.



Figure 2.1: Patient Safety Culture Model (Vogus, Sutcliffe, & Weick, 2010)

2.2 Application of Patient Safety Culture Model to the Study

According to Vogus et al. (2010), patient safety culture model is a framework that advances that the actions of leadership (enabling) and that of frontline staff (enacting) are likely to influence patient safety outcomes. Vogus and colleagues argued that safety outcomes provide a platform for learning and that actions arising from learning practices can either be used to modify enabling or enacting safety practices. The model has been adapted and used in several patient safety culture studies. For instance, Richter and colleagues used this model to evaluate the effect of safety culture on error reporting (Richter, McAlearney, &

Pennell, 2015). Again, Richter, McAlearney, and Pennell (2016) adopted the model to examine patient safety culture on successful handover and transition of patient care. It is for this reason that the researcher also adapted the model for this study.

In this study, enabling safety practices are managerial actions that direct patient safety and make it safe for frontline staff to be assertive and act. These actions include manager's support, managers' expectations and actions in promoting patient safety, open communication (good information flow), ensuring non-punitive response to errors, augmenting nursing staff strength, and providing feedback about errors. Thus, enabling safety practices of nurses are assessed to determine the kind of managerial actions that influence safety outcomes for patients.

Enacting safety practice involves actions of frontline staff (nurses) that improve patient safety. These actions include effective interpersonal processes (teamwork) and coordinating patient care at transition (handover and transition). Under these actions, nurses are required to identify practices that could lead to errors and even when they occur; they should appropriately transmit the information for action to be taken.

Elaborating safety aspects of the model was not considered for this study. This is because it is an interventional construct that focused on initiatives based on safety outcomes. Besides, the focus of the researcher was to assess patient safety practices (enabling and enacting safety practices) that have the potential to influence patient safety outcomes and not learning practices following safety

outcomes. Thus, the safety outcomes were determined through the frequency and number of adverse events reported

The conceptual model for this study is based on the researcher's application of Patient Safety Culture Model (Vogus et al., 2010) presented in Figure 2.2.

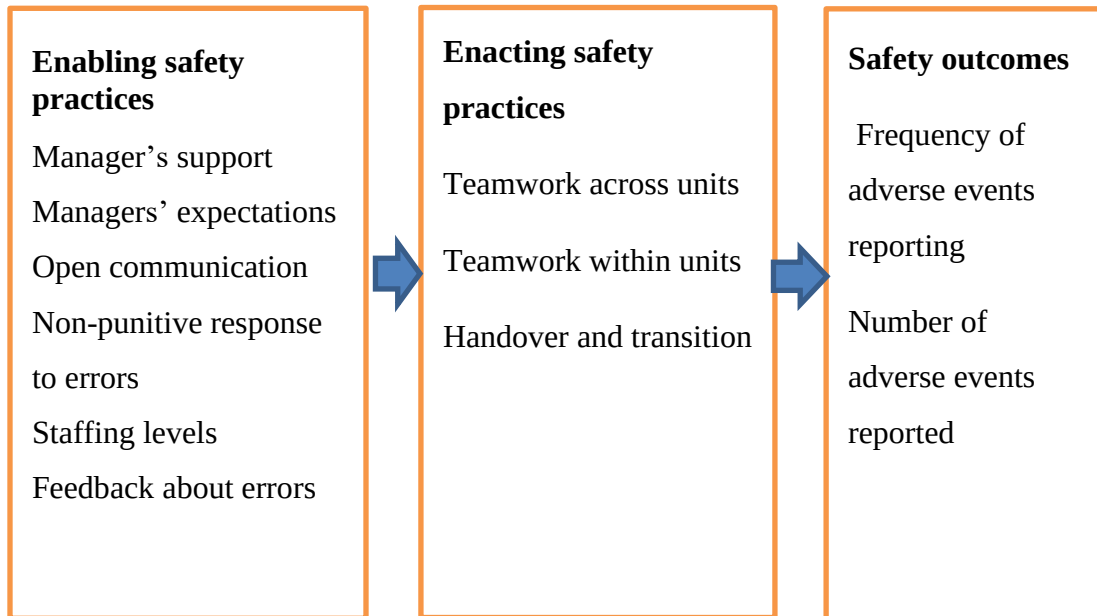


Figure 2.2: Conceptual Framework

2.3 Review of Related Literature on Patient Safety Culture

The literature review comprises of findings of various empirical studies that assess patient safety culture of nurses and other healthcare professionals. The review concentrated on studies under each of the safety practices. Keywords used in the search included assessment in combination with terms such as “patient safety” or “patient safety culture” and “patient safety outcomes” or “adverse events reporting to find relevant empirical studies. A search was conducted on peer-reviewed published articles, and research works from the University of Ghana subscribed database such as Science Direct, Sage online, Google Scholar, Google search, Taylor and Francis, Wiley online library, “PubMed”, “CINAHL” among others. The literature review was organized based on the constructs of the conceptual framework and objectives of the study.

2.3.1 Enabling Practices that Influence Patient Safety Culture

Enabling safety practices centered on leader behaviours and practices at the managerial level that direct attention to patient safety and makes it safe for people to speak up and act (Vogus et al., 2010). Leaders’ actions can affect the operational level activities. As a result, frontline staff can exhibit certain behaviours that can influence safety outcomes. These actions included manager’s support, managers’ expectations, and actions in promoting patient safety, open communication, non-punitive response to errors, staffing levels and feedback about errors.

2.3.1.1 Manager's Support and Patient Safety Culture

Management support for patient safety is essential for patient safety and the quality of healthcare delivery of every organisation. Good managers create an enabling environment for employees to speak up assertively in resolving threats to patient safety. Since managers of healthcare organisations are in the helm of affairs and administer the day-to-day operations of hospitals, their role in promoting patient safety cannot be underestimated. Management support may include but not limited to the provision of positive work climate, prioritising safety issues, and showing interest after an event has been reported. When management, on one hand, demonstrates a commitment to supporting patient safety, it influences the actions of frontline staff at the operational level, which will result in adverse events reporting. On the other hand, if management fails to support the course of patient safety, the overriding effect would be poor safety outcomes such as higher levels of medication errors and hospital-acquired infections that may go unreported. Thus to avoid wastage, confusion, and errors in healthcare settings, there is the need for appropriate leadership or management (Asamani, Kwafo, & Ansah-Ofei, 2013).

In one Iranian study, Khoshakhlagh et al. (2019) conducted a cross-sectional survey among 1,203 healthcare workers using Patient Safety Culture Questionnaire (HSOPSC). The study found that 66.7% of healthcare workers reported management of demonstrating commitment to supporting patient safety. This is a major positive development since the values, beliefs and behaviour of staff is mostly determined by the support of management. Similarly, in a recent Ghanaian study, Abuosi, Akologo, and Anaba (2020) sought to assess the

determinants of patient safety culture among 384 healthcare providers in the Upper East Region. The findings revealed that manager's support for patient safety recorded 60.4% positive response score. This implies that there is management support for patient safety. Since managers are in charge of hospitals and are accountable for daily operations, investing more resources into supporting staff on patient safety through capacity building should be the focus of management.

However, in Oman, Ammouri, Tailakh, Muliira, Geethakrishnan, and Al Kindi (2015) in a study among 414 Registered Nurses found that manager's support for patient safety was one of the least developed composites with 25.5% as positive response score. This shows that management does not consider safety issues as one of its key priority areas. Again, it is an indication that management is not showing much interest after an event has been reported. This probably would lead to ineffective teamwork among nurses in clinical practice; thus, errors are made and lessons to be learned from adverse events are disregarded. Similarly, Ederer, König-Bachmann, Romano, Knobloch, and Zenzmaier (2019) interviewed 14 midwives to explore their experiences about patient safety culture. Midwives reported that lack of objectivity by management in evaluating errors was one of the barriers that affected the reporting of adverse events. Actions, such as managers overlooking errors caused by someone and punishing another person for reporting errors are threats to patient safety in healthcare environment. To address this, managers should treat every reported error with the sense of urgency and fairness.

Moreover, attempts have been made by empirical studies to investigate the influence of manager's support for safety and related safety outcomes. For instance,

in the United States, a study was conducted by Richter et al. (2015) to assess the effect of safety culture on error reporting. The study used data set from a total of 515, 637 respondents across 1,052 studied hospitals between 2008 to 2011. The findings reported a significant association between managerial support for safety and adverse events reporting among clinical staff. Again, in the United States, and Lebanon, healthcare professionals have reported that when hospital management supports safety-related issues, the overriding effect of such efforts leads to increase in the frequency of reported adverse events (Brown, 2015; El-Jardali, Dimassi, Jamal, Jaafar, & Hemadeh, 2011). This suggests that patient safety is a key strategic priority area for health care institutions. Thus, if well supported, such considerations could enhance the reporting of adverse events in healthcare settings.

Also, studies in Saudi Arabia, Lebanon, and Oman have shown that when greater emphasis is placed on management support for patient safety, it leads to good safety outcomes (Al-Mandhari et al., 2014; Alahmadi, 2010; Ammouri et al., 2015; El-Jardali, Jaafar, Dimassi, Jamal, & Hamdan, 2010). Moreover, Wong, Cummings, and Ducharme (2013) in a related study, sought to find a link between nurse leadership practices and patient safety outcomes in a systematic review of 20 studies. The review indicated that the performance of nurse leaders had a significant relationship with improved patient safety outcomes. The reduced rates of adverse events may have been attributed to strategic managerial decisions directed towards supporting patient safety. Also, the finding of one Canadian study found a strong significant association between managerial support for safety and adverse events (Ginsburg et al., 2010). This suggests that creating a blame-free environment where

healthcare providers can learn from their mistakes can help reduce the occurrence of preventable adverse events and improve safe care in hospitals.

2.3.1.2 Managers' Expectations and Actions in Promoting Patient Safety Culture

The managers' expectations and actions mean that he/she encourages staff and seriously consider their suggestions to improve patient safety culture. Nurse managers must ensure that the nursing staff are committed to working in a manner that promotes and guarantees patients' interest and safety.

In a quantitative study amongst 414 nurses in four Omani hospitals, the results indicated that nurses with clear understanding of managers' expectations about patient safety were likely to report adverse events or near misses (Ammouri et al., 2015). This suggests that nurse managers should see these actions as part of their core responsibility to ensure that nursing staff keeps patient safety in their minds; thus, doing this would encourage nurses to report adverse events readily. Similarly, in a South Indian study, approximately, 71.5% of 386 frontline workers (nurses, doctors, and pharmacists) reported that managers encouraged them and earnestly considered their suggestions to improve patient safety (Rajalatchumi et al., 2018). This implies that in the midst of increased workload at the workplace, managers do not ask their staff to disregard patient safety. Thus, to enhance the managers' expectations and actions, there is a need for continuing medical education or job training.

However, in Iran, the results of a quantitative study among 1,203 healthcare workers revealed that managers under work pressure asked their subordinates to

ignore problems associated with patient safety and work faster in order to get the work done (Khoshakhlagh et al., 2019). This directive could lead to the possibility of staff making mistakes, thus, affecting patient safety outcomes.

Meanwhile, Noureldin and Noureldin (2020) in a recent United States-based study amongst 7,671 hospital pharmacists, examined the managers' actions in promoting safety and error reporting, including near misses. Positive perceptions of managers' actions to promote safety among hospital pharmacists had a significant influence on adverse events reporting, including near misses. This emphasized the critical role managers' actions (commending staff for good work done, considering staff suggestions and greater regards for patient safety) play in error reporting. Thus, undermining such efforts could lead to lower reporting of errors which is a threat to patient safety.

2.3.1.3 Open Communication and Patient Safety

Open communication is one of the managerial practices that can be enabled to influence patient safety. When people interact openly in the work environment, they learn from each other and grow stronger together. Such interactions can provide opportunities for people to speak up and report adverse events. In dealing with patient safety, open communications and reporting of adverse events are worth paying attention to. For instance, Leonard, Graham, and Bonacum (2004) in a quantitative study analysed 2,455 adverse events reported across 71 accredited hospitals to the Joint Commission in the United States. The results indicated that 70% of the adverse events reported occurred due to failure in communication; thus, resulting in 75% of deaths. This illustrates the critical role appropriate

communication plays in addressing patient safety. As healthcare managers, priority should be given to open communication among different healthcare professionals, and between different hospital units; thus, its absence could threaten patient safety in health care settings. In Australia, Braaf, Manias, Finch, Riley, and Munro (2013) attributed poor patient safety to poor organisational communication especially information transfer from managerial level (leaders/managers) to operational level (frontline staff).

In South India, Rajalatchumi et al. (2018) in a study reported that about 40.8% of 386 frontline workers (nurses, doctors, and pharmacists) indicated that they were gaged to speak up and were as well afraid to question managers when safety issues do not seem right. This implies that when there is poor open communication, it leads to poor patient safety. Rajalatchumi and Colleagues, therefore, highlighted the need for improved communication flow between healthcare managers and frontline staff. Similarly, among 316 nurses in Turkey, Yilmaz and Goris (2015) found that more than half, 50.1% of them believed that they feel restricted in speaking up. The fear of questioning safety-related issues when they do not seem right has a compromising effect on patient safety. This does not promote information sharing amongst healthcare workers and concerns about patient safety is disregarded.

Moreover, the findings of a qualitative data by Rages (2014) from a mixed-method in Libya reported patient safety of been negatively influenced by poor relations between healthcare managers and frontline staff, personal dispute between staff and personality display of some departmental heads. Such poor relations

prevent staff from openly discussing patient safety-related issues in the work area, which could lead to failure in exchanging patient care information. Meanwhile, other researchers have argued that when there is effective communication, it allows information sharing among health care providers (Disch, 2012). Thus, appropriate systems for promoting effective communication should be encouraged to ensure patient safety.

Nevertheless, in exploring midwives' perception of patient safety culture across three countries: Austria, Germany, and Switzerland, Ederer et al. (2019) reported that when people speak up, it clears misunderstanding and wrong assumptions at the workplace. Perhaps, workers can speak up due to the good working relationship and professional recognition among professionals. Among 212 Korean nurses, higher mean scores for open communication significantly correlated with lower rates of pressure ulcers and falls (Han, Kim, & Seo, 2020). This achievement was based on reports on increased levels of pressure sores and falls of inpatients that provided grounds for learning. As a result, certain strategies had been put in place to reduce such incidence.

2.3.1.4 Non-punitive Response to Errors and Patient Safety

Non-punitive response to errors is yet another cultural practice that puts aside mistakes caused by individuals and transforms mistakes into learning opportunities. This culture opposes punitive culture, which is a barrier to safety culture.

Nurses by the nature of their job are in daily constant interaction with patients. This interaction underscores conditions that expose them to making

mistakes or errors. As a result, attempts to report these events make them vulnerable to blame in hospitals. The blame following reported events could make nurses hesitant in reporting adverse events. The hesitation of nurses in reporting adverse events may be attributed to blame culture and fear that they would be held accountable for their actions. On the other hand, when the environment is blame-free, healthcare professionals can discuss adverse events with management to see the way forward, learn from their mistakes which could help reduce the occurrence of preventable adverse events and improve patient safety in hospitals.

Studies involving healthcare workers in two Arabic healthcare facilities in Saudi Arabia and Jordan have shown that non-punitive response to errors had a positive response score of 22% and 24% respectively in the hospitals' work environment (Alahmadi, 2010; El-Jardali et al., 2010). Principally, losing one's job or being subjected to disciplinary actions might account for such lower scores among these healthcare workers. These results are consistent with findings in Taiwan and Oman (Al-Mandhari et al., 2014; Chen & Li, 2010) and recent systematic reviews and meta-analyses in Iran and Brazil that reported similar lower positive response scores on non-punitive response to error reporting (Behzadifar, Behzadifar, Jahanpanah, & Bragazzi, 2019; Okuyama, Galvao, & Silva, 2018). In Peru, non-punitive reports to errors had a very low positive response rate (30%) among healthcare professionals (Arrieta, Suárez & Hakim, 2018). This implies that about 70% of these healthcare professionals consider their errors and event reports as targeted against them and that errors reported to superiors are saved in their files. To a large extent, this creates a culture of silence in the work environment which

may impact negatively on patient safety outcomes. Good leadership in healthcare settings can, therefore, help create an enabling work environment that is devoid of fears and intimidations

Similarly, in Brazil, Galvão, Lopes, Oliva, Araújo, and Silva (2018), found non-punitive response to errors of being the least developed composite (18%). Furthermore, the percentage of employees who reported six adverse events or more in the past year was 22% (Galvão et al., 2018). Being held accountable for one's actions is what explained such lower reporting rates of adverse events in most Brazilian hospitals. To strengthen patient safety in Brazil, there is the need for hospitals to have a systemic approach to adverse events reported. As such, placing priority on safety-related issues should be the focus of healthcare organisations. Also, lower positive response scores for non-punitive response to errors were reported across several studies. For instance, 30.7% of non-punitive response to errors was recorded in Jordan (Saleh, Darawad, & Al-Hussami, 2015), 33.0% in Turkey (Gozlu & Kaya, 2016) and 33.9% in a recent Ghanaian study (Abuosi et al., 2020). This suggests that healthcare providers felt that their mistakes were held against them or kept in their files which presents a major area of concern thus requires urgent attention from management of the hospitals. To help improve patient safety culture in the hospitals, managers should encourage a blame-free culture of error reporting and avoid holding mistakes against healthcare providers.

In opposition, a blame-free environment is a benchmark for positive patient safety. This has the potential to lower legal claims on the health budget in the healthcare system and increases nurses' confidence in reporting adverse events. In

Norway, Ballangrud, Hedelin, and Hall-Lord (2012) in a quantitative study among 220 registered Norwegian nurses reported that non-punitive response to errors had the highest positive rating score of 78.8%. This implies that majority of nurses were clear in their minds that reporting adverse events was not held against them or recorded in their files; thus, nurses in Norway are confident to report adverse events. Likewise, the results from 1,203 healthcare workers in Iran, reported that non-punitive response to errors was identified as a strength of patient safety culture in both public and private hospitals (Khoshakhlagh et al., 2019). This suggests that a blame-free environment prevails in most Iranian hospitals. Such an environment promotes transparency and makes healthcare workers comfortable. Thus, instead of concealing their weaknesses, they prefer to share their concerns with colleagues and hospital management for the enhancement of the prevailing environment.

Empirical studies have attempted to establish a link between non-punitive response to errors and adverse events reporting. For instance, studies by Akologo, Abuosi, and Anaba (2019) and Brown (2015) found a significant relationship between non-punitive response to errors and adverse events reporting. Although a significant relationship exists in these studies relative to the variables under considerations, statistically, the studies did not find any significant influence of non-punitive response to errors on adverse events reporting. However, in Lebanon, El-Jardali et al. (2011) in a quantitative study examined the predictors and outcomes of patient safety culture among 6,807 healthcare workers in 68 Lebanese hospitals. The result of the study revealed that there was a significant relationship between non-punitive response to errors and adverse events reporting. More importantly,

non-punitive response to errors was one of the predictors with a significant influence on adverse events reporting.

Likewise, in a recent Egyptian study comprising of 479 paramedical staff, the finding revealed that non-punitive response to errors and adverse events reporting were significantly related (El-Sherbiny, Ibrahim, & Abdel-Wahed, 2020). This means that a non-punitive environment is crucial for improving patient safety outcomes; thus, such an environment would encourage nurses to report adverse events devoid of fear of blame and humiliation.

2.3.1.5 Staffing Levels and Patient Safety

Staffing level is a critical managerial practice that determines the standard of patient safety. It has been reported that when there is adequate healthcare professionals to handle workload, patient safety is likely to be improved by two to three folds (Alenius, Tishelman, Runesdotter, & Lindqvist, 2014). On the other hand, inadequate staffing causes stress, anxiety, and depression which increases the incidence of adverse events (Hamaideh, 2011). Shortage and retention of healthcare professionals, including nurses, present a major challenge in most developing countries (Hamaideh, 2017) such as Ghana. Therefore, health care managers need to address understaffing of healthcare professionals in hospitals since this would improve service delivery, enhances patient safety and perhaps meet WHO recommendation of patient to population ratio of 1:1000 (World Health Organization, 2016).

Studies have examined staffing levels among healthcare professionals across various healthcare settings. For instance, in Jordan, Saleh et al. (2015)

examined 242 registered nurses about nurses' perceptions of hospital safety culture in five hospitals. The findings indicated that staffing level recorded a relatively low positive response score (30.4%). Similar lower positive response scores (37%) were reported in Japanese hospitals (Fujita et al., 2013), 37% in Lebanese hospitals (El-Jardali et al., 2010), 36% in a systematic review and meta-analysis (Okuyama et al., 2018), 27% in Saudi hospitals (Alahmadi, 2010) and 24% in Turkey (Güneş, Gürlek, & Sönmez, 2016). These findings suggest that staff distribution was not adequate to handle patient workload. Furthermore, Rages (2014) in a mixed study in Libya revealed that about half (50%) of health care workers reported inadequate staffing to manage the workload in their healthcare facilities. However, Rage argued that such understaffing in Libyan hospitals is perhaps good because adequate staffing sometimes in hospitals creates confusion for staff since everyone relies upon the other to get the work done (Rages, 2014).

In Saudi Arabia, Alswat et al. (2017) in a quantitative study found that majority of nurses in Saudi worked longer hours due to understaffing that is way beyond what is best for patient safety. Such staffing inadequacy makes nurses and other healthcare professionals more prone to making mistakes which may be harmful to patients. The injuries to patients most of the time go unreported, and under such circumstances, lessons are not learned. To address inadequate staffing in hospitals, conscious efforts should be made by managers of the healthcare organisations to ensure requisite provision in their right mix in the hospitals.

However, the finding of a study by Mardon, Khanna, Sorra, Dyer, and Famolaro (2010) in the United States has shown a comparative better score (54%

of 50,480) on staffing levels in 179 hospitals. Again, in the United States, Cimiotti, Aiken, Sloane, and Wu (2012) examined the influence of staffing on hospital infections among 7,076 registered nurses in 161 hospitals. The findings reported a significant relationship between hospital infection rates and staffing levels. Furthermore, hospital units with fewer patients and appropriate staffing levels reported fewer infections. This implies that with appropriate staffing levels, staff will not work under pressure which would prevent work-related stress and exhaustion with unintended safety consequences. Therefore, the safety climate should have the required adequate staffing levels with the right staff mix in all clinical departments or units to prevent adverse safety outcomes. Moreover, in South Korea, the nurse staffing level was significantly associated with patient mortality (Cho et al., 2015). Accordingly, each nurse on average in the Korean healthcare system cares for 11.4 patients with significant variation of workload and that each additional patient per nurse added to the average nurse workload in a hospital is associated with a 5% increase in the odds of patient mortality.

Broadly, inadequate staffing could pose the biggest challenge for workforce planning which may be shown in poor patient safety outcomes. Thus, a policy is required to address inadequate staffing in hospitals since it could compromise patient safety.

2.3.1.6 Feedback about Errors and Patient Safety

Feedback about errors is an enabling practice that influences patient safety outcomes. It is about giving information after an error has been reported. Brookhart (2017) indicates that giving feedback keeps everyone on track, helps people to

avoid major mistakes, fosters better relationships, provides a friendly work environment, motivates people, and boost performance. The reverse, however, has unintended patient safety consequences. Thus, giving feedback following reported adverse events is a key source of information for improved patient care.

Wami, Demssie, Wassie, and Ahmed (2016) in a mixed-method assessed the level of Patient safety culture and associated factors among 637 healthcare workers in Ethiopia. The result shows that feedback about errors recorded a relatively lower positive response score (33%). This may translate into a lower positive score of adverse events reporting, which could influence safety outcomes negatively. Despite the lower positive response score, feedback about errors was one of the enabling safety practices with significant predictive effect on overall patient safety culture.

In one Libyan study, Rages (2014) noted that healthcare workers attributed 28.6% of 346 positive response rates of adverse events reporting on lack of feedback from managers. This implies that about 71.3% of healthcare workers believe that management does not give priority attention to giving feedback; thus, there is no need to report adverse events. This could further lead to errors which have the potential of preventing healthcare workers from learning from their experiences. Likewise, Falco (2013) reported in a study that examined the perception of patient safety culture among 150 staff in Southern Nevada, United States. The findings indicated that 82% of the respondents felt they were not informed about errors that happened at the unit level. Furthermore, there was a lack of feedback given relative to changes put in place about event reports. This may

hinder discussions regarding the prevention of future errors which is a threat to patient safety. In Iran, the results of 1,203 healthcare workers from a study by Khoshakhlagh et al. (2019) recounted that feedback and informing others about errors had one of the least positive percentage scores in both public (28.8%) and private (23.4%) hospitals. Given the fact that the Iranian hospitals are weak in terms of feedback and informing others about the errors, this would not allow them to learn lessons from errors and mistakes and subsequently, improve on patient safety.

However, in a study of 414 Omani nurses, approximately 68.7% of them gave feedback about errors a positive response rating (Ammouri et al., 2015). Furthermore, nurses who perceived more feedback and communication about error reported adverse events more often than their counterparts who did not. This explains the critical role feedback about error plays when it comes to adverse events reporting. Thus, building the capacity of healthcare managers, including ward managers on open communication is a strategic practice that can nurture patient safety culture in hospitals and improves adverse events reporting. Similarly, among 71 United States nurses in five hospitals, Farag, Blegen, Gedney-Lose, Lose, and Perkhounkova (2017) found a significant relationship between feedback about errors from managers and adverse events reporting. Implying as nurses received more feedback about errors from managers, adverse events reporting among nurses would increase.

Moreover, in evaluating the effect of patient safety culture on adverse events reporting, Richter et al. (2015) pulled a dataset from the Agency of Healthcare Research and Quality (AHRQ) central data repository to examine the

effect of organisational factors on adverse events reporting. The study had a total of 515,637 respondents from 1,052 hospitals across the world that voluntarily completed the AHRQ survey tool. The results indicated that feedback following reported adverse events had the highest predictive effect on error reporting. Thus, the significance of feedback means that staff wants to see their previous adverse events reporting taken seriously. This would motivate healthcare professionals, especially nurses, to report. Also, Burlison et al. (2016) analysed data from 2008-2011 using datasets from 223,412 health care professionals in the United States. The focus was to examine near misses, mistakes that would not cause harm to patients and mistakes with the potential to cause harm. The results revealed a significant influence of feedback about errors on the frequency of events reported regardless of its severity. Likewise, in a recent Egyptian study involving 479 paramedical staff, feedback about errors and adverse events reporting were significantly related (El-Sherbiny et al., 2020). This indicates that healthcare professionals are likely to report adverse events if managers provide timely feedback. Again, healthcare workers would report adverse events if there are systems and processes to prevent future errors and not necessarily blaming people for reporting adverse events. Such improvement mechanisms to staff may include acknowledging them for taking time out of their busy scheduled to report errors.

2.3.2 Enacting Practices that Influence Patient Safety

Enacting practices are actions of frontline staff that highlight threats to safety and mobilize the needed resources to reduce those threats. These actions include interpersonal processes such as teamwork, and handover and transition of patient care.

2.3.2.1 Teamwork and Patient Safety

Hospitals, the world over primarily are set up to accomplish a task relating to patient health. In the provision of nursing care, nurses must work in teams. The aim is to bring individuals with unique competencies and specialised job roles and use shared resources in solving patients' health problems (Reeves, Lewin, Espin, & Zwarenstein, 2011). Good teamwork plays a vital role in the prevention of many negative events. This explains why teamwork has been emphasized in healthcare practice. The adoption of teamwork in healthcare organizations has potential benefits; better communication, better coordination of patient care, and prevention of adverse events (Manser, 2009). However, lack of teamwork between healthcare professionals, especially nurses, could increase patient safety-related problems and perhaps result in patients' death (Mazzocco et al., 2009).

Abu-Hamad, Hamdan, and Al-Saqqa (2016) conducted an empirical study to assess patient safety culture among 376 healthcare professionals in the Gaza Strip. The results indicated that teamwork within hospitals' units recorded a positive percentage score of 78%. This implies that healthcare professionals in Gaza Strip support one another, work as teams, and treat each other with respect. One can, therefore, expect that under these circumstances, fewer errors or mistakes

are likely to be committed and even if they do occur, they can easily be picked up by staff and appropriately reported for action to be taken. The findings of Abu-Hamad and colleagues are congruent with the results of studies conducted in Turkey and Philippines which showed that teamwork within units had the highest positive rating score: 80.3% and 91.5% respectively (Ramos & Calidgid, 2018; Yilmaz & Goris, 2015). These results indicated that teamwork within units was regarded as a strength for the hospitals studied. This signifies the important role coordination and cooperation play in achieving a safe climate for patient care. Thus, paying attention to such practices can improve staff attitude toward patient safety.

Moreover, the results of quantitative studies in Taiwan and Palestine have reported a positive attitude toward safety culture among nurses. In these studies, teamwork within units recorded the highest positive response score (Abu-El-Noor, Abu-El-Noor, Abuowda, Alfaqawi, & Böttcher, 2019; Chen & Li, 2010; Elsous, Akbari Sari, AlJeesh, & Radwan, 2017). This implies that nurses with good attitude toward patient safety are likely to cooperate with co-workers, and this is best for patient care. Also, empirical studies in Ghana and Kuwait expressed 82% of the responses reflecting positive opinion about teamwork within units (Ghobashi, El-ragehy, and Mosleh, 2014; Akologo, Abuosi & Anaba, 2019). This means that staff in the same units work as teams; thus providing the needed support and respect for each other in order to get work done rapidly, safely, and efficiently. Under such a supportive and collaborative work environment, healthcare professionals are likely to comply with the safety requirements and provide the best care for patients.

In Jordan, AbuAlRub, Gharaibeh, and Bashayreh (2012) in a study examined teamwork, safety climate, and intention to stay at work among 381 Jordanian nurses. The results indicated that teamwork and positive work climate were positively correlated. Furthermore, nurses' intention to stay in providing quality patient care was associated with teamwork. Although teamwork and work climate have been dealt with in these studies, the results would be more useful if a qualitative approach was employed to get in-depth perceptions of these nurses. Likewise, in Korea, teamwork among 674 nurses had a significant association with adverse events reporting (Hwang & Ahn, 2015). More importantly, nurses with higher team communication were more likely to report clinical error to their manager or safety department. Healthcare managers should therefore, make the necessary efforts to enhance teamwork within the context of the work environment since doing so would promote better adverse events reporting among nurses.

Safety programs such as teamwork training have been suggested to improve the perception of safety and safety climate. In training employees about teamwork, Pettker et al. (2011) in a quantitative study, examined patient safety programs on patient safety among healthcare workers at Yale-New Havens Hospital in the United States. There was a significant improvement in teamwork culture from 39% to 63%. Thus, nurses and doctors who had teamwork training had a greater perception of patient safety culture; hence, teamwork training is significant and can guarantee the safety of patients. Therefore, periodic training on teamwork for both permanent staff and recruits should be part of the core responsibilities of healthcare managers if they indeed want to improve patient safety.

Consequently, lack of teamwork may lead to inconsistent information among nurses, between nurses and other healthcare professionals, and between nurses and patients. This might put patients at risk since conflicting information affects patient safety. In examining the causes and impact of poor teamwork between doctors and nurses in two teaching hospitals in Ireland, a study by O'Connor et al. (2016) found poor quality of collaboration and lack of coordination between doctors and nurses. More significantly, poor communication of these professionals was also implicated in poor teamwork, thus putting patients at risk, which may have a compromising effect on patient safety. Under these circumstances, if an error occurs, people might not disclose their acts for fear of being blamed. To address this challenge, it requires collective team efforts from doctors and nurses.

In Southern Nevada, United States, approximately 85% of 150 staff had reported that there was no teamwork across hospital units (Falco, 2013). This suggests that there is lack of cooperation and coordination among hospital units that need to work together. Thus, making it difficult for staff to work with other hospital units which may be detrimental to patient safety. Similarly, studies in Tunisia and Jordan among healthcare workers had reported being unsatisfied with how the hospitals' units coordinate patient care (Cheikh et al., 2016; Khater, Akhu-Zaheya, Al-Mahasneh, & Khater, 2015). This could contribute to an increase in the occurrence of adverse events that may go unreported. Such incidence may threaten patient safety once patients are transferred from one care provider to another within and at different settings.

Some empirical studies have made a comparative analysis between teams. For instance, in a broad systematic review, Elmontsri, Almashrafi, Banarsee, and Majeed (2017) explored the status of patient safety culture in Arab countries based on findings from the Hospital Survey On Patient Safety Culture. In all, eighteen (18) studies involving 11,421 respondents were reviewed. The results revealed a better score on teamwork within units over teamwork across hospital departments. Given the role of teamwork within units play in ensuring patient safety, priority should be given to teamwork within units by healthcare managers since it has the potential to influence other safety practices.

Attempts have been made to examine teamwork and its influence on patient safety outcomes. For instance, in a study by Hwang and Ahn (2015) comprising 674 Korean nurses, teamwork among nurses was significantly related to adverse events reporting. Similarly, in Jordan, Saleh et al. (2015) in a quantitative study found a significant relationship between adverse events reported by nurses and teamwork within the units ($r = -0.19, p < .01$). Additionally, among 479 Egyptian paramedical staff, El-Sherbiny et al. (2020) found a significant relationship between teamwork within the units and adverse events reporting. This presents the critical role teamwork plays in determining patient safety outcomes in hospital settings. Thus its absence could threaten patient safety.

2.3.2.2 Handover and Transition of Patient Care

Handover and transition of care involve the transfer of accountability and responsibility for patient care from one health care provider to another (National Patient Safety Agency, 2004). Such transfers include exchanging information that

is specific to the patient. Handover could be inter-health care professional, interdepartmental, or could be when patients are discharged from hospitals (Wong, Yee, & Turner, 2008). One can argue that when handover is effectively done, it conveys patients' clinical information and to a large extent, provide safe and quality patient care. On the other hand, the poor flow of information during the shift may endanger patients' life which is a threat to patient safety.

Studies have shown that ineffective shift handover increases the risk of medication errors, delays the course of treatment, and prolongs the length of hospital stay (Malekzadeh, Mazluom, Etezadi, & Tasseri, 2013). In the United Kingdom, Reader, Flin, and Cuthbertson (2007) in a study among 136 ICU nursing staff attributed 57% and 37% of all the healthcare errors to ineffective intra or inter shifts handover communications. Also, findings of studies from five different countries; Saudi Arabia, Cairo, Sweden, France and India have reported hand over and transition of patient care as the least developed composite with a positive response score ranging from 20-45% (Aboul Fotouh, Ismail, Ez Elarab, & Wassif, 2012; Alshammari et al., 2019; Giaei et al., 2017; Listyowardjo, Nap, & Johnson, 2011; Nordin, Wilde-Larsson, Nordström, & Theander, 2013; Rajalatchumi et al., 2018). This implies that shift changes are problematic and that vital patient care information is often lost.

In Denmark, Siemsen et al. (2012) in a qualitative study, explored the attitudes and experiences of 47 healthcare workers as patients moved from ambulance services to hospitals or within hospital units. Findings from this study indicated that teamwork awareness, communication, professionalism, and

infrastructure were factors that affected the transfer of patient care. This implies that handover of patients was disregarded; thus, among the studied participants, handover was least developed. Even though this study provided comprehensive information about factors that affect handover, it could not determine the effect of handover procedures on patient safety between departments. Hence different data collection approaches can be used to explore the variation of effect between the departments.

Nevertheless, in Korea, a quantitative study by Yu, Lee, Sherwood, and Kim (2018) reported that nurses with high regard for patient safety had a higher score for handover of patient care. The higher rating score on information transfer reflects a more robust patient safety culture in Korean hospitals which suggests that malpractices and errors were more likely to be reported by Korean nurses. As a result of the role handover play in creating patient safety culture, hospitals should develop standardized guidelines for efficient transfer of patient care. Again, hospitals should educate nurses about the importance of handover and develop a system of open communication to encourage nurses to report errors.

Likewise, in the United States, Richter et al. (2016) examined the influence of organizational factors on successful handover among 515,637 healthcare professionals from 1,052 hospitals. The results reported that more than half (59%) of healthcare professionals in the United States believed that patient care information is not lost during shift changes. Furthermore, management support, staffing levels, and teamwork were significant predictors of successful handoffs. Thus, attention should be given to foster open communication, recruit staff, and

ensures the formation of safety committees if healthcare organizations want handover to be successful in the practice environment. This finding is at variance with the results of Riesenber, Leisch, and Cunningham (2010) involving nurses and physicians using a mixed-method approach where communication failures, staffing shortages, and lack of leadership focus on safety were regarded as barriers to successful handover.

Some studies reported improvement in patient safety through the use of protocols and guidelines in handover and transition of patient care. Scholefield (2008) indicates that when standardized systems are used for handover, it promotes effective communication, facilitates error reporting and there is collaboration among units and departments. Deficits in information transfer and communication among healthcare professionals can adversely affect patient care. In a systematic review to better understand interprofessional information transfer and communication, Nagpal et al. (2010) reviewed 38 published articles in 2009. The review indicated that errors in care resulting in patient harm was due to communication failures in surgical care units. Moreover, lack of standardised protocols or guidelines for handover has accounted for such communication failures. This may adversely affect patient safety hence the need for healthcare organisations to develop effective and standardised protocols to address the issues of poor transfer of patient care. Again, Nagpal et al. (2010) in 82 observational studies, sought to improve handover practices in a British hospital. The findings showed that the quality of handover, particularly with communication and teamwork among staff were significantly improved. This study provides evidence

that using protocols in hospitals could improve handover, which may reduce the occurrence of adverse events. If adverse events occur at all, perhaps, such events could be reported for appropriate actions to be taken. Similarly, Saleh et al. (2015) studied 242 Jordanian nurses and found a significant relationship between adverse events reported by nurses and handover of patient care ($r = -0.18$, $p < .01$). This finding suggests that as handover practices improve, less adverse events are likely to be committed by nurses, and this would reflect in the way adverse events are reported.

2.3.3 Patient Safety Outcomes

Patient safety outcomes are measurable results of patient care. These include patient mortality, the incidence of adverse events involving patients (e.g. falls, nosocomial infections), complications during hospitalisation, and duration of the length of stay (Doran & Pringle, 2011). When enabling and enacting safety practices are in place, it leads to good safety outcomes. Safety outcomes in this context are judged by frequency and number of adverse events reported by healthcare professionals, especially nurses. The focus of adverse events reporting is basically to collect information about critical events, analyse them and disseminate these events among relevant professional groups and institutions in the healthcare setting to improve quality care. Again, the knowledge and insight gained from analysing events or data will be reflected in the users of healthcare.

Some studies have been conducted to evaluate adverse events reporting among healthcare professionals across varied healthcare settings. For instance, in Saudi Arabia, Alonazi, Alonazi, Saeed, and Mohamed (2016) found that majority

of nursing staff (62%) gave adverse events reporting a higher positive rating score especially when the error did not cause harm to patients. Also, about 69.2% of Jordanian nurses in a quantitative study indicated that they had reported adverse events irrespective of whether it causes or has the potential to cause patient harm (Khater et al., 2015). The relatively high positive response scores recorded in Jordan and Saudi indicates that healthcare professionals have a positive attitude towards adverse events reporting. This attitude may be attributed to non-punitive practice environment which provides managers or safety departments with the opportunity to evaluate the adverse events reported so that lessons can be learned and appropriate actions taken to prevent adverse events recurrence.

In situations where errors lead to patient harm, nurses and other healthcare professionals are likely to under-report adverse events. For instance, findings of studies from five different countries: United States, Lebanon, Taiwan, Oman and Saudi Arabia had shown that adverse events reporting were low especially when the error had the potential or could lead to patient harm (Al-Mandhari et al., 2014; El-Jardali, Sheikh, Garcia, Jamal, & Abdo, 2014). Also, in Africa, especially in Ghana and Tunisia, findings of studies had indicated that adverse events among employees were under-reported (Akologo et al., 2019; Mallouli et al., 2017; Sabblah, Akweongo, Darko, Dodoo, & Sulley, 2014). Similarly, in a recent Tunisian study, Tlili et al. (2020) studied 402 healthcare professionals from 18 ICU in 10 hospitals. They found that about 80.2% of them had either not reported adverse events or were uncertain on what to report. Furthermore, approximately 91.5% of the respondents did not actually report adverse events within the past 12

months. All these findings suggest that adverse events' reporting among healthcare professionals is generally low, thus has negative implications on patient safety. Moreover, in Kuwaiti study involving 1,193 healthcare providers and administrators, almost half of them (49.5%) did not report adverse events at all in the last 12 months (Badr, AlFadalah, & El-Jardali, 2017). This situation may be attributed to fears of being punished by managers following reported adverse events. Hence, managers and policymakers should ensure the practice environment of frontline health workers is non-punitive and blame-free so that healthcare workers can feel free to report.

Several reasons have been attributed to lower rates of adverse events reports. In Denmark, studies have identified barriers to under-reporting as lack of clear definition on what to report, complicated reporting system, time-consuming and error reporting not making a significant impact and that, 1 out of 10 of the respondents did not know whether adverse events should be reported (Kousgaard, Joensen, & Thorsen, 2012; Rishoej, Almarsdóttir, Thybo Christesen, Hallas, & Juel Kjeldsen, 2018). Also, findings of other studies have cited the state of the professional environment, lack of transparent reporting procedures, perceived consequences in reporting, and lack of self-confidence as factors hindering reporting of adverse events (Chen et al., 2018; Prang & Jelsness-Jørgensen, 2014). Giving such reasons for underreporting adverse events, perhaps it is not the best approach to guarantee the safety of patients in the care of healthcare professionals. To encourage healthcare professionals to report adverse events, the reporting procedure should be simplified. Again, adverse events should be investigated and

appropriate actions prescribed to effect significant changes. This would motivate staff to report adverse events devoid of consequences.

Besides, in China, Zhou, Bundorf, Gu, He, and Xue (2015) pointed out that medical staff felt embarrassed in admitting mistakes when they occur. This stems from the fact that in China, the dominant practice is based on group collectivism thus, when an individual makes a mistake, not only does it embarrass the individual who makes a mistake but also the team to which the individual belongs (Zhou et al., 2015). As a result, healthcare professionals in Chinese hospitals are generally reluctant to admit making mistakes. Thus, such practice may affect reporting intention among medical staff. Therefore, the healthcare organisation should ensure that the work environment is blame-free to encourage healthcare workers to report adverse events. In the United States, Tevis, Schmocker, and Wetterneck (2017) in a study involving 94 first-year resident doctors examined barriers to adverse event reporting. The findings indicated that majority (85%) of the residents filled and submitted adverse events reports within 6 months of residency. However, lack of information and insufficient time have accounted for residents' inability to submit events report (Tevis et al., 2017). Meanwhile, residents' educational orientation significantly increased event reporting by 230% (68-154) of events reported. Thus, patient safety initiatives such as providing patient safety information, improving feedback about errors and mentorship are key strategies. Hence, should be implemented to remove barriers on adverse events reporting.

Researchers have attempted to examine the association between demographic characteristics and patient safety outcomes (Abu-El-Noor et al., 2019;

Güneş et al., 2016; Lee et al., 2010; Wami et al., 2016). For instance, findings of studies in Turkey (Güneş et al., 2016) and Ethiopia (Wami et al., 2016) reported the significant impact of years of experience in hospital on patient safety and patient safety outcomes. The authors argued that prolonged exposure of healthcare professionals to the hospital make them much more aware and familiar with patient safety and safety-related issues in the workplace. Unlike these studies, the finding of Alshammari et al. (2019) found an insignificant association between years of work experience and adverse events reporting. Similarly, Akologo et al. (2019) found no significant relationship between adverse events reporting and any of the demographic characteristics. All these findings point to the fact that other variables are influencing adverse events reporting other than demographic variables. Meanwhile, in Iran, finding by Akbari, Malek, Ebrahimi, Haghani, and Aazami (2017) revealed that approximately 76.6% of nurses who worked in the maternity unit had positive attitude towards adverse events reporting. Perhaps, the positive attitude towards events reports stems from the fact that two lives are involved in their care; thus, they do not want any harm to be caused to patients as a result of the errors they inadvertently make.

2.4 Summary

Patient safety culture is influenced by enabling and enacting safety practices. Review of the literature shows that enabling safety practices include manager's support for patient safety, managers' expectations and actions in promoting patient safety, non-punitive response to errors, open communication, staffing levels and feedback about errors. Again, from the review, enacting safety practices include interpersonal processes such as teamwork within units, teamwork across units and coordination of care at transitions (handovers). All these safety practices (enabling and enacting) lead to patient safety outcomes which are associated with adverse events reporting defined by its frequency or number of adverse events reported.

CHAPTER THREE

METHODS

3.0 Introduction

This section describes the research methods that were employed to assess patient safety culture among nurses of selected hospitals in the Savannah Region. This included the design, setting, population; inclusion and exclusion criteria, sample determination, sampling technique, data collection instrument, reliability, and validity of the instrument, data collection procedure, data management, data analysis, and ethical consideration.

3.1 Research Design

This study employed a quantitative, cross-sectional design to collect data from nurses regarding patient safety practices. A quantitative approach was used based on the fundamental assumptions that human phenomena can be studied objectively (Parahoo, 2014). A cross-sectional design was chosen because it offered the researcher the opportunity to access primary data about patient safety practices among nurses in the study settings and to analyse the data in order to explain the predictors of patient safety outcomes. This design is flexible, economical, and easy to manage; thus, large data can be collected within a short period (Polit & Beck, 2010)

3.2 Research Setting

The research was conducted in the Savannah Region, Ghana. It is located in the North-Eastern part of Ghana with its capital in Damongo, the seat of Yagbon (Paramount Chief of Gonjaland). Administratively, the region has 7 districts with a total population of 578,235 (Ghana Health Service, 2015; Ghana Statistical Service, 2014). The region occupies a total land area of 37,582 square kilometers (sq.km) constituting 16.09% of the total land area of Ghana. It shares boundaries with Northern Region to the East, North-East Region, and Upper East Region to the North, Upper West Region to the North West, South Western is Bono Region, South East is Bono East Region and West to the Republic of Côte d'Ivoire. The major ethnic groups in the region are Gonjas, Dagombas, Nchumurus, Bimobas, and Vaglas, among others. The region has areas which are described as deprived, poor and hard to reach.

Health care delivery in the region is managed by 41 health care facilities with majority of them being Community-based Health Planning Services (CHPS). The region has three major hospitals, namely, West Gonja, Bole and Salaga district hospitals. The three hospitals serve as referral centers for many of the smaller healthcare facilities.

West Gonja District Hospital is a mission hospital that serves as a referral center for the neighbouring healthcare facilities in the district. The hospital provides specialized healthcare services and has a total bed capacity of 100 with total staff strength of 320 comprising 133 nursing workforce.

Bole District Hospital is a primary government hospital that serves the inhabitants of Bole and its neighbouring Côte d'Ivoire. The district hospital has a bed capacity of 132 with a total staff strength of 194 made up of 119 nurses. The district shares a border with Côte d'Ivoire thus its inhabitants easily cross the border to access healthcare. The hospital was adjudged the overall best hospital in 2017 at the hospitals' peer review conducted by the Northern Regional Health Directorate.

East Gonja (Salaga) Hospital is a primary government hospital that has a bed capacity of 100. The hospital has 161 clinical staff strength with 133 nurses. It is the largest hospital located in the eastern part of the region with the highest population of 135,450 (Ghana Statistical Service, 2014).

3.3 Target Population

The target population was all nurses working in the wards of three selected hospitals in the Savannah Region.

3.3.1 Inclusion Criteria

The study was limited to full-time employees who are professional or auxiliary nurses with the least professional qualification of a certificate in nursing or midwifery. Besides, nurses who have direct interaction with patients admitted to the wards and have worked in the selected hospitals for at least six months were included in this study. Having worked for at least six months, nurses are expected to have adequate knowledge about the hospitals and their operations regarding patient safety.

3.3.2 Exclusion Criteria

Those who were excluded from the study were:

- i. Qualified nurses who were full-time employees with less than six months of working experience.
- ii. Healthcare professionals, such as doctors, laboratory staff, dispensary personnel, administrators, secretaries, among others.
- iii. Nurses on extended sick leave.
- iv. Nurses on study leave and not present at the time of the study.

3.4 Sample Size Determination

A sample is a small set of cases a researcher selects that represents features of interest in a larger population (Neuman, 2014). The size of a sample should be large enough to create representativeness such that the results can be generalized for the entire population (Polit & Beck, 2014). Yamane (1967) simplified sample size formula was employed in determining the sample size for this study. According to Yamane's formula, given a desired level of precision, desired confidence level and the estimated proportion of the attribute present in the population, the sample size was calculated as follows:

$$n = \frac{N}{1+N(e^2)}$$

Where:

n = required sample size

N = accessible population

e = alpha level or desired level of precision = 0.05 or 5%

In this study, the total nursing population of the three district hospitals was 385 [WGH (133), Bole (119), and Salaga (133)]. Using the total nursing population in these three hospitals as the accessible population and an alpha level of 0.05, the sample size was calculated as follows:

$$n = \frac{385}{1+385(0.05^2)}$$

$$n = \frac{385}{1+385(0.0025)}$$

$$n = \frac{385}{1+0.9625}$$

$$n = \frac{385}{1.9625}$$

$$n = 196$$

This figure was, however, increased by 10% to make room for non-response, increased participation and possible bias. Thus, the total sample size for this study was 216.

3.5 Sampling Technique

Sampling can be defined as a process of selecting a number of individuals from a target population in such a way that the individuals in the sample represent, as nearly as possible, the characteristics of the entire target population (Singh, 2006). This was to enable the researcher to use the sample findings for generalisation without having to study elements of the target population. The researcher used a quota sampling technique to recruit nurses from the selected

hospitals. In quota sampling, respondents are chosen in proportions based on the population of interest (Yang & Banamah, 2014). The researcher gave each selected district hospital a quota based on the nurses' population to ensure adequate representativeness of the population. For instance, the total nursing staff strength for the three selected hospitals was 385: 133 (West Gonja Hospital), 119 (Bole Hospital) and 133 (Salaga Hospital). Out of this, proportionate sample size was calculated as 75, 66 and 75 respectively. Table 3.1 presents a summary of the sample across the selected hospitals.

Again, a simple random sampling technique was then employed to recruit nurses who met the inclusion criteria. This technique was appropriate, cost-effective, and less time consuming considering the time constraints for the data collection (Alvi, 2016). The response rate of this study was 97.2%.

Table 3.1: Sample distribution across the study hospitals

No	Name of hospital	Population	%	Quota	Sample
1	West Gonja Hospital	133	34.7	75	75
2	Bole Hospital	119	30.6	66	66
3	Salaga Hospital	133	34.7	75	69
	Total	385	100	216	210

3.6 Data Collection Instrument

A questionnaire was used as the main tool for data collection. According to Polit and Beck (2014), a questionnaire is the most used tool for data collection in survey designs. This is because they are less costly, convenient, and can cover a wide geographical area (Neuman, 2014).

Hospital Survey on Patient Safety Culture (HSOPSC) developed by the Agency for Healthcare Research and Quality (AHRQ) (Sorra & Nieva, 2004) was adapted for this study. The instrument (HSOPSC) had 12 dimensions with 42 items. This includes management support (3) items, managers' expectations (4) items, communication openness (3) items, non-punitive response to errors (3) items, staffing levels (4) items, teamwork across units (4) items, teamwork within units (4) items, handover and transition (4) items, overall perception of patient safety (4) items, frequency of events reporting (3) items, organizational learning (3) items and feedback about errors (3) items. Again, the instrument has two other categorical variables: number of adverse events reported and patient safety grade. The instrument was slightly modified in terms of wording to suit the context of this study. Permission to modify and use the instrument was obtained from Ms Randie Siegel at SafetyCultureSurvey@westat.com on behalf of AHRQ. However, the researcher was not interested in all the dimensions on the HSOPSC instrument but extracted practices that pertained to management/leadership practices, frontline staff practices, and patient safety outcomes. The adapted instrument (Appendix B) was restructured into four sections.

Section A involved demographic characteristics. The items in this section include age, gender, qualification, work area, years of work experience in the hospital, years of work experience in the unit/department, and hours of work per week.

Section B consisted of enabling safety practices with 20 items. These include manager's support for patient safety (3) items, managers' expectations (4) items, non-punitive response to errors (3) items staffing levels (4) items, open communication (3) items and feedback about error (3) items. The items were on 5-Point Likert scale using the following numeric scale: strongly disagree = 1, disagree =2, neutral =3, agree =4, strongly agree =5 and never = 1, rarely = 2, sometimes = 3, most of the times = 4, always = 5. The modification of the instrument was mainly in the use of terms "part-time staff" in place of "agency staff".

Section C comprised of 12 items measuring enacting safety practices. These include teamwork within units (4) items, teamwork across units (4) items and hand over and transition of patient care (4) items. These items were on a 5-point Likert scale using the following numeric scale: strongly disagree = 1, disagree =2, neutral =3, agree =4, and strongly agree =5. The modifications of the subscales on the instrument were mainly the use of the terms overlooked/neglected/forgotten in place of "in-between the cracks."

Section D had 4 items that captured patient safety outcomes. Safety outcomes were determined through the frequency and number of adverse events reported. Frequency of adverse events reporting had three (3) items measured on 5-

point Likert's scale: never = 1, rarely = 2, sometimes = 3, most of the times = 4, always = 5 while the number of adverse events reports was a categorical variable.

3.7 Data Collection Procedure

The instrument was in English, which consisted of closed-ended questions. A period of two months was used to collect the data. Once Ghana Health Services Ethics Review Committee granted ethics approval (see Appendix C) as well as introductory letters (see Appendix D) from the School of Nursing and Midwifery, the researcher then proceeded to the study sites for data collection. These letters were presented to the authorities of the respective selected hospitals, and permission was granted for data collection. The researcher trained 3 research assistants to support in the data collection process. The training provided a vivid explanation of the questionnaire and ensuring that all sections were well completed.

In each hospital, management and the ward manager or assistant were contacted to assist the researcher or assistants in identifying prospective respondents. A total eligible list of nursing staff (nominal roll) of each selected hospital was obtained from the nursing administrator or hospital administrator. The researcher ensured that the list was current and exhaustive and contained all the needed information. To ensure the sample obtained from each unit was not biased, the name of staff in each unit or department was written on pieces of paper, then folded, placed in a basket, and mixed well. A blindfolded selection of one after the other without a replacement was made until the required sample size was obtained. The researcher/assistants then traced and located the chosen respondents to administer the questionnaire.

Issues of anonymity, privacy, and confidentiality were made clear to enable respondents to make an informed decision relative to participation. Nurses who met the inclusion criteria and were willing to take part were requested to give consent by signing a consent form. This was followed by the questionnaire to fill. The researcher or assistant collected the data either before the start of work or after each shift so as not to disrupt work in the various wards. The filled questionnaire was collected as soon as it was completed.

3.8 Data Management

Data collected from nurses were managed both manually and electronically. The completed questionnaires were collected and numbered. A data codebook was developed for all the items in the questionnaire for effective data evaluation. The questionnaire was coded before data entry using, Statistical Package for Social Sciences (SPSS) version 20 software and saved in the researcher's personal computer in identifiable folders with security code to make them inaccessible to any other person except the researcher and supervisors. Data analysis and interpretation of patient safety practices were based on AHRQ guidelines (Sorra & Nieva, 2004). Following the guidelines, strongly agree and agree or most of the time and always were combined as positively worded responses while disagree and strongly disagree or never and rarely were also combined as negatively worded responses. However, the midpoints of the scale were reported as neither or sometimes, which indicated neutral scores. The survey also had negatively worded items. These items were reverse coded such that if a respondent disagrees or responds never to a negatively worded item, it suggests a positive percentage

response score. As a result, a percentage of each item and a composite score of patient safety practice was calculated; thus, a higher score for each item or composite reflects positive patient safety practice. Accordingly, the AHRQ guidelines considered patient safety practice or dimension with a response score of 75% as strength and those with 50% or less were areas that needed further attention (Sorra & Nieva 2004).

The data was then stored in the external storage device, cloud, researcher's mail, and google drive as well. Manually, the data was stored on shelves of a cupboard in the researcher's bedroom and kept under lock and key. The data would be kept for five years and thereafter shall be discarded according to the data protection, Act 843 of 2012.

3.9 Data Analysis

Data analysis is an essential part of the study design (Parahoo, 2014). It is a way of making sense of the data and presenting them in a manner that can be understood. The first part was descriptive statistics which analysed the demographic characteristics of nurses, enabling safety practices, enacting safety practices, and adverse events reporting (patient safety outcomes). The approach was used to summarise and describe the sample which was presented in the form frequencies, percentages, means and standard deviations. The second part was inferential statistics using correlation and regression. Chi-square test, Pearson's correlation coefficient, Point- Biserial correlation, binary logistic and hierarchical multiple linear regressions were used for the analysis.

A Chi-square (χ^2) test was employed to examine demographic characteristics of nurses and adverse events reporting. In this test, adverse events reported, and demographic characteristics of nurses were treated as categorical variables. Consequently, the number of adverse events reported was dichotomized. In dichotomizing, no adverse events were coded as 0 while adverse events reported ranging from 1 adverse event and more were coded as 1. Again, the demographic characteristics of nurses were equally categorised according to the interest of the researcher. It was on this basis that the Chi-square test was chosen.

Bivariate correlation was used to examine the relationship between patient safety practices and safety outcomes (adverse events reporting). This analysis was appropriate because patient safety practices were linearly related to the rate of adverse events reported. Again, the level of measurement was on an interval scale. Additionally, Point-Biserial correlation analysis was run to determine the relationship between patient safety practices and the number of adverse events reported. This was considered necessary because the dependent variable was a categorical variable that sought to get the opinion of nurses about the number of adverse events reported within the past year. As a result, the number of adverse events reported was dichotomized. In dichotomizing, no adverse events were coded as 0 while adverse events reported ranging from 1 and more were coded as 1. Moreover, the independent variables (patient safety practices) were continuous; thus, the basis for this analysis.

Binary logistic regression analysis was used to determine if there is a relationship between demographic characteristics of nurses and the number of

adverse events reported. This was employed because the dependent variable (number of adverse events reported) was coded as no adverse event reported (0) and adverse events reported (1).

Hierarchical multiple regression analyses were used to determine if patient safety practices will be able to predict patient safety outcomes (frequency of adverse events reported). In this analysis, more variables were added to the model in separate blocks. For instance, in the first block, demographic characteristics of nurses were added. Likewise, in the second and third blocks enabling and enacting safety practices were added. This was done to statistically control for demographic characteristics of nurses and enabling safety practices to see whether adding such variables would significantly improve the model's ability to predict safety outcomes. In all these analyses, a p-value of $<.05$ was considered statistically significant.

3.10 Validity and Reliability

According to Polit and Beck (2014), validity of an instrument refers to the degree to which a research instrument measures what it is meant to measure. The validity of the instrument was established through face and content validity. Face validity refers to whether an instrument looks as though it measures the appropriate construct (Polit & Beck, 2014). To ensure face validity, the items on the questionnaire were rearranged into sections to reflect the research objectives. The researcher also ensured that the questionnaire fully captured all the study objectives. Again, the study instrument was scrutinised by the supervisors to reflect the questions of this research. Also, the content validity of the instrument was

ensured using the results of the pilot study. The researcher conducted an extensive literature review and structured the sections of the questionnaire to ensure all variables under investigation were covered.

Reliability refers to the ability of a measuring instrument to do consistently whatever it is designed to do under identical or very similar conditions (Neuman, 2014). Cronbach's alpha coefficient (α) is the most extensively used means of testing the reliability of instruments. A Cronbach's alpha coefficient (α) of 0.7 and above is the most excellent choice among the published reliability coefficient (Cho & Kim, 2015). The instrument (HSOPSC) had Cronbach's alpha coefficient values ranging from 0.63 to 0.84 (Sorra & Nieva 2004). Thus, the instrument has been extensively used in patient safety culture studies in healthcare settings hence is valid and reliable (Eiras, Escoval, Monteiro Grillo, & Silva-Fortes, 2014; Kapaki & Souliotis, 2016).

To enhance the reliability, the instrument was piloted at Tamale West Hospital at the Northern Regional Capital, Tamale, with 20 nurses to identify and revise the questions that were not clear on the instrument. The Cronbach's alpha coefficient values for the adapted instrument ranged from 0.62 to 0.91; hence the researcher did not make any significant modifications except change of some few words for better understanding. Upon collecting the main data, the Cronbach's alpha coefficient values were again determined. These Cronbach's alpha coefficient values ranged from 0.64 to 0.83. The researcher, therefore, concluded that this present study had good validity and reliability, thus an appropriate instrument to assess patient safety culture of selected hospitals in the Savannah Region of Ghana.

Again, the instrument included an item that asked nurses about the number of events reported in the past 12 months. Details of Cronbach's alpha values of both the original survey and the current study are presented in Table 3.2.

Table 3.2: Reliability of patient safety practices (dimensions)

Patient Safety Practice/ Dimension	Number of items	α (AHRQ)	α (Present study)
Management support	3	0.83	0.66
Management expectation	4	0.75	0.68
Non-punitive response to error	3	0.79	0.75
Communication openness	3	0.72	0.70
Staffing levels	4	0.63	0.64
Feedback about error	3	0.78	0.75
Teamwork within units	4	0.83	0.83
Teamwork across units	4	0.80	0.73
Hand over and transition of care	4	0.80	0.75
Frequency of adverse event reporting	3	0.84	0.80

3.11 Ethics Consideration

According to Sieber and Tolich (2013), ethics is a vital component of research. Issues of ethics are associated with right and wrong among groups, society, or community (Babbie, 2005). The researcher obtained ethics approval from Ethics Review Committee of Ghana Health Services (GHS-ERC 041/11/19) (see Appendix C) before the commencement of the study. This was done by presenting a research proposal, information sheet and informed consent sheet to the

GHS-ERC (see Appendix A). After securing ethics approval, institutional approvals from the authorities of the selected hospitals were sought through letters of introduction from the School of Nursing and Midwifery, University of Ghana, Legon, to use their facilities for the study. In each hospital, the introductory letter was signed and stamped by the Medical Superintendent and Hospital Administrator (see Appendix D) and copies sent to the various units. Formal permission was then granted for the researcher to start the data collection. The researcher and the assistants went to the Nursing Service Administrator for the introduction. In each hospital, the Nursing Administrator then asked the research assistant to move around with the researcher and introduce the researcher to all the ward managers at the units' level. When a respondent was finally selected randomly at the units' level, the researcher traced the respondent and explained the study purpose, roles, responsibilities for participation, benefits, and risks of the study, voluntary participation, and educational implications. The respondents were made to give consent by signing a consent form (Appendix A) indicating that they understood the information about the research and were participating voluntarily. This was followed by administering the questionnaire to them. The respondents were again made to know that they had the right not to participate in the study and even after consenting, they could still be allowed to opt-out at any time if they wished to do so. The researcher explained to the respondents that their refusal to participate in the study would not adversely affect them personally or the job they do as nurses.

Furthermore, privacy and confidentiality were maintained by ensuring that any personal information given was not disclosed to another person but treated with

the utmost confidentiality. Again, responses were coded without the disclosure of respondents' identity. Moreover, the data were analyzed and reported in aggregation, and no one would be able to trace the information back to the respondents.

3.12 Summary

This chapter looked at research methods. The study employed a quantitative cross-sectional design to assess patient safety culture among nurses of selected hospitals in the Savannah Region. In all, 210 nurses participated in the study. A quota sampling technique was employed in determining nurses based on each of the hospital nursing population. A simple random sampling was then used to recruit nurses who met the inclusion criteria. The researcher adapted a standardized research instrument (HSOPSC) which was then used to gather data from respondents at the unit level.

Ethics approval was obtained from GHS-ERC. Permission was sought from the authorities of the selected hospitals for the data collection. The researcher selected 3 persons (one from each hospital) and trained them as research assistants to assist in the data gathering. Voluntary participation, issue of confidentiality, anonymity and right of withdrawal were ensured throughout the data gathering process. SPSS version 20 was used to analyze the data. Descriptive and inferential statistics were employed in this study. In all, a p-value of $<.05$ was considered statistically significant.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the findings of the study on patient safety practices among nurses and it is divided into five sections. The first segment reports on demographic characteristics of nurses. The rest of the sections present the findings according to the objectives of the study.

4.1 Demographic Characteristics of Nurses

Demographic characteristics of nurses such as age, gender, qualification, work area, years of work in the hospital, years of work in the current unit and hours of work per week were explored in this study. In all, 210 nurses from three selected hospitals were engaged in the study. Respondents' ages ranged from 24-59 years, with a mean age of 31.4 ± 4.9 years. Males constituted the majority (n=116, 55.2%). Half of the respondents, 105 (50.0%), were certificate holders with medical wards having more nursing staff than other hospital units (n=63, 30.0%). Additionally, majority of nurses, 85 (40.5%) had between 1-5 years of work experience in the hospital, and more than half, 107 (51.0%) of the nurses had worked 1-5 years in their current units. Moreover, most of the nurses, 115 (53.3%), had a weekly workload between 40-59 hours per week. Details of the demographic characteristics are summarised in Table 4.1.

Table 4.1: Demographic characteristics of nurses

Variable	Category	Frequency (n)	Percentage (%)	Mean score	Standard Deviation
Gender	Male	116	55.2		
	Female	94	44.8		
	Total	210	100		
Qualification	Degree	34	16.2		
	Diploma	71	33.8		
	Certificate	105	50.0		
	Total	210	100		
Work area	Medical ward	63	30.0		
	Surgical ward	15	7.1		
	Obstetrics. & Gynaecology.	40	19.0		
	Paediatric ward	41	19.5		
	Emergency ward	34	16.2		
	Others	17	8.1		
	Total	210	100		
Years of work in the hospital	6 months-1year	52	24.8		
	1-5 years	85	40.5		
	6-10 years	58	27.6		
	11-15 years	12	5.7		
	16-20 years	3	1.4		
	Total	210	100		
Years of work in your current unit	6months-1year	93	44.3		
	1-5 years	107	51.0		
	6-10 years	8	3.8		
	11-15 years	2	1.0		
	Total	210	100		
Hours of work per week	<20 hours	4	1.9		
	20-39 hours	73	34.8		
	40-59 hours	112	53.3		
	60-79 hours	10	4.8		
	80-99 hours	6	2.9		
	100 hours and more	5	2.4		
	Total	210	100		
Age		210		31.4	4.8

Source: Field data, 2020

4.2 Patient Safety Practices

Objective one and two of this study were to describe patient safety practices of nurses of the three selected hospitals in the Savannah Region. These safety practices include enabling and enacting safety practices. This section presents the findings of nurses' patient safety practices.

4.2.1 Enabling Safety Practices

Enabling safety practices of nurses in the selected hospitals were measured using a 5-point Likert scale. The results are presented in the form of frequencies, percentages, mean scores, and standard deviations.

Findings indicate that out of 210 (100%) nurses surveyed, 132 (62.8%) of them gave the highest positive response score for managers' expectations and actions in promoting patient safety. This means that safety problems and staff suggestions are given serious consideration relative to patient safety. Furthermore, majority of nurses (n=19, 56.6%) rated high on manager's support for patient safety. This was followed by feedback about errors (n=118, 56.2%). On the other hand, out of 210 (100%) nurses, almost half (n=96, 45.9%) of them believed that there was inadequate number of nursing staff to handle safety-related workload in the selected hospitals. Similarly, 92 (44.0%) of the nurses believed that they were punished or sanctioned when adverse events were reported.

Although managers' actions in promoting safety had the highest positive response score (n=132, 62.8%), none of the enabling safety practices met the benchmark criteria of 75% positive response score. However, generally, there appear to be good rating scores for management support, management expectation,

and feedback about errors for management. Table 4.2 presents a detailed description of enabling safety practices.

Table 4.2: Enabling safety practices

Item	Positive score n (%)	Neutral score n (%)	Negative score n (%)	Mean score	Standard Deviation
Management support	119 (56.6)	40 (19.2)	51 (24.2)	10.28	2.34
Managers' expectations	132 (62.8)	35 (16.6)	43 (20.6)	14.46	2.35
Non- punitive response to errors	77 (36.7)	41 (19.4)	92 (44.0)	8.69	3.07
Staffing levels	89 (42.4)	25 (12.2)	96 (45.9)	11.55	3.14
Open communication	84 (40.2)	72 (34.1)	54 (25.7)	9.88	2.35
Feedback about errors	118 (56.2)	66 (31.3)	26 (12.5)	10.92	2.53

Source: Field data, 2020

4.2.2 Enacting Safety Practices

The study examined enacting safety practices of nurses at their current workplaces. Enacting safety practices were measured using a 5-point Likert scale. The results are presented in the form of frequencies, percentages, mean scores, and standard deviations.

The findings show that out of 210 (100%) nurses surveyed, teamwork across hospital units had 142 (67.7%) positive response rating score. The data further showed that few (n=30, 14.2%) nurses indicated that there was no coordination and cooperation among hospital units. However, a limited number of nurses remained undecided about whether there was teamwork across units (n=38, 18.1%).

In responding to whether patient care information is lost or shift changes are problematic across units, out of 210 (100%) of nurses sampled, a greater percentage of them (n=147, 69.8%) agreed that patient care information across hospital units was carefully transferred. Only 63 (30.2%) of nurses believed that the exchange of patient care information during shift changes was problematic across hospital units.

Nurses were asked whether there was teamwork within the units where they worked. Out of 210 (100%) nurses surveyed, 174 (82.9 %) of them said there was teamwork within hospital units. Further analysis revealed that 36 (17.2%) reported that nurses do not support one another, work as teams, and treat each other with respect. The details of the enacting safety practices are shown in Table 4.3

Table 4.3: Enacting safety practices

Item	Positive score n (%)	Neutral score n (%)	Negative score n (%)	Mean score	Standard Deviation
Teamwork across units	142 (67.7)	38 (18.1)	30 (14.2)	14.98	2.91
Teamwork within units	174 (82.9)	22 (10.6)	14 (6.6)	16.62	2.46
Handover and transition of patient care	147 (69.8)	26 (12.4)	37 (17.8)	15.03	3.24

Source: Field data, 2020

4.3 Patient Safety Outcomes

In this study, patient safety outcomes are the frequency and number of adverse events reporting variables measured on a 5-point Likert scale (frequency of adverse events reported) and categorical (number of adverse events reported).

The results indicated that although 78 (37.3%) of nurses had ever reported adverse events, including near misses, a higher percentage of nurses (n=132, 62.7%) had either not reported adverse events or were neutral in reporting adverse events. Table 4.4 presents frequency at which adverse events were reported.

Table 4.4: Frequency of adverse events reporting

Item	Positive score n(%)	Neutral score n(%)	Negative score n(%)	Mean score	Standard Deviation
Frequency of adverse events reported	78 (37.3)	72 (34.1)	60 (28.6)	9.41	2.78

Source: field data, 2020

Regarding the number of adverse events reported, out of 210 (100%) nurses sampled, 58 (27.6%) had reported 1 to 2 event reports. Again, whereas 17 (8.1%) nurses reported 3 to 5 adverse events, 5 (2.4%) reported 6 or more adverse events. Nevertheless, a greater proportion of nurses (n=130, 61.9%) did not report any adverse events within the past 12 months. The results are presented in Table 4.5

Table 4.5: Number of Adverse Events Reported

Number of Adverse Events Reported	Frequency	Valid Percent
No event reports	130	61.9
1 to 2 event reports	58	27.6
3 to 5 event reports	17	8.1
6 to 10 event reports	3	1.4
11 to 20 event reports	1	.5
21 event reports or more	1	.5
Total	210	100.0

Source: field data, 2020

4.4 Hypotheses Testing

Prior to testing the hypotheses, test of association was conducted to ascertain the relationships between demographic characteristics and patient safety outcomes. This approach was appropriate because only demographic characteristics with statistically significant correlations with patient safety outcome variables were considered and subsequently controlled in the regression analysis.

4.4.1 Relationships between Demographic Characteristics and Adverse Events Reporting

4.4.1.1 Demographic Characteristics and Frequency of Adverse Events Reporting

A Chi-square test (χ^2) was used to examine the relationship between demographic characteristics of nurses and the frequency of adverse events reported. The findings indicate that there was a significant relationship between gender and frequency of adverse events reported [$\chi^2_{(1)} = 4.14, p = 0.04$]. Female nurses (n=42, 53.8%) were more likely to frequently report adverse events than their male counterparts (n=36, 46.2%). Also, work area had a significant relationship with frequency of adverse events reported [$\chi^2_{(3)} = 31.20, p < 0.001$]. Findings showed that 30 (38.5%) of Midwives and General Nurses, who worked in the Obstetrics and Gynaecology units were more likely to report adverse events. Years of work experience in the hospital had a significant relationship with the frequency of adverse events reported [$\chi^2_{(2)} = 12.72, p < 0.01$]. The analysis revealed that nurses who have had work experience of 6 years or more (n=37, 47.4%) were more likely to report adverse events. Details of the results are summarised in Table 4.6

Table 4.6: Demographic characteristics and frequency of adverse events reporting

Variable	Category	Frequency of adverse events reported				χ^2	Sig value
		Errors not frequently reported		Errors frequently reported			
		<i>n</i>	%	<i>n</i>	%		
Age	24-29 years.	54	40.9	26	33.3	1.29	0.53
	30-34 years.	53	40.2	34	43.6		
	35years and above	25	18.8	18	23.1		
	Total	132	100.0	78	100.0		
Gender	Male	80	60.6	36	46.2	4.14	0.04
	Female	52	39.4	42	53.8		
	Total	132	100.0	78	100.0		
Qualification	Degree	23	17.4	11	14.1	1.29	0.52
	Diploma	41	31.1	30	38.5		
	Certificate	68	51.5	37	47.4		
	Total	132	100.0	78	100.0		
Work area	Medical wards	83	62.9	36	46.2	31.20	<.01
	Obstetric. & Gynaecology	10	7.6	30	38.5		
	Emergency ward	30	22.7	10	12.8		
	Others	9	6.8	2	2.6		
	Total	132	100.0	78	100.0		
Years of work experience in the hospital	< 1 year	31	23.5	21	26.9	12.72	<.01
	1-5 years	65	49.2	20	25.6		
	6 years and above	36	27.3	37	47.4		
	Total	132	100.0	78	100.0		
Years of work experience in the unit	< 1 years	60	45.5	33	42.3	0.82	0.32
	1-5 years	67	50.7	40	51.3		
	6 years and above	5	3.8	5	6.4		
	Total	132	100.0	78	100.0		
Hours of work per week	< 40 hours	51	38.6	26	38.3	1.37	0.51
	40-59 hours per week	70	53.0	42	53.8		
	60 hours and above	11	8.4	10	12.5		
	Total	132	100	78	100		

*** $p < 0.05$**

4.4.1.2 Demographic Characteristics and Number of Adverse Events Reported.

A Chi-square test (χ^2) was used to examine the relationship between demographic characteristics of nurses and the number of adverse events forms filled and submitted. The results indicate that there was a significant relationship between age and the number of adverse events reported [$\chi^2_{(2)} = 6.86, p = 0.03$]. Additionally, nurses who were aged between 30 and 34 years were more likely to fill and submit adverse events reports (n=41, 51.2%) as compared to those between 24-29 years (n=24, 27.5%) and 35 years and above (n=17, 21.2%) respectively. Also, there was a significant relationship between the qualification of a nurse and the number of adverse events reported [$\chi^2_{(2)} = 7.94, p = 0.02$]. Nurses in the certificate category who constituted the majority (n=45, 56.2%) were more likely to report adverse events than their counterparts in the diploma category (n=18, 22.5%) and the degree (n=17, 21.2%). Similarly, years of work experience in the hospital had a significant relationship with the number of adverse events reported [$\chi^2_{(2)} = 8.49, p = 0.01$]. Furthermore, majority of nurses, 38 (47.5%) who had work experience of 1-5 years were more likely to fill and submit adverse events reports. However, the rest of the demographic characteristics of nurses had no statistically significant relationships with the number of adverse events reported. Table 4.7 shows details of the Chi-square test results.

Table 4.7: Demographic characteristics and number of adverse events reported

Variable	Category	Number of adverse events reported				χ^2	Sig value
		No. adverse reported		Adverse events reported			
		<i>n</i>	%	<i>n</i>	%		
Age	24-29 years.	58	44.6	22	27.5	6.86	0.03
	30-34 years.	46	35.4	41	51.2		
	35 years and above	26	20.0	17	21.2		
	Total	130	100	80	100		
Gender	Male	72	55.4	44	55.2	0.003	0.54
	Female	58	44.6	36	44.8		
	Total	130	100	80	100		
Qualification	Degree	17	13.0	17	21.2	7.94	0.02
	Diploma	53	40.8	18	22.5		
	Certificate	60	46.2	45	56.2		
	Total	130	100	80	100		
Work area	Medical wards	68	52.3	51	63.8	3.23	0.36
	Obstetric. & Gynaecology	29	22.3	11	13.8		
	Emergency ward	26	20.0	14	17.5		
	Others	7	5.4	4	5.0		
	Total	130	100	80	100		
Years of work experience in the hospital	<1 year	41	31.5	11	13.8	8.49	0.01
	1-5 years	47	36.2	38	47.5		
	6 years and above	42	32.3	31	38.8		
	Total	130	100	80	100		
Years of work experience in the unit	<1 year	62	47.7	31	38.8	2.26	0.32
	1-5 years	61	46.9	46	57.5		
	6 years and above	7	5.4	3	3.8		
	Total	130	100	80	100		
Hours of work per week	< 40 hours per week	43	33.1	34	42.5	2.78	0.32
	40-59 hours per week	72	55.4	40	50.0		
	60 hours and above per week	15	11.5	6	7.5		
	Total	130	100	80	100		

* $p < 0.05$

4.4.2 Relationship between Patient Safety Practices and Adverse Events

Reporting

4.4.2.1 Patient Safety Practices and Frequency of Adverse Events Reporting.

Bivariate correlation analysis was conducted to examine the relationships among the studied variables. The correlation ranges from the lowest (-0.02) to the highest (0.46). The results found a significant positive correlation between management support and the frequency with which adverse events are reported ($r = .18, p < .001$) with a higher positive percentage response score for management support associated with an increase in the frequency of adverse events reported. Again, non-punitive response to errors showed a positive and significant association with the frequency of adverse events reported ($r = .21, p < .001$). This indicates that a higher positive response rate for a non-punitive response following reported adverse events is associated with an increased likelihood of nurses voluntarily reporting adverse events. Furthermore, open communication was significantly and positively correlated with the frequency of adverse event reporting ($r = .19, p < .001$). Additionally, feedback about errors had a moderate positive significant relationship with the frequency of adverse events reported ($r = .37, p < .001$). This means that actions by management, such as giving nursing staff feedback following reported adverse events will lead to an increase in the frequency of adverse events reporting.

Concerning enacting safety practices, the results indicate that there was a significant but weak positive relationship between teamwork across hospital units and the frequency of adverse events reporting ($r = .24, p < .01$). This signifies that

good cooperation and coordination of patient care across hospital units lead to an increase in the detection and reporting of adverse events. Similarly, handover and transition of patient care showed a weak but positive significant association with the frequency of adverse events reporting ($r = .19, p < .01$). This means that as the exchange of patients' information across hospital units improves, errors are likely to be picked up by nurses, thus increasing adverse events reporting.

However, safety practices such as managers' expectations, staffing levels and teamwork within units had no statistically significant relationship with frequency of adverse events reported ($p > .05$) as acknowledged by nurses. Thus, this hypothesis is partly accepted. Details of the bivariate correlation between patient safety practices and frequency of adverse events reporting are presented in Table 4.8

Table 4.8: Bivariate correlation between patient safety practices and frequency of adverse events reporting.

Variables	1	2	3	4	5	6	7	8	9	10
1. Frequency of adverse events reporting	1									
Enabling safety practices										
2. Management support	.18**	1								
3. Management expectation	-.02	.35**	1							
4. Non-punitive response to errors	.21**	.22**	.25**	1						
5. Staffing levels	-.02	.26**	.19**	.26**	1					
6. Open communication	.19**	.38**	.23**	.33**	.19**	1				
7. Feedback about errors	.37**	.29**	.24**	.04	-.02	.35**	1			
Enacting safety practices										
8. Teamwork within units	.06	.26**	.15*	-.02	.03	.19**	.12	1		
9. Teamwork across	.24**	.37**	.17*	.17*	.16*	.34**	.26**	.43**	1	
10. Handover and transition of patient	.19**	.32**	.18*	.18**	.18**	.15*	.22**	.10	.46**	1

* $p < .05$; ** $p < .01$

4.4.2.2 Patient Safety Practices and Number of Adverse Events Reported.

A Point-Biserial correlation analysis was run to determine the relationship between patient safety practices and the number of adverse events reported. This was considered necessary because the dependent variable was a categorical variable that sought to get the opinion of nurses on the number of adverse events reported within 12 months. As a result, the number of adverse events reported was dichotomized (see chapter 3 on data analysis, 3.11). The results indicate that there were negative correlations between management expectations, staffing levels, open communication, teamwork and handover of patient care and number of adverse events reported. On the other hand, management support, non-punitive response to errors and feedback about errors were positively correlated with number of adverse events reported. However, statistically, none of the patient safety practices had a significant relationship with the number of adverse events reported, although there were significant correlations among some patient safety variables. Hence, this hypothesis is rejected. Details of the results are presented in Table 4.9

Table 4.9: A Point-Biserial correlation between patient safety practices and number of adverse events reported

Variables	1	2	3	4	5	6	7	8	9	10
1. Number of adverse events reported	1									
Enabling safety practices										
2. Management support	.02	1								
3. Management expectation	-.10	.32**	1							
4. Non-punitive response to errors	.06	.22**	.25**	1						
5. Staffing Levels	-.10	.26**	.19**	.26**	1					
6. Open communication	-.06	.38**	.23**	.33**	.19**	1				
7. Feedback about errors	.05	.29**	.24**	0.04	-.00	.35**	1			
Enacting safety practices										
8. Teamwork within units	-.03	.26**	.15*	-0.00	0.03	.19**	0.12	1		
9. Teamwork across units	-.06	.37**	.17*	.17*	.16*	.34**	.26**	.43**	1	
10. Handover and transition of care	-.04	.32**	.18*	.18**	.18**	.15*	.22**	0.10	.46**	1

*** $p < .05$; ** $p < .01$**

4.5 Predictors of Patient Safety Outcomes

Regression analyses were used to determine whether patient safety practices would predict patient safety outcomes among nurses in the three selected hospitals. In this section, only patient safety practices that had statistically significant relationships with safety outcomes (Table 4.8) were considered for the regression analysis. In the first instance, binary logistic regression was conducted to examine the predictive effect of demographic characteristics of nurses on the number of adverse events reported since none of the patient safety practices had statistically significant relationship with number of adverse events reported. Secondly, hierarchical multiple regression analysis was run to ascertain whether demographic characteristics of nurses and patient safety practices would significantly predict patient safety outcomes.

4.5.1 Influence of Demographic Characteristics on Number of Adverse Events Reported

Binary logistic regression analysis was used to determine if demographic characteristics of nurses would have a significant influence on the actual number of adverse events reported within the past 12 months. The results showed that demographic characteristics (age, qualification, and years of experience at work) together accounted for 11% of the variance in the number of adverse events reported [$R^2 = 0.11$, $\chi^2_{(5)} = 17.2$, $p < .01$].

When the predictors were assessed individually for their model contribution, qualification was a significant predictor in the model ($p < .01$). Furthermore, nurses with first-degree qualification were two times more likely to report adverse events as compared to those with diploma and certificate

qualification (AOR=2.39, (95% CI=1.20-4.79), $p = .01$). This indicates that as nurses acquired additional academic qualifications, they are likely to appreciate the need to report adverse events and the associated changes that come along with reporting adverse events. Nonetheless, age and years of work experience in the hospital did not make any significant contribution to the model. The details of the results are presented in Table 4.10

Table 4.10: Influence of demographic characteristics on the number of adverse events reported

		B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for EXP(B)	
								Lower	Upper
Model	Age	.05	.04	2.10	1	.15	1.06	.98	1.14
	Years of work experience					.09			
	< 1 year	Ref							
	1-5 years	-.53	.49	1.16	1	.28	.59	.23	1.54
	>5 years	.37	.36	1.07	1	.30	1.45	.72	2.90
	Qualification					.04			
	Certificate	Ref							
	Diploma	.78	.47	2.80	1	.09	2.19	.88	5.46
	Degree	.87	.35	6.07	1	.01	2.39	1.20	4.79
	Constant	-2.81	1.35	4.34	1	.04	.06		

Dependent variable: Number of adverse events reported

*** $p < .05$**

4.5.2 Influence of Patient Safety Practices on Frequency of Adverse Events Reporting.

A hierarchical multiple regression analysis was performed to determine whether patient safety practices (enabling and enacting) and demographic characteristics of nurses would be able to predict a significant amount of variance in frequency of adverse events reporting. This was done in three different models.

In model 1, only demographic characteristics of nurses that had statistically significant relationships (Table 4.6) were added to the model. The results indicate that demographic characteristics of nurses (gender, work area, and years of work experience in the hospital) jointly explained 1.0% of the variance in the frequency of adverse events reporting [$R^2 = .01$, $F_{(3, 206)} = .94$, $p = .42$]

In model 2, the enabling safety practices were added to demographic characteristics to ascertain whether they predict the frequency of adverse events reporting. The results show that enabling safety practices and demographic characteristics of nurses together accounted for 20% of the variance in the frequency of adverse events reporting [$R^2 = .20$, $F_{(7, 202)} = 7.30$, $p < .001$]. After controlling for demographic characteristics, enabling safety practices explained an additional 19% of the variance in the frequency of adverse events reporting [R^2 change = .19, F change $_{(4, 202)} = 11.91$, $p < .001$]. Furthermore, when the predictors were assessed to verify their model contribution, non-punitive response to error ($\beta = .22$, $p < .01$) and feedback about the error ($\beta = .37$, $p < .001$) were significant predictors in the model.

In model 3, enacting safety practices (teamwork across units and handover and transition of care) were added to demographic characteristics and enabling safety practices to determine whether they predict the frequency of adverse events reporting. The results show that enacting safety practices, enabling safety practices, and demographic characteristics of nurses together accounted for 22% of the variance in the frequency of adverse events reporting [$R^2 = .22$, $F_{(9, 200)} = 6.13$, $p < .00$]. After controlling for demographic characteristics and enabling safety practices, enacting safety practices explained an additional 1.0% of the variance in the frequency of adverse events reporting. This indicates that the data support the hypothesis since all the variables together were statistically significant ($p = < .001$). Upon further analysis of the individual variable contribution to the model (Model 3), the significant predictors were non-punitive response to errors ($\beta = .21$, $p < .01$) and feedback about errors ($\beta = .36$, $p < .001$).

This indicates that non-punitive response to errors and feedback about errors are managerial practices that greatly influence the reporting of adverse events. However, the rest of the patient safety practices did not contribute significantly to the model. Details are summarised in Table 4.11

Table 4.11: Influence of patient safety practices on frequency of adverse events reported

		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Predictors		B	Std. Error	Beta		
Model 1	(Constant)	8.71	.49		17.63	.000
	Gender	.46	.39	.08	1.20	.23
	Work area	.13	.12	.07	1.07	.29
	Year of work experience	.15	.25	.04	.59	.56
Model summary: $R^2 = .01$, $F_{(3, 206)} = .94$, $p = .42$						
Model 2	(Constant)	2.20	1.16		1.90	.06
	Gender	.59	.35	.11	1.67	.09
	Work area	.09	.11	.05	.84	.40
	Year of work experience	.39	.23	.11	1.69	.09
	Management support	.05	.08	.04	.54	.59
	Non-punitive response to errors	.20	.06	.22	3.18	.002
	Open Communication	-.04	.09	-.03	-.42	.68
	Feedback about errors	.41	.08	.37	5.40	.000
Model summary: $R^2 = 0.20$, $F_{(7, 202)} = 7.30$, $p < .001$						
R^2 change = .19, F change $_{(4, 202)} = 11.91$, $p < .001$						
Model 3	(Constant)	1.19	1.29		.93	.36
	Gender	.62	.36	.11	1.75	.08
	Work area	.09	.11	.06	.86	.39
	Year of work experience	.39	.23	.11	1.67	.09
	Management support	.003	.09	.002	.03	.97
	Non-punitive response to errors	.19	.06	.21	3.08	.002
	Open Communication	-.07	.09	-.06	-.75	.46
	Feedback about errors	.39	.08	.36	5.13	.000
	Teamwork across units	.13	.07	.13	1.74	.08
	Handover and transition of care	.002	.06	.003	.04	.97
Model summary: $R^2 = .22$, $F_{(9, 200)} = 6.13$, $p < .001$						
R^2 change = .01, F change $_{(2, 200)} = 1.84$, $p = .16$						
Dependent variable: Frequency of adverse events reporting				Criterion level: .05		

4.6 Summary of Findings

In all, 210 respondents participated in the study, which assessed patient safety culture or practices among nurses in the Savannah Region. Key findings of this study revealed that:

- i. The mean age of the nurses sampled was approximately 31 years. Males constituted the majority. About half of the nurses were Health Assistant Certificate holders. Majority of them had worked between 1 to 5 years, with most of the nurses having an average weekly workload of between 40 to 59 hours per week.
- ii. Enabling safety practices with good positive rating scores were management support for patient safety, managers' expectations and feedback about errors. However, staffing levels, open communication, and non-punitive response to errors were the lowest-rated positive response scores.
- iii. All the enacting safety practices had good rating scores. Nevertheless, teamwork within units emerged as the highest with a positive response score of 82.9%.
- iv. Nurses' attitude towards adverse events reporting in the selected hospitals was generally low (37.3%). This finding reaffirmed a percentage score of 38.1% of the actual number of adverse events forms filled and submitted within the past 12 months.

- v. The findings of this study indicated that demographic characteristics of nurses such as age, gender, qualification, work area and work experience in the hospital had significant relationships with adverse events reporting.
- vi. Again, patient safety practices that had significant associations with frequency of adverse events reporting were management support, open communication, non-punitive to errors, feedback about errors, teamwork across units and hand over and transition of patient care.
- vii. Qualification significantly predicted adverse events reporting with first degree nurses making a significant effect on adverse events reporting.
- viii. Although enabling and enacting safety practices played significant roles in predicting adverse events reporting, feedback about errors and non-punitive response to errors largely had more significant effects on adverse events reporting.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.0 Introduction

This chapter presents a discussion of the findings of the study, as presented in chapter four. The discussion is done according to the objectives and study hypotheses and in relation with the literature review. The first discussion is on the demographic characteristics of the nurses who participated in the study. This is followed by a discussion on the enabling safety practices, enacting safety practices, patient safety outcomes, and finally, on the research hypotheses.

5.1 Demographic Characteristics of Nurses

This study aimed at assessing patient safety culture among nurses of selected hospitals in the Savanna Region. The nurses' ages ranged from 24-59 years, with a mean age of 31.4 years, implying that majority of the nurses who participated in the study were in their thirties. This finding agrees with the annual report of Ghana Health Service (2017), where 25 to 40 years is reported to be the average age of nurses in Ghana. The possible reason for the large cohort of the young nursing workforce in Ghana may be attributed to the extensive establishment of nursing training colleges that emerged in the late 90s and early 2000s (Dovlo, 2005). Again, the policy direction by Ministry of Health in 2007 to increase the number of healthcare professionals, including nurses at all levels in the country, may explain this outcome (Bell, Rominski, Bam, Donkor, & Lori, 2013). This

injects energy into the nursing profession, thus a positive milestone for any professional development.

This study also revealed that majority of the nurses (55.2%) were males while their female counterparts constituted 44.8%. Although nursing is often dominated by females, findings of other studies have shown an increase in the number of male nurses in nursing (Lievens et al., 2011; Popper-Giveon, Keshet, & Liberman, 2015). Perhaps, the relatively high number of male nurses in this study may be attributed to the study setting, where male nurses are dominant.

Furthermore, the study revealed that nurses whose highest level of qualification was a Health Assistant Certificate constituted the majority (50.0%). The finding is inconsistent with the national needs of 60% professional nurse to 40% non-professional nurse ratio (World Health Organization, 2015). This finding shows that the current nursing staff distribution in the Savannah Region does not meet the WHO recommended guidelines and therefore, has implications for patients' safety; hence, this should be addressed.

Quality and experience are central to the provision of healthcare. In this study, more than half of the nurses (65.3%) have had less than five years of work experience in the selected hospitals. Moreover, 95.3% of the nurses have equally worked in their current units for less than five years. Thus, majority of the nursing workforce in the region have limited years of work experience. Since quality of healthcare delivery and prolonged years of work experience are sometimes intertwined, care must be taken so that it does not compromise patient safety.

Additionally, 53.3% of the nurses indicated that they worked between 40 and 59 hours per week. This finding is consistent with Act 651 of Ghana's Labour Law, which prescribes 40 working hours per week for workers in the public sector (Act, 2003). Perhaps, working according to prescribed working hours is a good indicator for positive patient safety since nurses would work under less stressful conditions. It is thus unlikely that the nurses would make mistakes that could harm or have the potential to harm patients.

5.2 Enabling Safety Practices

Enabling safety practices are actions at the managerial level that direct the attention of patient safety and make it safe for people to speak up and act. Some safety scholars have indicated that when enabling safety practices are in place; it affects the operational level activities. As a result, frontline staff can exhibit certain behaviours that can influence safety outcomes (Vogus et al., 2010). Enabling safety practices include manager's support, managers' expectations, open communication, non-punitive response to errors, staffing levels and feedback about errors.

One major significant safety practice that may impact positively on the safety of the patient in healthcare institutions was the support of management for patient safety. The study findings revealed that about 56.6% of nurses surveyed agreed that management commitment to patient safety was a top priority area and that healthcare managers have always shown interest in all matters related to patient safety. This finding means that when patient safety is regarded as a high priority in hospitals, fewer adverse events are likely to be experienced. Even in the unlikely

event that these adverse events occur, the commitment demonstrated by managers relative to safety-related issues would influence them to report without any hesitation. A recent study by Abuosi et al. (2020) corroborating the work of Khoshakhlagh et al. (2019) reported a relatively higher positive rating score for management support for patient safety. Findings of studies elsewhere have shown that when hospital management supports safety-related issues, the overriding effect of such efforts leads to increase in adverse events reporting (Brown, 2015; Richter et al., 2016). Indeed, other studies have reported that when management placed emphasis on patient safety and safety-related issues, it led to better safety outcomes (Ammouri et al., 2015). The support, as reported by all these studies by healthcare management, is about creating an environment that is blame-free on matters relating to patient safety, prioritising patient safety and showing interest when adverse events are reported. Such support would encourage healthcare providers to report adverse events. Although the scores recorded in these studies, including the present study fell short of benchmark criteria for AHRQ, the appreciable scores are strengths for patient safety. Therefore, there is the need for healthcare managers to prioritise safety and invest the needed resources in building the capacity of staff on patient safety. Nevertheless, manager's support for safety has been reported by Ammouri et al. (2015) as the least developed enabling safety practice. This means that safety is subordinated to other priority areas in the hospitals, and management seems not to be interested in safety after an event has been reported. Findings of this nature could result in lack of objectivity by managers in evaluating adverse events, which might account for poor patient safety outcomes. Ederer et al. (2019)

reported that when managers overlooked errors caused by individuals in their “good books” and tend to punish others irrespective of the gravity of mistakes committed, it is a clear demonstration of poor managerial support for patient safety; thus, this must not be entertained in the clinical practice environment.

Another enabling safety practice that can be used by healthcare managers to improve patient safety is managers’ expectations and actions. These expectations and actions are achieved through staff suggestions, reward packages for safety adherence and paying attention to safety-related issues. In all these, the interest and safety of the patient are paramount. The study revealed that approximately 62.8% of nursing staff gave a positive response rate for managers’ expectations and actions in promoting patient safety. This score was the highest of all the enabling safety practices showing that healthcare managers of the selected hospitals consider safety problems and staff suggestions seriously. This points to the fact that healthcare managers’ actions are critical enabling safety practices which, when carefully instituted in hospitals, can positively influence patient safety outcomes. The study finding supports the work of Rajalatchumi et al. (2018), which reported healthcare managers of demonstrating high subscriptions for patient safety and would not under any circumstances required staff to disregard safety problems in the discharge of their duties. Unlike this finding, Khoshakhlagh et al. (2019) reported a low positive response rate of managers’ actions in promoting patient safety. This is because managers directed staff to ignore safety problems so as to speed up work. Such directives could lead to unintended occurrence of adverse events that could have implications for patient safety.

Non-punitive response to errors is an important determinant of patient safety culture in every healthcare delivery institution. When the work environment is blame-free and non-punitive, it increases nurses' confidence in reporting adverse events. Findings of several studies have found non-punitive response to errors recording higher positive response score. For instance, in Norway and Iran, non-punitive response to errors recorded the highest positive response score (Ballangrud et al., 2012; Khoshakhlagh et al., 2019). This indicates that adverse events reporting is devoid of fear and intimidation among healthcare workers since errors or mistakes are not held against them or recorded in their files. However, the prevalence of punitive response to errors, as reported by nurses, was one key finding of this study.

The result revealed that approximately 63.4% of nurses were of the view that there were punitive measures in the work environment of the selected hospitals. Nurses further indicated that, when adverse events were reported, they were either held accountable or records of their errors were saved in their files. The prevailing punitive practice approach adopted by the selected hospitals following reports of adverse events is not the best practice in addressing patient safety-related issues. Therefore, this practice should carefully be considered as a critical determinant of patient safety; thus, efforts must be made to ensure that the practice environment is blame-free and non-punitive. It appears non-punitive response to error reporting is generally a challenge among healthcare professionals across several studies. Findings of other scholarly works reported non-punitive response to errors as the least developed managerial practice among healthcare workers (Arrieta, Suárez, &

Hakim, 2017; Behzadifar et al., 2019; Okuyama et al., 2018). Some patient researchers have attributed the low score on non-punitive response to fear and intimidation among healthcare workers. For example, in Saudi Arabia, healthcare workers were afraid of reporting adverse events to superiors because they risked losing their jobs or being subjected to disciplinary actions (Alahmadi, 2010). Again, in Libya, healthcare workers were much more concerned about losing their reputation with clients and families (Rages, 2014). In all of these, a culture of silence in the work environment is created, which could have negative implications for patient safety; hence, the need to address this culture of silence in the work environment.

Another important enabling safety practice of hospital management leading to patient safety in this study was feedback about errors. The finding indicated that 56.2% of the nurses' believed that they had been provided with feedback when errors are reported. This shows that majority of the nurses were informed about errors that happened in their units and the necessary changes put in place based on events reported. This finding supports the findings of other researchers, which reported a higher rating of positive response scores for feedback about errors (Abuosi et al., 2020; Ammouri et al., 2015). From these findings, it is apparent that when healthcare workers, including nurses, are given feedback following reported errors, they would be motivated to report more of such incidences when encountered. Such motivation would also encourage them to inform others that are connected to the errors. This is a positive patient safety practice which healthcare managers must take note of. However, the finding of the present study is

inconsistent with the results of other studies where feedback was a weak enabling safety practice (Falco, 2013; Khoshakhlagh et al., 2019). Furthermore, healthcare professionals reported that they were neither informed about errors that occurred in their units nor changes put in place to prevent future recurrence (Khoshakhlagh et al., 2019). As a consequence, nurses could be frustrated due to delays in providing timely feedback; thus, making them unwilling to subsequently report safety events. Such managerial decisions could jeopardise patient safety; hence, it must be addressed. Therefore, it is imperative that feedback is provided to incidences reported since doing this would encourage nurses to report adverse events.

Staffing level is an important enabling safety practice in determining the patient safety and quality of care in hospitals. Finding from this study indicated that majority (58.1%) of nurses reported that hospital units had inadequate nursing staff to manage patient safety-related workload. Nurses also indicated that sometimes they had to work for long hours and do too much within a short period to get work done. As a result, hospitals with inadequate number of employees like nurses face several challenges such as depression, anxiety, stress and increased workload (Hamaideh, 2011) which can affect the safety of patients in hospitals. The present study finding supports previous empirical studies which have reported on the problems of inadequate staffing in hospitals (Fujita et al., 2013; Güneş et al., 2016; Okuyama et al., 2018; Saleh et al., 2015).

In Ghana, Abuosi et al. (2020) in a quantitative study among healthcare workers, found staffing as a safety practice with a higher negative response score (65.5%). Generally, it appears that there is inadequate healthcare professionals,

including nurses, to handle patient safety-related workload as reported by several studies. For instance, there is shortage of nursing staff in most hospitals and clinics in Ghana. Even though Ghana is reported to have produced more than its national demands (nurse to population ratio of 1:839) that is better than the World Health Organization (2016) recommendation (nurse to population ratio of 1:1000), majority of these nurses are awaiting for recruitment into healthcare service. The major contributory factor to this shortage is about policy restriction on recruitment of nurses.

Again, the shortfall of nursing staff may also be attributed to the fact that Savannah Region is one of the newly created regions with unsatisfactory healthcare conditions of service thus making nurses unwilling to accept posting to this part of the country. More importantly, interference by key stakeholders such as political leaders, traditional leaders and persons in decision making among others may also explain this inadequate nursing staff in the region. All of these challenges lead to staffing deficits which have implications for patient safety. This staffing deficit means that nurses are numerically inadequate to discharge efficient and safe care to patients. Hence, the need for healthcare managers to consider staffing as a critical enabling safety practice and seriously lobby with the relevant authorities for nurses to be employed.

Although adequate staffing is suggested to improve patient safety outcomes, the work of Rages (2014) found otherwise. Rages' study argued that adequate staffing creates confusion for staff since everyone relies upon the other to get the work done. This would most times lead to missing treatment which is a threat to

patient safety. However, adequate staffing alone cannot eliminate patient safety-related issues; it requires in addition to the numbers, constant supervision and monitoring by managers to maintain patient safety.

Finally, open communication is one of the enabling patient practices that can be used to influence patient safety. Open communication is not only essential to healthcare managers but also the frontline staff. In an open environment, staff are free to openly and honestly discuss patient safety-related issues with superior devoid of fears and intimidation. In this study, open communication across the three selected hospitals was poor. Majority (59.8%) of the nurses in the selected hospitals indicated that they did not feel free to openly discuss safety-related problems. This suggests that there is a weak relationship between nurses and their superiors and among themselves. Amidst weak communication system, sharing of patient information is likely to be a challenge; thus, if left unchecked, it could impact negatively on patient safety. This finding conforms with other empirical studies (Rajalatchumi et al., 2018; Yilmaz & Goris, 2015) that reported a challenge among healthcare workers in discussing patient safety-related problems with their managers.

Other studies have also attributed weak open communication to poor relationships between healthcare managers and frontline staff and disputes among staff (Braaf et al., 2013; Rages, 2014). The consequence of this weak relationship is a communication gap in the work environment relative to patient safety. Thus, organizing regular meetings can help address this communication gap. This

platform would offer nurses the opportunity to discuss safety-related issues devoid of fear and intimidation.

5.3 Enacting Patient Safety Practices

Enacting practices are actions of nurses in highlighting threats to safety and mobilising resources to reduce those threats. These actions include strategies such as teamwork and handover and transition of patient care. Patient safety research has indicated that adopting teamwork approach in hospitals has so many potential benefits: better communication, better coordination of patient care, and prevention of adverse events (Manser, 2009).

The present study revealed that teamwork within units had the highest average percentage positive response score of patient safety culture with 82.9%. The highest score means that there is a positive attitude of teamwork among nurses in the selected hospitals. The score is higher than the average positive response rate of AHRQ (75%) (Sorra & Nieva, 2004). This is an indication that nurses in the Savannah Region of Ghana work as teams, show respect and provide the needed support for each other at workplace. Perhaps, the highest positive percentage score achieved by nurses may be attributed to inadequate nursing staff reported in this study. This probably compelled them to work better in teams to provide safe care to patients. Studies corroborate the finding of this study where teamwork within hospital units recorded the highest positive response score (Abu-Hamad et al., 2016; Abuosi et al., 2020; Ramos & Calidgid, 2018).

Relative to teamwork across units, this study found that majority (67.7%) of the nurses believed that there was good coordination and cooperation among

hospital units. This makes it possible for nurses in their units to work with other hospital units for better coordination of care since patients are transferred from either one care provider or unit to another within and at different settings. This present finding is at variance with the findings of Khater et al. (2015) where nurses reported having difficulty working with other units, showing that there was no coordination between the units. Other studies have also reported teamwork across hospital units of recording one of the least positive response scores (Cheikh et al., 2016; Rages, 2014) which means that majority of these healthcare professionals were unsatisfied with how the hospital units coordinate patient care.

It is important to juxtapose nurses' score on teamwork within units against teamwork across units. In this study, teamwork within units had a higher rating score than teamwork across units. This indicates that teamwork within units is likely to obtain better patient safety outcomes than teamwork across units in hospitals. This finding conforms with the finding of Elmontsri et al. (2017), which reported a better score on teamwork within units over teamwork across hospital units. Given this finding, it is important to give priority attention to teamwork within units since it has the potential to influence other patient safety practices.

Handover and transition of patient care information from one hospital's unit to another is a very critical area that can affect the health outcome of the patient negatively if not adequately handled. Missing patient information may delay or alter the whole line of patient management, which can affect both patient's health status and consequently, the reputation of the hospital. The finding of this study indicated that a higher percentage of nurses (69.8%) were satisfied with handover

practices across the hospital units. The higher positive response score for handover is an indication of a strong enacting safety practice among nurses in the study. This means that when patients move from one nurse to another or from one hospital unit to another, and handover is appropriately done, critical patient information regarding the care is fully communicated. Under these circumstances, the occurrence of patient safety problems in hospitals is unlikely. This finding supports the works of Yu et al. (2018) and Richter et al. (2016) in which higher score on handover reflects a more robust patient safety culture in Korean and United States hospitals respectively.

The high rating score of handover of patient care presents the crucial role it plays in creating patient safety culture among nurses in hospitals. However, the present study is at variance with findings by other researchers which showed that hand over and transition of patient care was the least developed enacting safety practice (Alshammari et al., 2019; Giai et al., 2017; Rajalatchumi et al., 2018). Unlike previous studies that reported handover as challenging, the present study found nurses attitude towards handover of patient care to be commendable. This points to the fact that there is a positive patient safety culture relative to handover and transition of patient care across units in the region, which must be emphasized. To further strengthen the practice of handover in the region, strategies such as protocols and guidelines in the form of templates can be adopted to enhance reliable transfer of patient information within and across hospital units.

5.4 Patient Safety Outcomes

This study measured patient safety outcomes in the context of adverse events reporting. The study evaluated adverse events reporting in terms of frequency, and the actual number of adverse events reports forms filled and submitted within a year. Adverse events' reporting is critical in improving patient safety in hospitals. Finding from this study, revealed that the frequency with which adverse events were reported among nurses across the selected hospitals was weak (37.3%). In effect, about 62.7% of nurses had either not reported any event or uncertain about what to report. This signifies that mistakes were less frequently reported. This finding may be attributed to perceived negative managerial practices put in place by healthcare managers of the selected hospitals to sound a caution that although committing and subsequently reporting an error is important, it is however punishable. Such punishment may take the form of dismissal (Kousgaard et al., 2012) or shaming the individual staff (Brown, 2015). As a result, many healthcare workers may be apprehensive about the outcomes of reporting adverse events hence a threat to patient safety. The finding of this study supports the findings of other studies that reported adverse events reporting as recording a lower positive response score among healthcare workers (Al-Mandhari et al., 2014; Mallouli et al., 2017). Perhaps, such lower scores may need further research to explore in-depth the reasons. Thus, a qualitative approach may help us in unravelling the misery. However, findings of other studies reported higher positive response scores of adverse events reporting among healthcare professionals (Alonazi et al., 2016; Ribeliene et al., 2019). This suggests that healthcare professionals have a positive

attitude towards adverse events reporting which perhaps may be attributed to the creation of a non-punitive and blame-free environment that makes them comfortable to report and discuss adverse events with superiors. Hence, a blame-free and non-punitive work environment are essential in addressing under-reporting of adverse events in hospitals.

In respect of the number of adverse events reports forms filled and submitted within the past 12 months, a greater proportion of nurses (61.9%) who responded indicated that no adverse events had occurred in their hospitals. Furthermore, approximately 38.1% of the nurses had either reported one or more adverse event. The low reports of adverse events recorded in this study in one breath imply that patients are protected from adverse events: infections, errors, injuries, accidents among others and that hospitals are good at ensuring that patients are safe.

On the other hand, perhaps, the relatively low number of adverse events reported may be attributed to nurses being perceived as incompetent or careless when they report adverse events. Thus, to avoid being perceived this way, nurses fail to report adverse events. In some instances, unreported adverse events could be due to insufficient time. Meanwhile, amidst the complex nature of the health system in which nurses work in, it makes it difficult for them not to make mistakes or commit errors. Yet, reporting such errors becomes a challenge. Unlike in other jurisdiction where it appears reporting adverse events are rewarded, in Ghana, particularly in the Savannah Region, reporting of adverse events is punishable. This could further worsen adverse events reporting. This finding supports the findings of other studies where adverse events were not reported at all in the last 12 months

(Badr et al., 2017; Tevis et al., 2017). As a result, errors should be viewed as evidence of faulty systems; thus, efforts should be made to create an environment where nurses would feel comfortable about reporting and discussing them. This would cause a tremendous difference in how people think and feel about their work environment.

5.5 Predictors of Patient Safety Outcomes

5.5.1 Frequency of Adverse Events Reported

In testing the hypothesis, the researcher examined the association between demographic characteristics of nurses and adverse events reporting. The finding revealed that gender, work area, and years of work experience in the hospitals had a significant relationship with adverse events reported. In respect of gender, female nurses (53.8%) of the selected hospitals in the Savannah Region were more likely to report adverse events than their male counterparts (46.2%). Generally, there is a belief that female tend to multitask (Stoet, O'Connor, Conner, & Laws, 2013; Szameitat, Hamaida, Tulley, Saylik, & Otermans, 2015). According to Downey (2013), females indeed multitask in nursing and sometimes are referred to as the smartest. The tendency of female nurses to execute so many tasks at a time makes them more prone to committing errors. Perhaps, it is likely that errors committed by female nurses would be reported in order to reduce or avoid potential or actual harm that may cause patients.

Furthermore, midwives and general nurses (38.5%) who worked in the Obstetrics and Gynaecology units were more likely to report adverse events. This finding supports the work of Akbari et al. (2017) whose finding reported that

majority (76.6%) of midwives worked at Obstetrics and Gynaecology department and had demonstrated the likelihood of reporting errors. This could be attributed to work of midwives. Thus, the midwife's work is critical since two lives are involved; thus, any attempt by a midwife to shelve an error could threaten the safety of patients in their care.

Also, skilled and experienced nurses (47.4%) with six years or more of work experience were more likely to report adverse events. Being in the clinical settings for long, nurses see reporting as an opportunity for learning or perhaps, they are aware of the implications and positive changes reporting will bring along. Unlike this finding, Alshammari et al. (2019) reported no significant association between years of work experience and adverse event reporting.

It is important to determine whether enabling safety practices would have a significant influence on adverse events reporting. On manager's support and adverse events reporting, this study found a positive and moderate significant relationship between manager's support for patient safety and adverse events reporting ($p < .001$). This suggests that healthcare managers provide the needed work climate to promote patient safety. It also shows that patient safety is regarded as one of the top priorities in hospitals. Moreover, it demonstrates that managers are interested in patient safety related-issues that perhaps happen in hospitals. This finding is consistent with results of studies that reported a statistically significant correlation between managerial support for patient safety and patient safety outcomes (Al-Mandhari et al., 2014; Ammouri et al., 2015). This is, therefore, a

wake-up call for managers to consider patient safety as a top strategic priority in any healthcare setting.

In this study, open communication and adverse events reporting were significantly related. This indicates that as managers provide an opened and honest work environment, nurses would be motivated to speak up and question authority of safety-related issues without any act of fear or intimidation. Thus, any act of coercion in the work environment would have implications for patient safety. This finding supports the work of a recent study where open communication was reported to have a significant relationship with rates of adverse events (Han et al., 2020). Seeing open communication as a critical enabling safety practice, it is important to ensure that the work environment of nurses is opened and honest such that nurses would feel free to speak up and question actions of authority on matters related to safety. Thus, its absence could create an environment of silence which has implications on patient safety and consequently on patient safety outcomes.

Additionally, the study found a significant relationship between feedback about errors and adverse events reporting ($p < .001$). This finding shows that actions by healthcare managers, such as giving nursing staff feedback following reported adverse events will lead to an increase in adverse events reporting. These actions by healthcare managers create the impression among nurses that managers are interested in whatever is reported and would put in place measures to prevent similar adverse events from occurring. Findings from other researchers similarly reported that when healthcare managers provide timely and regular feedback following reported errors, it leads to increased rates of adverse events reporting

(Ammouri et al., 2015; El-Sherbiny et al., 2020; Farag et al., 2017). Considering the role feedback plays in bringing about changes based on events reports and providing a platform for discussing ways of preventing errors from happening, it is imperative to embrace this managerial practice because of its robust influence on patient safety outcomes. Thus, underestimating this role could prevent nurses from learning from their past errors in hospitals which is a threat to patient safety.

Also, a positive and significant association was found between non-punitive response to errors and frequency of adverse events reported ($p < .001$). This suggests that as healthcare organizations create an environment that is non-punitive and blame-free, nurses' attitude towards adverse events reporting will increase. This finding is similar to what has been reported in other studies (Akologo et al., 2019; El-Sherbiny et al., 2020) where non-punitive response to errors was found to have a significant relationship with adverse events reporting. This shows that if healthcare managers and by extension, hospitals create a non-punitive and blame-free environment, nurses would feel comfortable to report and discuss errors. That kind of environment is essential if hospitals want to get nurses to do something about preventing errors.

Regarding enacting safety practices, teamwork across units and hand over and transition of patient care were significantly related to adverse events reported. The study found that teamwork across units in hospitals had a statistically significant relationship with adverse events reporting ($p < .001$). This finding signifies that good cooperation and coordination of patient care across hospital units lead to an increase in the reporting of adverse events. The finding suggests that

nurses with positive attitude towards patient safety are likely to cooperate with colleagues, and this is best for patient care. This finding supports the work of Hwang and Ahn (2015) in Korea and El-Sherbiny et al. (2020) in Egypt, where teamwork had a significant association with adverse events reporting. This presents the critical role teamwork across units plays in promoting good corporation and coordination among units. Its absence could lead to poor communication among nurses at different hospital units which is a threat to patient safety.

Similarly, a positive and weak significant relationship between the practice of handing over and adverse events reporting ($p < .01$) was established. The finding indicates that as the exchange of patients' information across hospital units improves, errors are likely to be picked up by nurses which would then lead to an increase in adverse events reporting. This finding is in conformity with the work of Nagpal et al. (2010), where appropriate handover and transition of patient care by nurses was found to influence patient safety outcomes. Given this, handover is an important enacting safety practice; thus, if nurses undermine its relevance during patients' transfers or shift changes, it could lead to loss of vital patient information which could jeopardize patient safety.

In the hierarchical regression model, the study revealed that demographic characteristics of nurses, enabling safety practices, and enacting safety practices together accounted for 22% of the variance in the adverse events reporting. This finding confirmed the study hypothesis, which states that "Patient safety practices (enabling and enacting) would significantly predict patient safety outcomes (adverse events reporting)". Upon further evaluation of the model, the study

revealed that feedback about errors ($\beta = 0.36, p < .001$) and non-punitive response to errors ($\beta = 0.21, p < .01$) significantly contributed to the regression model. Thus, nurses' ability to exhibit a positive attitude towards adverse events reporting is influenced mainly by two managerial practices: feedback about errors and non-punitive response to errors. This finding agrees with findings of researchers that reported a significant predictive ability of feedback about errors on adverse events reporting among healthcare professionals (Richter et al., 2015; Wami et al., 2016). This means that feedback about errors is an important managerial practice that can promote confidence among nurses and encourage them to report acts of adverse events committed to their superior. This highlights the need for improved adverse events reporting among nurses in hospitals through proper channels of communication and provision of timely feedback. Again, acknowledging the efforts made by nurses for taking time out of their busy schedules to report adverse events should also be considered as a critical strategy for addressing adverse events reporting in hospitals.

Despite the low score for non-punitive response to errors (36.7%) as recorded in this study, predictively, it significantly contributed 21% of the total variance of adverse events reported (22%). The finding means that as management adopts a non-punitive approach to adverse events reported, nurses would not be hesitant to report adverse events. This goes to show that nurses tend to report when records of adverse events are not placed on staff files to be used against them in future. Where a non-punitive response is used in healthcare settings, patient safety is enhanced. In view of this, non-punitive response to errors is critical for improving

patient safety outcomes; thus, the work environment should be such that it is blame-free, shame-free and non-punitive. Perhaps, this approach should be used to promote adverse events reporting and consequently improves patient safety in hospitals.

5.5.2 Number of Adverse Events Reported

The finding from this study revealed that age, qualification, and years of work experience in the hospitals had significant relationships with number of adverse events reported. Even though nurses between the ages of 30 and 34 years were more likely to fill and submit adverse events reports (51.2%), statistically, age had no significant influence on the number of adverse events reporting. This suggests that in this study, nurses' age was irrelevant in adverse events reporting. Situating this within the Ghanaian context, it seems, generally, the Ghanaian attitude of reporting is poor (Sabblah et al., 2014), and this may reflect in the age not having a significant influence on adverse events reporting. This finding reaffirms the finding by Akologo et al. (2019) whose finding did not find a significant influence of age and patient safety outcomes, including adverse events reporting.

Relative to years of work experience, perhaps, it is expected that the longer you work, the more experienced you become and thus the likelihood of developing a positive attitude towards patient safety. This study revealed that years of work experience in the hospitals and number of adverse events reported were significantly related ($p = 0.001$). Further analysis indicated that nurses (47.5%) who have had work experience of between 1 to 5 years were more likely to fill and

submit adverse events reports. However, in the regression analysis, years of work experience had no predictive effect on number of adverse events reported ($p > 0.05$). This means that reporting adverse events must happen irrespective of the number of years one has worked as a nurse in a hospital. It is important that adverse events that occur be reported to prevent future adverse events. In contrast, Güneş et al. (2016) reported that years of work experience in the hospital had a significant influence on patient safety outcomes. The study further revealed that with more years of work experience, awareness regarding patient safety increases, and this might translate into an improvement in adverse events reporting (Güneş et al., 2016). Despite the differences in the findings, this study suggests that all nurses irrespective of years of work experience should see adverse events as critical and be encouraged to report them because doing so would provide grounds for learning.

There appears to be a notion that people with a higher level of education are knowledgeable and are less likely to make mistakes. Situating this within the context of the present study, one can argue that nurses with higher academic qualifications know better and are expected to adhere to patient safety protocols as well as opinions from superior and colleagues. This study revealed that nurses' qualifications had a significant relationship with number of adverse events reported ($p = 0.02$). More importantly, qualification significantly predicted the number of adverse events reported ($p = 0.04$) with first-degree nurses two times more likely to report adverse events as compared to those in the diploma and certificate category. This finding signifies that nurses with higher academic education probably know better, thus adherence to patient safety protocols in hospitals is an

absolute nurses' priority. It could also be that nurses with an additional academic qualification in this current study were forthright in answering the questionnaire having in mind the implications of patient safety and safety-related issues. This highlights the need for nurses to pursue higher nursing academic programs since such academic attainment could lead to improved patient safety which can potentially influence patient safety outcomes.

One significant area of consideration for this study was to examine the influence of patient safety practices (enabling and enacting) and actual adverse events reported within a year. In this study, no significant relationship was found between any of the patient safety practices and patient safety outcomes (number of adverse events reported). This finding is unexpected because findings from other studies reported a significant relationship between number of adverse events reported and some patient safety practices such as teamwork within units, handover, feedback about errors and non-punitive response to errors (El-Sherbiny et al., 2020; Saleh et al., 2015). Although, number of adverse events reported and patient safety practices were not statistically significantly related in this study, probably, nurses' qualification, reward packages for reporting adverse events among others may have a role to play in determining the number of adverse events reports.

5.6 Summary of Discussion

Patient safety outcomes (adverse events reporting) are influenced by enabling safety practices (manager's support, managers' expectations, non-punitive response to errors, open communication, staffing levels and feedback about errors),

and enacting safety practices (teamwork and hand over and transition of patient care).

This study found some enabling safety practices such as manager's support, managers' expectations and feedback about errors to have good positive rating scores. This means that management has considered patient safety as one of the priority areas, embraces staff suggestions for improving patient safety and provides regular and timely feedback to staff. Nonetheless, enabling safety practices with low positive response scores were open communication, staffing levels and non-punitive response to errors as the least developed safety practices. This indicates an ongoing shortage of nursing staff in the region. Also, it shows that the work environment is not opened and honest for discussing patient safety-related score. Again, it signifies an ongoing culture of blame and punishment.

Enacting safety practices of selected hospitals in the region were good with teamwork within units emerging as the highest, thus suggesting a high level of collaboration among nursing staff. Also, nurses' attitude towards adverse events reporting was generally low.

However, additional nursing academic qualification significantly predicted number of adverse events reported. Although enabling and enacting safety practices together played significant roles in predicting adverse events reporting, feedback about errors, and non-punitive responses to errors largely had more significant effects on adverse events reporting.

CHAPTER SIX

SUMMARY, IMPLICATIONS, LIMITATIONS, CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This section presents a summary of the study, insight gained, and contribution to knowledge. The implications of the research, limitations, conclusions and recommendations are also presented.

6.1 Summary of Study

Many people are harmed while receiving care in hospitals, thus making patient safety a global concern for both health professionals and the public. One way of ensuring a successful patient safety system is through patient safety culture. Patient safety scholars have argued that evaluating patient safety culture can help improve patient safety outcomes. Nursing care strategically places nurses at the centre of patient safety promotion and their proximity to patients makes them the drivers of patient safety.

This study assessed patient safety culture among nurses of selected hospitals in the Savannah Region of Ghana. The study examined patient safety practices and evaluated adverse events reporting as patient safety outcomes among nurses of the selected hospitals in the region. The Patient Safety Culture Model was used for this study. The model proposes that managerial actions (enabling safety practices) and frontline staff actions (enacting safety practices) are likely to influence patient safety outcomes and that safety outcomes can provide a platform for learning.

The study employed a quantitative cross-sectional design to test the hypotheses and to provide the grounds for describing patient safety practices. Data was collected from 210 nurses of 3 hospitals in the Savannah Region, Ghana. A standardised instrument was adapted and used for data collection. The modified questionnaire contained 36 items from the original 42 items. The study questionnaire was divided into four sections (A-D) covering demographic characteristics of nurses, enabling safety practices, enacting safety practices and patient safety outcomes.

This present study used SPSS version 20 for the data analysis. Descriptive and inferential statistics were employed in this study. Descriptive statistics were used to summarize the data in the form of frequencies, percentages, mean scores and standard deviations for patient safety practices and safety outcomes. Inferential statistics involving the use of Chi-square test, correlation and regression analysis were employed to explore relationships and predictors of patient safety outcomes. In all these analyses, a p-value of $<.05$ was considered statistically significant.

Findings of this study present varied positive response scores of enabling safety practices. Managers' actions in promoting safety had a good rating score (62.8%). This was followed by manager's support (56.6%), feedback about errors (56.2%), staffing levels (42.4%), open communication (40.2%) and then non-punitive response to errors was the least developed enabling safety practice (36.7%).

Relative to enacting safety practices, teamwork within units emerged as the highest with a positive percentage response score of 82.9% in this study. This was

followed by handover and transition of patient care (69.8%) and then teamwork across units (67.7%).

The attitude of nursing staff towards reporting of adverse events was generally low. This was evident as 62.7% of the nurses had either not reported adverse events or were unsure about what to report. As reaffirmation, a higher proportion of nurses (61.9%) had never filled and submitted adverse events form at all within the past 12 months.

This study hypothesised that patient safety practices (enabling and enacting) would have a significant influence on patient safety outcomes (adverse events reporting) of nursing staff. This was done after controlling for demographic characteristics of nurses. Test of association was conducted to determine which of the patient safety practices and that of demographic characteristics had statistically significant relationships with safety outcomes. Those with statistically significant correlations were used for regression analysis.

The results indicated that demographic characteristics of nurses such as age, gender, qualification, work area and work experience in the hospital had significant relationships with adverse events reporting. Again, patient safety practices that had significant associations with adverse events reporting were management support, open communication, non-punitive to errors, feedback about errors, teamwork across units and hand over and transition of patient care.

Demographic characteristics (years of work experience, qualification and age) together accounted for 11% of the variance in the number of adverse events reported. However, qualification of nurses was a significant predictor of number of

adverse events reported, with first-degree nurses two times more likely to report adverse events.

Also, demographic characteristics of nurses, enabling safety practices and enacting safety practices together explained 22.0% of the variance in the frequency of adverse events reporting. Nevertheless, after controlling for demographic characteristics and enabling safety practices, enacting safety practices explained an additional 1% of the variance in the frequency of adverse events reporting. In evaluating the individual variable contributions to the model, the significant predictors were non-punitive response to errors (21%) and feedback about errors (36%).

Even though patient safety practices (enabling and enacting) together played significant roles in predicting adverse events reporting, non-punitive response to errors and feedback about errors had the most significant influence. In effect, adverse events reporting does not only depend on non-punitive response and feedback about errors but also additional academic qualification of a nurse. These study findings are indeed congruent with the constructs of the conceptual framework that patient safety practices (enabling and enacting) together influence patient safety outcomes. From the findings of this study, patient safety culture model is applicable in influencing patient safety outcomes in the nursing context.

6.2 Insight Gained

The study has revealed that assessing patient safety culture is the first step in providing patient safety and improving patient safety outcomes. This study has also shown that patient safety culture model is a relevant concept in assessing

patient safety culture among nurses at the hospital level. The model provided essential patient safety practices upon which the researcher could generate the safety context of all the selected hospitals. More importantly, this study provided the researcher with the opportunity to understand how the model is applied for research. Using a quantitative approach in this study, the researcher assessed the views of nursing staff on patient safety practices (enabling and enacting). Thus, analyzing the data gathered from nurses allowed the researcher to have an accurate representation of the study variables.

The researcher also wanted to see whether demographic characteristics influences number of adverse events reported. Indeed, demographic characteristics, especially additional qualifications of the nurse, greatly influenced number of adverse events reported. Thus, going forward as healthcare managers, it is significant that nurses are granted study leave to pursue higher nursing education. Again, the study also found that non-punitive response to errors and feedback about errors are essential for adverse events reporting among nursing staff. The researcher, based on this study findings, learned that the work environment should be non-punitive and blame-free to encourage nurses to open up to either omissions or commissions and that feedback should be timely and regular. This would enhance confidence, competence and commitment among nurses, which promotes patient safety culture.

However, some few challenges were encountered during the data collection process, which can be considered as lessons learnt. For instance, there were times the researcher had to visit the hospital units several times to collect the

questionnaire only to be told that they had not finished answering the questions. This gave the researcher an experience that there is a need for tolerance and patience in pursuit of higher academic laurels.

6.3 Contributions to Nursing Knowledge

Assessing patient safety culture among nurses is the first of its kind in the region to the best of the researcher's knowledge. This study made it possible for the researcher to assess nurses' perception of patient safety practices and examined how these practices influence patient safety outcomes. This provided the grounds for the researcher to conclude that there are challenges with open communication, staffing levels, non-punitive response to errors and adverse events reporting among nursing staff in the selected hospitals. There was a significant finding that nurses were unable to honestly and openly discussed patient safety issues amidst fears and intimidations. Again, the outcome that additional qualification, non-punitive response to errors and feedback about errors influenced adverse events reporting is a significant contribution to the body of nursing knowledge.

6.4 Implications of the Study

This present study has implications for healthcare managers and nursing as a profession. These implications are categorised into; research, education, policy formulation and practice.

6.4.1 Nursing Research

This study being the first of its kind in the region has opened up opportunities for future research. Hence nurses and by extension, other healthcare professionals should take patient safety culture very seriously and engage in more

research to strengthen patient safety culture in the region. Qualitative studies are also to be considered to generate an in-depth view of the phenomenon (patient safety culture) of hospitals in the Savannah Region.

6.4.2 Nursing Education

The present study revealed that majority of nursing staff perceived patient safety culture as a novel area in clinical practice. The implication for nursing education is that nursing curricula do not address the concept of patient safety. Hence nursing education will benefit if a topic like patient safety is included in the nursing curriculum and to be taught at all levels of nursing education in Ghana. This would equip the knowledge base of nursing students about patient safety so as to prepare them to discharge safe nursing care to patients in clinical settings after training.

6.4.3 Policy Formulation

The current study found non-punitive response to errors and open communication as the lowest-rated safety practices. This implies that there is a culture of blame and punishment, following reports of adverse events. It could also imply that nurses are afraid to speak up about matters related to patient safety. This calls for a policy direction to compel healthcare institutions to provide a blame-free, shame-free and non-punitive work environment in order to promote innovation and creativity in the provision of safe nursing service.

Again, staffing level was one of the least reported safety practices by nurses in this study. This implies that there is inadequate number of nursing staff to handle safety-related issues in the region. Hence, nurses are likely to be overwhelmed with

workload, thus making them more prone to committing errors. This requires a policy by the Government of Ghana to ease restrictions on the recruitment of nursing staff by allocating adequate funds for the Ministry of Health (MoH) to support its budget for recruitment. More importantly, the study found nurses' academic qualification making a significant influence on adverse events reporting. This calls for more nurses to pursue higher level of nursing education in Ghana; thus, the quota system being implemented by the MoH and its agencies about additional qualification in nursing should be re-examined since additional qualification has patient safety implications.

6.4.4 Nursing Practice

The study revealed that majority of the patient safety practices (enabling and enacting) had good rating scores with the highest being teamwork within the units. These were considered as strengths for the selected hospitals, hence the need for these safety areas to be strengthened. The study also revealed that 62.7% of the nurses had neither reported adverse events nor were unsure about what to report. This was reaffirmed by 61.9% of nurses who had never filled and submitted adverse events form within the past 12 months. The implication, therefore, is that nurses' attitude towards adverse events reporting is generally low. It could also imply that patients are adequately protected from adverse events; hence these hospitals in the region should be credited for good patient safety practices. Even though reporting of adverse events is low, managers can help address this by rewarding or acknowledging nurses' efforts for reporting. This would encourage nurses to report adverse events.

More importantly, the study found two enabling safety practices: feedback about errors and non-punitive response to errors as reported by nurses to have great influence on adverse events reporting. The implication for practice is that failure of management to provide feedback and non-punitive work environment could result in under-reporting of adverse events. This can be a major threat to patient safety; hence clinical practice should be aware of this and put in strategies to appropriately address them. Apart from non-punitive response and feedback about errors, additional qualification also had a significant effect on adverse events reporting. This implies that nurses whose academic qualification is below first degree are likely to encounter more incidences of adverse events that perhaps may go unreported. Hence clinical practice can help address this by recruiting nursing staff into hospitals, taking into account nurses with additional qualification or higher qualification in nursing.

6.5 Study Limitations

The researcher acknowledges that patient safety outcome indicators such as medication errors, injection abscesses, falls from beds, wound infections, transfusion errors among others were not directly evaluated. Therefore, it was a challenge in establishing a direct relationship between patient safety practices and individual adverse events reported. Additionally, using a structured instrument to collect the data from nurses somehow restricted the nurses from freely expressing their views relative to patient safety. Thus, a qualitative inquiry would be necessary to get an in-depth view of patient safety in the region.

Notwithstanding the study limitations, the researcher adopted a study instrument that has been extensively used on patient safety culture studies with robust reliability. This was done to strengthen the outcome of the research. Even though this study was conducted in three selected hospitals, these hospitals indicate similar hospitals one can find in tertiary hospitals of any third world country. Besides, because the research is quantitative, the number of respondents involved was huge. Thus, the researcher can generalize the study findings to reflect the reality of patient safety of other healthcare delivery institutions in the country.

6.6 Conclusion

Patient safety scholars agree that assessing patient safety culture among healthcare professionals is the first step in creating awareness and improving safety practices in hospitals. Patient safety culture is an emerging concept in Ghana, most notably in the Savannah Region, yet it is an essential determinant of health outcomes of patients. The present study was aimed at assessing patient safety culture among nurses of selected hospitals in the Savannah Region of Ghana. The study furthermore examined enabling safety practices, enacting safety practices and finally evaluated the safety outcomes of patients.

This study found a good positive rating score for manager's support, managers' expectations and feedback about errors. Which means management of the selected hospitals considers patient safety as one of the priority areas, embraces staff suggestions for improving patient safety and provides regular and timely feedback to staff. However, some of the enabling safety practices had relatively low rating scores. These were staffing levels, open communication and non-

punitive measures to errors. This shows that management of the selected hospitals were not doing well in these areas hence the need for vigorous interventions.

Among the enacting safety practices, teamwork within units had the highest rating score of all the safety practices in this study. Although teamwork across units and handover and transition of patient care also had good positive rating scores, there is the need for further improvement. Also, nurses' attitude towards adverse events reporting was generally low. Thus, healthcare managers need to pay particular attention to issues of adverse events reporting.

Non-punitive response to errors and feedback about errors had significant effects on adverse events reporting, nevertheless other variables equally played significant roles in influencing adverse events reporting among nurses. Again, qualification of nurses was a significant predictor of adverse events reporting which means that higher nursing education results in clinical accountability that focus on providing patients with safe and quality care.

Even though few patient safety practices had low rating positive scores which need to be addressed, the overall situation of safety culture across the 3 hospitals was good. Hence the hospitals, management, and nursing staff in the region should be applauded for such achievement. Nevertheless, patient safety culture must be continuously addressed since it is an ongoing process and not an event.

6.7 Recommendations

Based on the study findings, the researcher has suggested the following recommendations at the national level of healthcare delivery (Ghana Health Service, Headquarters), regional level and at facility level (hospitals), to help improve patient safety practices.

6.7.1 Ghana Health Service (GHS)

GHS should:

- i. Liaise with Government of Ghana to ease restrictions on the recruitment of nursing staff by allocating adequate funds for the MoH budget to support recruitment. Such considerations should also take into account the national nursing needs as contained in WHO recommended guidelines.
- ii. Implement the health sector conditions of service for healthcare workers as stipulated in the service document, to attract healthcare workers, particularly nurses, to accept posting to deprived regions such as the Savannah Region.
- iii. Create patient safety culture awareness through enhanced training programs such as conferences, seminars and workshops.

6.7.2 Regional Level

- i. As part of the duties of Deputy Director Clinicals, GHS, he/she should pay attention to patient safety culture to engender the interest of practitioners. This can be done by creating patient safety culture awareness through enhanced training programs such as conferences, seminars and workshops.
- ii. Human Resource (HR) at the regional levels should undertake proper calculation of the nursing staffing deficits of various hospitals and districts.

This estimate would help HR put together a budget which would reflect the needs of the region to GHS headquarters for actions to be taken.

- iii. Regional Health Directorates should ensure there is adequate and balanced distribution of nursing staff without any form of interference based on the district and hospital requirement.
- iv. Nurses should be given the opportunities to pursue higher nursing education through formal training to improve their confidence in reporting adverse events.

6.7.3 Facility Level (Hospitals)

- i. Nurse managers should know how to calculate the nursing staffing needs and appropriately request for the required numbers. This would enable nurse managers to come up with genuine number of nursing staff needed to manage workload at the various hospital wards.
- ii. Hospitals should create high level of awareness among nurses about patient safety culture through enhanced training programs such as conferences, seminars and workshops on patient safety.
- iii. Hospitals should form patient safety committees whose mandate is to develop patient safety action plans on how patient safety-related problems can be addressed.
- iv. Patient safety practices such as teamwork, handover and management support as well as managers' actions in promoting patient safety should further be improved and strengthened in hospitals to realize better efficiency in the work environment.

- v. Hospitals should adopt a systemic approach and non-punitive response to errors as the best approach to improving patient safety as well as safety outcomes.
- vi. Healthcare managers should encourage and provide nurses with the opportunity to pursue higher nursing academic degree programs since doing this has the potential of influencing patient safety outcomes.

6.8 Considerations for Future Studies

The researcher recommends that future studies should focus on:

- i. Conducting large-scale research on patient safety practices amongst nurses to increase awareness.
- ii. Using a qualitative or mixed-method approach to get an in-depth view of the patient safety situation.
- iii. Comparing the views of managers and nurses to ascertain the real state of patient safety practices.
- iv. Examine the influence of elaborating safety practices (learning safety practices) on enabling and enacting safety practice.

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APPENDICES

Appendix A: Information Sheet and Informed Consent

Title: Assessment of patient safety culture among nurses of selected hospitals in the Savannah Region, Ghana.

Principal Investigator: Alhassan Samson, MPhil candidate (Nursing)

Address: Department of Research, Education and Administration,
School of Nursing and Midwifery
University of Ghana
Legon

Background and Purpose of the Research

Ideally, delivery of healthcare is expected to be safe, but unfortunately, it is not always so. Millions of people are harmed while receiving care in healthcare facilities. The safety of patients has become a global concern for both health professionals and the public. An essential component of a successful patient safety system is patient safety culture. It has been argued that evaluating patient safety culture can help improve patient safety outcomes. Nursing care strategically places nurses at the center of patient safety promotion and their unique proximity to patients makes them the drivers of patient safety and yet there is limited empirical literature on safety culture among nurses in Ghana. This study seeks to assess patient safety culture among nurses of selected hospitals in the Savanna Region.

Nature of Research

The study is a cross-sectional study using a questionnaire. The study seeks to assess patient safety culture among nurses of selected hospitals in the Savanna Region.

The information gathered in this study will help healthcare managers identify the weaknesses and strengths of hospitals' policies on patient safety and fashion out effective strategies to improve patient safety and quality of care. Again, the findings will raise awareness among nurses on the essence of ensuring patient safety.

Participants' Involvement

•**Duration /what is involved:** The duration for you to fill the questionnaire is approximately 30-45 minutes. You will be guided to sign a consent form once you agree to take part in the study. This is to affirm your willingness to participate in the study.

•**Potential Risks:** This study will not, in any way, cause any potential risk or harm, be it physical or emotional to you if you decide to be a participant. You will only offer your time to answer the questionnaire, which may cause some form of discomfort to you.

•**Benefits:** There are no direct benefits from participating in this study. However, the indirect benefits will be that the information gathered in this study will help healthcare managers identify weaknesses and strengths of hospitals' policies on patient safety and fashion out effective strategies to improve patient safety and quality of care. Again, the findings will raise awareness among nurses on the essence of ensuring patient safety.

•**Costs:** There will not be any cost to you for taking part in this study except the time you will spend in filling the questionnaire.

•**Compensation:** There will be no monetary gain for participation. However, you will be offered a pen and notepad as a form of appreciation.

•**Confidentiality:** By agreeing to participate in this study, we do not expect you to write your name on the questionnaire. We will use numbers to keep track of the number of questionnaires given out. We will protect all information about you to the best of our ability by restricting the number of people who will have access to the raw data. You will not be named in any of the reports. However, some staff of the University of Ghana, School of Nursing and Midwifery (Researcher, Supervisors, Research assistants, Lecturers, and Students) may sometimes look at your research records. The data will be saved under lock and key and shall be destroyed according to the data protection act after five years.

•**Voluntary Participation/withdrawal:** The decision to participate in this study is voluntary. You are not under any obligation to respond to any question(s) or participate in the study if you do not wish to do so. You are at liberty to withdraw from the study at any point in time even after giving your initial consent without any adverse effect. However, in doing so, you should inform the researcher/assistant about your decision.

•**Outcome and Feedback:** The information gathered will be analyzed, and meanings will be derived from it. The study findings will be shared at seminar presentations and published in a recognized journal. The study will also help the researcher to get a master's certificate from University of Ghana.

•**Appropriate Alternative Procedures and Treatment:** Not applicable

•**Feedback to Participant:** A feedback on the findings will be presented to you during a staff durbar and unit meetings.

•**Funding Information:** The study will be self-financed by the student researcher.

•**Sharing of Participants Information/Data:** the data generated will be jointly owned by the University of Ghana and the principal investigator (researcher).

•**Provision of Information and Consent for Participants:** You will be given a copy of the information sheet to keep. This will enable you to contact the researcher, supervisors, and Administrator of Ghana Health Service Ethics Review Committee should you have any additional questions about the research. However, the consent form will be signed and taken away as evidence of you agreeing to participate.

Contacts for Additional Information

Should you have any additional questions about the research, please, contact the following;

Name of Student

Alhassan Samson, School of Nursing and Midwifery, College of Health Sciences, University of Ghana, Legon, alhassansmao277@gmail.com, Tel: 0209563689.

Principal Supervisor

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For Ethical Issues or Right to Participation, Contact

Nana Abena Kwaa Ansah Apatu, The Administrator, Ghana Health Services
Ethics Review Committee, Mobile Number-0503539896, E-mail-
ethics.research@ghsmail.org.

CONSENT FORM

Study Title: “Assessment of Patient Safety Culture among Nurses of Selected
Hospitals in the Savannah Region of Ghana”

Respondents’ Statement

I acknowledge that I have read the purpose and contents of the Participants’
Information Sheet. I fully understand the contents and any potential implications
as well as my right to change my mind (i.e. withdraw from the research) even
after I have signed this form.

I voluntarily agree to be part of this research.

Name of Respondent.....

Signature

Date.....

Investigator Statement and Signature

I certify that the respondent has been given ample time to read and learn about the
study. All questions and clarifications raised by the respondent have been
addressed.

Researcher's name.....

Signature

Date.....

Appendix B: Research Questionnaire

Dear Respondent,

This questionnaire is in respect of a study being conducted on “**Assessment of Patient Safety Culture among Nurses of Selected Hospitals in the Savannah Region**”. It is strictly for academic purposes. Your response shall be kept confidential and will not be disclosed to another person. You reserve the right to withdraw from the study, but your participation will be much appreciated. Please, kindly make time out of your busy schedule to fill out this questionnaire. Be honest with your responses.

Hospital Code:.....

SECTION A: Demographic Characteristics of Respondent

(Please Tick (✓) or write where applicable)

1. Age

2. Gender of respondent

a. Male ☐

b. Female ☐

3. Qualification

a. Degree ☐

b. Diploma ☐

c. Certificate ☐

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

a. Medical ward ☐

b. Surgical ward ☐

- | | | | |
|------------------------------|--------------------------|------------------------|--------------------------|
| c Obstetrics and Gynaecology | ☐ | d. Paediatric ward | ☐ |
| e Emergency ward | ☐ | f. intensive care unit | ☐ |

5. How long have you worked in this hospital?

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

6. How long have you worked in your current ward/unit?

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

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

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

SECTION B: ENABLING SAFETY PRACTICES

This section asks questions in relation to leadership/management practices that influence patient safety. Please, be honest and tick (✓) the appropriate box the extent to which you agree or disagree with each statement.

[KEY: Strongly Disagree (SD) = 1, Disagree (D) =2, Neutral (N) =3, Agree (A) =4, Strongly Agree (SA) =5]

		SD	D	N	A	SA
		1	2	3	4	5
<i>Management support for Patient Safety</i>						
1	Hospital management provides a work climate that promotes patient safety					
2	Actions of hospital management show that patient safety is a top priority					
3	Hospital management seems interested in patient safety only after an adverse event happens					
Managers' expectations and Actions in Promoting Patient Safety						
4	My supervisor/ manager says a good word when he/she sees a job done according to established patient safety procedures					
5	My supervisor/ manager seriously considers staff suggestions for improving patient safety					
6	Whenever pressure builds up, my supervisor /manager wants us to work faster, even if it means taking shortcuts					
7	My supervisor/manager overlooks patient safety problems that happen over and over					
<i>Non-Punitive Response to Errors</i>						
8	Staff feel like their mistakes are held against them					
9	When an event is reported, it feels like the person is being written up, and not the problem					
10	Staff worry that mistakes they make are kept in their personnel file					
Staffing Levels						
11	We have enough staff to handle the workload					
12	Staff in this unit work longer hours than is best for patient care					
13	We use more part-time/temporary staff than is best for patient care					

14	We work in “crisis mode” trying to do too much, too quickly					
----	---	--	--	--	--	--

Please indicate how often the following things happen in your work area/unit Never = 1, Rarely = 2, Sometimes = 3, Most of the times = 4, Always = 5						
	Open communication	Never	Rarely	Some times	Most of the times	Always
		1	2	3	4	5
15	Staff will freely speak up if they see something that may negatively affect patient care					
16	Staff feel free to question the decision or actions of those with more authority					
17	Staff are afraid to ask questions when something does not seem right					
Instruction: Please indicate how often you are given feedback after reporting an error [Key: Never =1, Rarely =2 Sometimes =3 Most times = 4 Always =5]						
	Feedback about Errors	Never	Rarely	Some times	Most of the times	Always
		1	2	3	4	5
18	We are given feedback about changes put in place based on events reported					
19	We are informed about errors that happen in this unit					
20	In this unit, we discuss ways to prevent errors from happening again					

SECTION C: ENACTING SAFETY PRACTICES

This section asks questions regarding nursing practices that influence patient safety. Please, be honest and tick (✓) the appropriate box the extent to which you agree or disagree with each statement.

[KEY: 1= Strongly Disagree (SD) = 1, Disagree (D) =2, Neutral (N) =3, Agree (A) =4, Strongly Agree (SA) =5]

		SD	D	N	A	SA
		1	2	3	4	5
<i>Teamwork Within Units</i>						
1	People support one another in this unit					
2	When a lot of work needs to be done quickly, we work together as a team to get the work done.					
3	People treat each other with respect in this unit					
4	When one area in the unit gets really busy, others help out					
<i>Teamwork Across Hospital Units</i>						
5	There is good cooperation among hospital units that need to work together					
6	Hospital units work well together to provide the best care for patients					
7	Hospitals units do not coordinate well with each other					
8	It is often unpleasant to work with staff from other hospital units					
<i>Handover and Transition of Patient Care</i>						
9	Things are overlooked/neglected/forgotten when transferring patients from one unit to another					
10	Important patient care information is often lost during shift changes					
11	Problems often occur in the exchange of information across hospital units					
12	Shift changes are problematic for patients in this hospital					

SECTION E: PATIENT SAFETY OUTCOMES

This section asks questions regarding the frequency with which mistakes are reported in your work area/unit. Please, be honest and tick the response that best fits your view.

[Key: **Never =1, Rarely =2 Sometimes =3 Most times= 4 Always =5**]

Frequency of Events Reported		Never	Rarely	Some times	Most of the times	Always
		1	2	3	4	5
1	When a mistake is made but is <i>caught and corrected before affecting the patient</i> , how often is this reported?					
2	When a mistake is made but has <i>no potential to harm the patient</i> , how often is this reported?					
3	When a mistake is made that <i>could harm the patient</i> , but does not, how often is this reported?					

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

- | | | | |
|--------------------------|--------------------------|-----------------------------|--------------------------|
| a. No event reports | ☐ | a. 6 to 10 events reports | ☐ |
| b. 1 to 2 events reports | ☐ | b. 11 to 20 events reports | ☐ |
| c. 3 to 5 events reports | ☐ | c. 21 event reports or more | ☐ |

Thank you.

Appendix C: Ethical Clearance from GHS-ERC

In case of reply the number and date of this Letter should be quoted.

MyRef. GHS/RDD/ERC/Admin/App/19/645
Your Ref. No.

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE


Your Health - Our Commitment

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
GPS Address: GA-050-3303
Tel: +233-302-681109
Fax + 233-302-685424
Mob + 233- 050-3539896
Email: ethics.research@ghsmai.org

22nd November, 2019

Ahassan Samson
School of Nursing and Midwifery
University of Ghana
P. O. Box LG 43
Legon - Accra

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	GHS-ERC041/11/19
Project Title	Assessment of Patient Safety among Nurses in some Selected Hospitals in the Savannah Region of Ghana
Approval Date	22 nd November, 2019
Expiry Date	21 st November, 2020
GHS-ERC Decision	Approved

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months.
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report **after completion** of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
Dr. Cynthia Bannerman
(GHS-ERC Chairperson)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra

Appendix D: Introductory Letters

Appendix D1: Letter to West Gonja Hospital



UNIVERSITY OF GHANA
DEPARTMENT OF RESEARCH, EDUCATION
AND ADMINISTRATION
SCHOOL OF NURSING

Ref. No.: 10320485

November 20, 2019

The Medical Director
West Gonja Hospital
P. O. Box DM 18
Damongo, Savannah Region

Dear Sir/Madam,

LETTER OF INTRODUCTION

I write to introduce to you **Alhassan Samson**, an M.Phil student in the Department of Research, Education and Administration, School of Nursing and Midwifery, University of Ghana, Legon.

As part of the requirement of the M.Phil programme, the student is to undertake a research study. He intends to use the West Gonja Hospital as the study site. The title of his research is **"Assessment of Patient Safety Culture among Nurses in Some Selected Hospitals in the Savannah Region of Ghana."**

It will be appreciated if he is given the necessary assistance.

Thank you.

Yours faithfully,

Dr. Adelaide Maria Ansah Ofei
Head of Department

*Seen
Med Sup
6/1/2020
Copies to all Wards
and notice boards*



COLLEGE OF HEALTH SCIENCES

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• Email: rea.son@chs.ug.edu.gh • Website: www.nursing.ug.edu.gh

Appendix D2: Letter to Bole District Hospital

F-10



UNIVERSITY OF GHANA
DEPARTMENT OF RESEARCH, EDUCATION
AND ADMINISTRATION
SCHOOL OF NURSING

Ref. No.: 10320485

November 20, 2019



The Medical Director
Bole District Hospital
P. O. Box 11
Bole, Savannah Region

Dear Sir/Madam,

LETTER OF INTRODUCTION

I write to introduce to you **Alhassan Samson**, an M.Phil student in the Department of Research, Education and Administration, School of Nursing and Midwifery, University of Ghana, Legon.

As part of the requirement of the M.Phil programme, the student is to undertake a research study. He intends to use the Bole District Hospital as the study site. The title of his research is **"Assessment of Patient Safety Culture among Nurses in Some Selected Hospitals in the Savannah Region of Ghana."**

It will be appreciated if he is given the necessary assistance.

Thank you.

Yours faithfully,

Dr. Adelaide Maria Ansah Ofei
Head of Department

② Admin
Approval given
Kindly Notify officer
Thanks -
18/1/2020

② MS
fy - affn. pls

13-01-2020

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Appendix D3: Letter to Salaga District Hospital



UNIVERSITY OF GHANA
DEPARTMENT OF RESEARCH, EDUCATION
AND ADMINISTRATION
SCHOOL OF NURSING

Ref. No.: 10320485

November 20, 2019

The Medical Director
Salaga District Hospital
P. O. Box SL 12
East Gonja, Savannah Region

Salaga Dist. Hospital
13-CEIVJ
D. No. 30-01-2020
NO. 14417

Dear Sir/Madam,

LETTER OF INTRODUCTION

I write to introduce to you **Alhassan Samson**, an M.Phil student in the Department of Research, Education and Administration, School of Nursing and Midwifery, University of Ghana, Legon.

As part of the requirement of the M.Phil programme, the student is to undertake a research study. He intends to use the Salaga District Hospital as the study site. The title of his research is "Assessment of Patient Safety Culture among Nurses in Some Selected Hospitals in the Savannah Region of Ghana."

It will be appreciated if he is given the necessary assistance.

Thank you.

Yours faithfully,

Dr. Adelaide Maria Ansah Ofei
Head of Department

② Medical Supt
Permission has been granted to
the researcher to undertake
the research work in the
hospital. He has been
requested to share findings
and recommendations with
mgt.

30/01/2020

COLLEGE OF HEALTH SCIENCES

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