UNIVERSITY OF CAPE COAST

UTILISATION OF THE NURSING PROCESS FOR PATIENT CARE IN GHANA: THE CASE OF NURSES OF TAMALE TEACHING HOSPITAL

OSMAN WAHAB

2017

UNIVERSITY OF CAPE COAST

UTILISATION OF THE NURSING PROCESS FOR PATIENT CARE IN GHANA: THE CASE OF NURSES OF TAMALE TEACHING HOSPITAL

BY

OSMAN WAHAB

Thesis submitted to the School of Nursing and Midwifery of the College of Health and Allied Sciences, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Nursing degree

JULY 2017

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere.

Candidate's Signature:..... Date:.....

Name:…….

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature:..... Date:.....

Name:……

Co-Supervisor's Signature: ..... Date:.....

Name:……

ABSTRACT

Globally, the quality of health care relates closely with the quality of nursing care. The nursing process is widely adopted as an evidenced-based tool that guides the practice and delivery of quality nursing care. To improve its use, a number of studies have been conducted into the extent of use of the nursing process and its associated challenges in several countries. In Ghana, however, the extent of use of the nursing process, as well as, barriers associated with its use have not been thoroughly examined. This study sought to assess the extent of use of the nursing process, as well as, barriers associated with its use at the Tamale Teaching Hospital. A cross-sectional survey of 286 registered nurses and midwives, chosen by stratified random sampling technique, was undertaken using a self-completing questionnaire. Data analysis was done using IBM SPSS version 23. Statistical tools used were Frequencies, Kruskal-Wallis H Test of association and Multiple Logistic Regression. Most participants were highly knowledgeable in the nursing process (71.0%), while usage of the nursing process was low (32.3%). Major barriers of the nursing process were stressful work environment (96.8%), absence of nursing process policy (94.7%), lack of further nursing process training (91.5%), inadequate supply of consumables (81.2%), and lack of nursing process clinical skills (42.9%). Age, educational level and years of experience were significantly associated with the use of the nursing process. Nursing process policy and supply of consumables/stationery were found to be significant predictors of the use of the nursing process. The hospital should, therefore, develop a nursing process policy, supply adequate quantities of consumables and conduct periodic clinical re-training of nurses on the nursing process.

KEYWORDS

Nursing

Nursing process

Nursing process barriers

Nursing process challenges

Nursing process use

Tamale Teaching Hospital

ACKNOWLEDGEMENT

My sincere appreciation goes to my supervisors Dr Jerry Paul Ninnoni of the School of Nursing and Midwifery and Dr Michael Tetteh Anim of the School of Medical Sciences, both of the College of Health and Allied Sciences of the University of Cape Coast, for their technical inputs, guidance, support and open-door policy during the entire study. I learned a lot, and I am indeed in their debt.

My appreciation and acknowledgement also go to the Sam and Emilia Brew-Butler GRASAG-UCC Research Fund Award Committee for recognising my proposed study as one of the maiden winners of the Sam and Emilia Brew-Butler GRASAG-UCC research grant. It contributed immensely to the timely completion of the study.

I am equally grateful to Mr Amandos Ankobil of the School of Nursing and Midwifery for the technical guidance and inputs during the entire study, especially during data analysis. I am most grateful.

I also acknowledge the Cape Coast and Tamale Teaching Hospitals for serving as the questionnaire pre-test and study sites respectively. I would also like to thank the ward In-Charges, data collection assistant (Mr Fuseini Alhassan) and the participants of this study.

I would also like to acknowledge the immense support of my family, especially Mr Osuman Abdulai (my dad) and Flight Sergeant (retired) Kangbat Peter Salifu Kanchil (my uncle) in the course of the 2-year Master of Nursing programme. I am indebted to you for the support.

DEDICATION

To my family

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ANA	American Nurses Association
CCTH	Cape Coast Teaching Hospital
CCTHERC	Cape Coast Teaching Hospital Ethical Review Committee
CI	Confidence Interval
COM-B	Capability, Opportunity, Motivation, Behaviour
DDNS	Deputy Director of Nursing Services
GRASAG-UCC	Graduate Students Association of Ghana, University of Cape Coast
IRB	Institutional Review Board
NANDA-I	North American Nursing Diagnosis Association International
NMCGH	Nursing and Midwifery Council of Ghana
NO/MO	Nursing Officer/Midwifery Officer
NP	Nursing Process
OR	Odds Ratio
PNO/PMO	Principal Nursing Officer/Principal Midwifery Officer
RGN	Registered General Nurse
RM	Registered Midwife
RMN	Registered Mental Nurse
SN/SM	Staff Nurse/Staff Midwife
SNO/SMO	Senior Nursing Officer/Senior Midwifery Officer
SSN/SSM	Senior Staff Nurse/Senior Staff Midwife
TTH	Tamale Teaching Hospital

CHAPTER ONE

INTRODUCTION

This chapter introduces and gives a background to the nursing process, its importance and the barriers to its utilisation. The chapter also presents the research problem, the purpose of the study, the objectives and research question, the significance of the study, limitations and delimitations of the study, operational definition of terms, as well as how the entire thesis has been organised. The study aims to assess the extent of use and barriers associated with the use of the nursing process at the Tamale Teaching Hospital.

The nursing process is a systematic five-step tool that guides the sequence of clinical reasoning and action by nurses (Dal Sasso et al., 2013). It enables nurses to assess, diagnose, plan, implement and evaluate nursing care activities, and to modify their performance according to patient recovery needs. The nursing process has therefore transformed nursing from being dependent on traditional and ritualistic care to a more rigorous and evidence-based profession that contributes significantly to the quality of health care services that improve patient outcomes.

Nursing regulatory bodies around the world, including Ghana, demand the use of the nursing process in the provision of nursing care. Despite this demand, studies have shown varied levels of use of the nursing process in the clinical setting, with low levels of usage documented in some countries, especially in Africa.

Background to the Study

Nursing is said to be both an art and a science, and the application of the nursing process comprises the blending of the two, which has proven to be valuable in changing nursing practice as well as patient outcomes (Afolayan, Donald, Baldwin, Onasoga, & Babafemi, 2013). Nursing practice is said to have been rooted in traditions and ritualistic care, with nurses falling into a daily routine to the neglect of patients' psychological, spiritual, emotional and social needs (Daaleman, Usher, Williams, Rawlings, & Hanson, 2008; and Wolf, 2012). The disregard for patient's input into their care and inflexible behaviour toward patients are among the characteristics of this daily routine care (Ebrahimi, Torabizadeh, Mohammadi, & Valizadeh, 2012).

Over the past decades, however, questions have emerged as to why nurses do what they do, with nurses being challenged to show evidence that nursing practices are effective (Wolf, 2012). Additionally, concerns over accurate documentation of nursing care have grown in response to the need for the nursing profession to develop a knowledge base in its quest of turning into a true profession. In response to these demands for best practices in providing nursing care, the nursing process was established from the Deliberative Nursing Process Theory by Ida Jean Orlando in 1961 (Sellers, 1991). Orlando (1990) had argued that a process goes on between a nurse and a patient when they interact because of a distress expressed by the patient.

This process (nursing process) is the central core of nursing practice and comprises the basic framework a nurse uses to render nursing care to patients. Orlando further stresses that it is not enough for the nurse to do what she thinks is best for the patient. Therefore, planning care and carrying out

interventions without assessing or interacting with the patient is not professional (I. J. Orlando, 1990).

According to the American Nurses Association [ANA] (2010), the nursing process is a systematic problem-solving process, made up of five interrelated steps (assessment, nursing diagnosis, planning, implementation, and evaluation) that registered nurses use to guide the delivery of holistic, patient-focused care. The process enhances the critical thinking capability of nurses through the collection, analysis and interpretation of data to make clinical judgments, set patient care goals, establish priorities, select appropriate interventions, implement these interventions, and evaluate patient outcomes to determine if the plan has been effective in solving patients problems or otherwise (Müller-Staub, Lavin, Needham, & Van Achterberg, 2006). The nursing process again enables nursing staff to evaluate their efficiency and effectiveness, and to modify their performance according to patient recovery results (Dal Sasso et al., 2013).

Assessment, which is the first step of the nursing process, involves the collection, verification, organisation, interpretation, and documentation of data (ANA, 2010). Nursing diagnosis is the second step and it involves a process of data analysis using diagnostic reasoning (a form of clinical judgment) in which judgments, decisions, and conclusions are made about the meaning of the data collected to determine whether or not nursing intervention is indicated (ANA, 2010). Planning, which is the third step, involves prioritising, establishing expected outcomes, determining nursing interventions and recording the plan of care (DeLaune & Ladner, 2002).

Implementation is the fourth step of the nursing process where nurses provide direct and indirect nursing care interventions to patients for achieving the goals and outcomes of nursing care set under the planning phase (ANA, 2010). Evaluation is the fifth step of the process. Once all nursing intervention actions have taken place, the nurse completes an evaluation to determine whether the goals for patient wellness have been met (ANA, 2010; Craven & Hirnle, 2008). The nursing process, therefore, provides an organised framework to guide and standardise nursing practices (Edet, Mgbekem, & Edet, 2013) as well as improve patient outcomes (Afolayan et al., 2013; Haapoja, 2014).

The healthcare industry in Africa is gradually becoming consumer-driven. Ofi and Sowunmi (2012) report that Nigerian nurses are now faced with a changing health industry that values patient outcomes and performance measurements. Similarly, in Ghana, patients are reported to be cognisant of their rights, and by inference, the standard of care to expect from a nurse (GACC, 2014). Patients are beginning to demand quality care and seek legal redress when this demand is not met (Peacefmonline.com, 2015).

The quality of nursing care is closely related to effectiveness of healthcare systems (Mason & Attree, 1997). In order to achieve this effectiveness, there is a need to pay attention to measures that ensure quality nursing care. There is, therefore, the need to establish a culture that encourages the use of the nursing process to provide nursing care in every care setting (Pokorski, Moraes, Chiarelli, Costanzi, & Rabelo, 2009).

In several countries today, it is a legal and policy requirement that registered nurses should use the nursing process for rendering patient care and care documentation (Axelsson, Björvell, Mattiasson, & Randers, 2006;

Haapoja, 2014; Habte, 2015). Similarly, the Nursing and Midwifery Council and the Ministry of Health of Ghana demands that the nursing process be used by registered nurses/midwives as a tool to meet the total health needs of patients, families and communities (Ministry of Health Ghana [MOH], 2005; Nursing and Midwifery Council of Ghana [NMCGH], 2007)

Notwithstanding the professional standards and quality care the nursing process seeks to ensure, it has been established that nurses in some countries, especially in Africa, poorly utilise the nursing process in patient care (Afolayan et al., 2013; Aseratiie, 2011; Edet et al., 2013; Hagos, Alemseged, Balcha, Berhe, & Aregay, 2014; Laryea, 1994). Afolayan et al. (2013) for instance, evaluated the utilisation of the nursing process and patient outcome at a Neuro-Psychiatric Hospital in Nigeria and found that, even though nurses at the hospital had good theoretical knowledge of the nursing process, they did not apply it in the care of their patients. Inadequate clinical knowledge, inadequate staff, work overload, management's inability to provide the needed materials among others were cited as factors that hindered its use in the hospital. The study also found that there was a strong positive correlation between application of the nursing process and patients' recovery. Therefore, the study concludes that the lack of application of the nursing process by nurses can impair patients' recovery and outcome.

Edet et al. (2013) in a descriptive cross-sectional study to examine professional nurses' perception and use of the nursing process at the University of Calabar Teaching Hospital in Nigeria found that nurses with higher education were 17 times more likely to perceive fewer barriers compared to nurses with only basic nursing and midwifery qualifications.

In a cross-sectional study of selected government hospitals in Ethiopia to assess factors affecting implementation of the nursing process among nurses in these hospitals, Aseratiie (2011) found that close to half of the respondents (47.9%) did not utilise the nursing process during patient care, with as low as 16.1% of respondents being highly knowledgeable in the nursing process. Nurses with good knowledge in the nursing process were 38.913 times more likely to implement nursing process than those with less knowledge. The study also found that nurses working in a stressful working environment were 2.8 times less likely to implement the nursing process, while nurses working in units where resources were available for nursing care were 2.25 times more likely to implement nursing process than nurses working in facilities without the necessary resources were.

Similarly, in a study of factors affecting the application of the nursing process in Ethiopia, Hagos et al. (2014) found that a majority of the respondents (90%) had poor knowledge of the nursing process, with all of the respondents indicating that they did not use the nursing process when they provide care to their patients. Educational level was found to have a statistically significant association with knowledge of nurses on the nursing process, with first-degree nurses being very knowledgeable about the nursing process than diploma-level nurses.

In Ghana, Laryea (1994) studied the barriers to the implementation of the nursing process and discovered that the knowledge of the nursing process among respondents was high. However, the majority of respondents lacked the clinical skills in data collection, nursing diagnosis and objectives setting, which are necessary components of the assessment, diagnosis and planning phases of

the nursing process. The nursing process being time-consuming and failure of management to motivate nurses as well as the lack of resources and supplies were also cited among factors that hindered the application of the nursing process.

It is evident from the reviewed studies that, most of the studies were conducted outside Ghana and focused mainly on the benefits, barriers and facilitators to the use of the nursing process. The field of the nursing process in Ghana thus remains largely unexplored. There is, therefore, the need to undertake further studies into the state of the nursing process in Ghana.

Problem Statement

The extent of use of the nursing process in patient care in Ghana, as well as barriers and challenges associated with its use have not been thoroughly examined. Very little is known about the extent and barriers and challenges associated with the use of the nursing process in the Tamale Teaching Hospital (TTH). The Nursing and Midwifery Council of Ghana virtually acknowledged this when they indicated that they did not have any published or unpublished studies and technical reports on the extent of use the nursing process in the country (Nursing and Midwifery Council of Ghana, personal communication December 16, 2016) (Appendix G and Appendix H).

Additionally, the lack of application of the nursing process for patient care has been cited by some nursing units of the hospital as a problem faced in nursing care delivery (Tamale Teaching Hospital [TTH Nursing Directorate], 2014). There is, therefore, the need to undertake a study into the extent and barriers associated with the use of the nursing process in the hospital.

Purpose of the Study

The Nursing and Midwifery Council and the Ministry of Health of Ghana demand the utilisation of the nursing process as a tool in providing care to patients, their families and communities by registered nurses and registered midwives (MOH, 2005; NMCGH, 2007). Additionally, the Nursing Directorate of the hospital has a vision of being a centre of excellence for the delivery of tertiary nursing and midwifery care services, nursing education and nursing research, at all levels to improve the quality of life of clients and clients' families (TTH Nursing Directorate, 2015). There is therefore a need to encourage the use of the nursing process which has been shown to improve nursing care quality and patient outcomes (Afolayan et al., 2013; Haapoja, 2014).

To meet the demands of the Nursing and Midwifery Council and the Ministry of Health of Ghana, and to achieve the vision of the Nursing Directorate of the hospital, it is important to determine what exists in terms of the extent of use as well as challenges associated with the use of the nursing process for patient care in the hospital.

The study is expected to provide empirical evidence on what exists in terms of the use and challenges associated with the use of the nursing process in the hospital, resulting in recommendations to nurses, midwives and management of the hospital. These recommendations will be targeted at enhancing the use of the nursing process to enhance the quality of nursing care, promote nursing clinical education and nursing research in the hospital, and to meet the standards demanded by the Nursing and Midwifery Council and the Ministry of Health of Ghana.

Objectives of Study

The main aim of this study was to assess the extent of use, as well as, barriers and challenge associated with the use of the nursing process for patient care at the Tamale Teaching Hospital.

Specific objectives

Specifically, the study sought to:

1. Assess the knowledge level of nurses of Tamale Teaching Hospital on the nursing process.
2. Assess the extent of use of the nursing process for patient care at the hospital.
3. Identify factors that serve as barriers and challenges to the use of the nursing process in the hospital.
4. Determine if there are any significant associations between participants' demographic characteristics and utilisation of the nursing process in the hospital.
5. Determine if there are any significant associations between the barriers and challenges, and the utilisation of the nursing process in the hospital.

Research Questions

The following research questions underpinned the study:

1. What is the knowledge level of nurses at the Tamale Teaching Hospital on the nursing process?
2. What is the extent of use the nursing process for patient care in the hospital?
3. Which factors serve as barriers and challenges to the use of nursing process in the hospital?

4. Are there any significant associations between participants' demographic characteristics and the use of the nursing process in the hospital?
5. Are there any significant associations between the barriers and challenges, and the use of the nursing process in the hospital?

Significance of the Study

Findings of this study are expected to be of great benefit to the following groups of people and institutions:

Nurses/Midwives: The findings of this study are expected to reveal to registered nurses and midwives of Tamale Teaching Hospital empirical evidence regarding their use of the nursing process in patient care. The findings are also expected to help registered nurses and midwives strive to meet the standards expected of them by the Nursing and Midwifery Council and the Ministry of Health of Ghana, and to improve the clinical use and training of registered nurses and midwives on the nursing process.

Tamale Teaching Hospital/Nurse managers: Given the vision of the Nursing Directorate of Tamale Teaching Hospital, and the fact that quality nursing services impact the quality of health care, it is important that strategies are developed to deal with challenges to the use or establishment and sustenance of the use of the nursing process in the clinical setting. Findings of this study, therefore, give empirical evidence to hospital and nurse managers on the extent of use as well as challenges associated with the use of the nursing process. Additionally, based on the recommendations of this study, the managers can put in measures that can help deal with the identified challenges to improve the

quality of nursing care and patient outcomes through the application of the nursing process.

Nursing and Midwifery Council /Ministry of Health of Ghana: Findings of this study will also present these institutions with empirical evidence on the extent of use of the nursing process, and a basis for policy revision/formulation. The review of the course content of clinical training of registered nurses and midwives will benefit from the findings from this study, as findings may reveal clinical competency shortfalls in the nurses and midwives that are being produced by the current training system.

Nurse researchers: The findings of this study will serve as a basis and a reference material for future research into the field of the nursing process in Ghana, Africa and the world at large.

Delimitation of the Study

The study was limited to only registered nurses and registered midwives (RGN, RM and RMN) fully employed and working in the Tamale Teaching Hospital. These nurses and midwives were included in the study because the nursing process is part of their training curricula. Additionally, the Nursing and Midwifery Council and the Ministry of Health of Ghana, places a demand on them to use the nursing process as a tool for meeting the total health needs of patients, families and communities. Enrolled nurses, enrolled midwives, certificate midwives and community health nurses were excluded from the study. The nursing process does not form part of the training curricula of these groups of nurses and midwives, and no demand is placed on them to use it in patient care.

The study also examined at the extent of use of the nursing process in the Tamale Teaching Hospital as well as barriers to the utilisation of the nursing process. The barriers examined included those related to nursing process knowledge level, clinical nursing process skill, views/attitude towards the nursing process, and the self-motivation to use the nursing process. Others include the presence of stressful work environment, inadequate staffing and high workload, burden with non-nursing activities, absence of nursing process policy, lack of managerial support for the use of the nursing process, lack of monitoring and supervision by nurse managers, lack of further training on the use of the nursing process, inadequate supply of consumables/stationery, as well as, the length of patients stay in the ward.

Limitations of the Study

The study was conducted at the Tamale Teaching Hospital and hence the findings could be peculiar to only the Tamale Teaching Hospital. Hence, findings may not be generalizable to others hospitals. Being a nurse at the hospital, the researcher could have had an influence on the responses of participants due to social desirability bias. However, this was avoided as much as possible through self-completion of the questionnaire by participants without the need for the presence of the researcher or field assistant.

Additionally, a retrospective evaluation of the use of the nursing process as evidenced in patient records over a number of years in all the teaching hospitals in Ghana would have been ideal. However, the limited time for this study as well as the financial implication of such a study could not allow for that. Furthermore, the study employed a cross-sectional survey design and

hence in-depth meanings, further clarification and explanation of answers could not be sought from participants.

Operational Definition of Terms

Nurse: A person who has undergone a three or four-year prescribed programme of study in registered general nursing, registered midwifery or registered mental nursing in a Nursing Training College/University, and has been licenced to practice in Ghana by the Nursing and Midwifery Council of Ghana.

Nursing Process: A systematic five-step method of rendering individualised nursing care through assessment, diagnosis, planning, implementation and evaluation.

Knowledge level about the nursing process: This refers to a nurse or midwife's theoretical knowledge level about the nursing process. The nursing process knowledge level of participants was measured and categorised based the classification used by Assefa (2014). Highly knowledgeable participants were those who answered 6 or 7 of items number 10 to 16 under section B of the questionnaire correctly. Moderately knowledgeable participants were those who answered 5 or 4 of the items correctly, and poorly knowledgeable participants were those who got 3 or less of the 7 items correctly.

Utilisation of the nursing process: This refers to the application or use of the nursing process in the provision of daily nursing care to patients. It was measured by participants' affirmative response to questionnaire items 18 – 21. Affirmative responses to items 18 and 19 indicate that participants made use of the nursing process during patient care, while negative responses shows that they were not making use of the nursing process.

Barriers: These refer to the factors that make it difficult or hinder the use of the nursing process for patient care by nurses and midwives. For purposes of this study, these include knowledge and skill factors, institutional-related factors and attitude/self-motivational factors.

Knowledge and skill factors refer to the nursing process theoretical knowledge level and clinical nursing process skills. Knowledge level was measured by the number of correct responses to items on the knowledge measurement, while item 25 measured the possession of clinical nursing process skills by participants. Poor knowledge of the nursing process and negative response to item 25 shows the presence of challenges related to nursing process knowledge and clinical skills.

Institutional-related factors refer to factors in the purview of an institution whose presence or absence has a negative impact on the utilisation of the nursing process. These include inadequate staffing, stressful work environment, high workload, burden with non-nursing activities, absence of nursing process policy, lack of managerial support, absence of nursing process monitoring and supervision, lack of opportunity for further training on the nursing process, inadequate supply of consumables/stationery as well as the length of patient stay on the ward. The presence of these barriers was measured by negative response to items 21, 22 and items 24 – 33.

Attitudinal/self-motivational factors refer to the views/attitude, as well as, the self-motivation to engage in the use of the nursing process during patient care. Affirmative responses to items 34 – 36, and negative responses to items 37 and 38 the presence of these barriers (poor attitude and lack of self-motivation) towards the use the nursing process respectively.

Organisation of the Study

This study is organised into five chapters. Chapter One deals with the introduction to the study, which captures the background of the study, the problem statement, the purpose of the study, research objectives and questions, significance of the study, delimitations, limitations as well as definition of terms. Chapter Two presents the review of relevant up-to-date theoretical and empirical literature on the topic, including the theoretical/conceptual framework that guided the study.

Chapter Three presents the research methodology, which includes research design, study population and setting, data collection instrument, sampling and data collection procedures as well as data management and analysis. It also deals with issues of ethical considerations and clearance. Results of the study and discussion of key findings are presented in Chapter Four. Chapter Five presents the summary, conclusions, recommendations of the study, as well as suggestions for future studies.

Chapter Summary

This chapter presented the background to the study via a brief presentation on the origin and motivation behind the establishment of the nursing process. The problem statement and the purpose of the study were also presented. Studies have not thoroughly examined the field of the nursing process in Ghana despite the apparent low levels of use of the nursing process in patient care in Africa.

Also presented in the chapter are the research objectives and the research questions to be answered by the study. This study seeks to assess the extent of use and barriers associated with the use of the nursing process at the

Tamale Teaching Hospital. The findings of the study are expected to provide empirical evidence on what exist in terms of the use and challenges associated with the use of the nursing process in the hospital, resulting in recommendations targeted at enhancing its use in the hospital. The findings are also expected to be of significance to nurses and midwives, the Tamale Teaching Hospital, the Nursing and Midwifery Council of Ghana, the Ministry of Health of Ghana, and Nurse Researchers.

The chapter also presented the delimitations, limitations, operational definition of terms and the organisation of the study. The study is limited to only registered nurses and registered midwives working in the Tamale Teaching Hospital. It has been organised into 5 chapters.

CHAPTER TWO

LITERATURE REVIEW

This chapter deals with what exists in literature as well as findings of other studies concerning the nursing process globally, in Africa and in Ghana. The study sought to assess the extent of use and barriers associated with the use of the nursing process at the Tamale Teaching Hospital. The study would therefore provide empirical evidence on what exists in terms of the use and challenges associated with the use of the nursing process in the hospital.

The literature referred to in this review were obtained following a search of libraries, research databases as well as journal sites such as PubMed Central (PMC), Research Gate, Google Scholar, Hindawi, Cochrane, Scientific Electronic Library Online (SciELO), Science Direct, Pelagia Research Library, Online Journal of Issues in Nursing (OJIN) and Academia. The search was done using keywords and phrases such as nursing; nursing process; nursing process in Ghana; nursing process utilisation; nursing process implementation; nursing process application barriers; and nursing process utilisation barriers. The search was narrowed to papers/articles with these keywords/phrases published in English. Only recent literature/articles, as well as classic papers that met this requirement, were chosen for this review after the researcher had gone through the abstracts. Additionally, both published and unpublished thesis on the nursing process, books on nursing, research and statistics in various university websites and libraries were consulted.

The review of theoretical literature examined the historical perspective of the nursing process as well as what the nursing process entails. Empirical review dealt with the extent of use of the nursing process as well as barriers to

the utilisation of the nursing process. The review was organised around the research objectives. The reviewed literature in conjunction with the theory underpinning this study, informed the conceptual framework that guided this study.

Theoretical Literature Review

Historical Perspective of the Nursing Process

Nursing, as a profession, has been transformed over the years from being preoccupied with the disease model and being based on physicians orders to a profession with autonomy based scientific processes, sound rationale and critical thinking. The focus of nursing, therefore, changed over the years, from a profession based on traditions and automatic care routines to a patient-centred one based on scientific approaches to patient care. This paradigm shift led to the development of a number of nursing care delivery models and frameworks, including the nursing process to position nursing as a profession with autonomy and a body of knowledge to deliver the best of care (Meleis, 2012).

The nursing process emerged from Ida Jean Orlando Pelletier's Deliberative Nursing Process Theory (later relabelled as Nursing Process Theory) in the late 1950s to 1960s (Orlando, 1961). Ideas for the Nursing Process Theory originated from Orlando's analysis of a study she conducted at Yale University School of Nursing. She analysed some 2,000 nurse-patient interactions to determine what good and bad nursing practices are. Orlando was critical on what prompts nursing action, and what are the properties of the nurse-patient relationship that may lead the nurse to know patients' needs and provide effective care based on those needs of the patient (Haapoja, 2014). She was discontented that nurses were prompted in their actions by physician's

prescriptions, organisational needs, and personal repertoire of experiences rather than the needs of the patient (Meleis, 2012).

According to Orlando (as cited in Meleis, 2012; Wayne, 2014), a person is in need of nursing care when the person is distressed due to unmet needs as a result of physical limitations, adverse reactions to the environment or experiences which prevent the patient from communicating his needs. These needs and distress are usually manifested through the behaviour of the person seeking for help. For that reason, persons who are able to meet their needs are not distressed, and so are deemed not to be in need of nursing care (Haapoja, 2014). Orlando points out that it is extremely important to, first of all, find out what the needs of a patient are before designing and carrying out nursing interventions for the patient. If interventions or nursing actions are carried out before identifying whether those interventions are indicated or needed, then nursing is deemed not to be professional.

In the years immediately following its creation, the nursing process was mainly discussed in academia (Huitzi-Egilegor et al., 2014). It gained acceptability for clinical practice in the United States and Canada in the 1970s after it was included in the American Nurses Association (ANA) standard of clinical nursing practice in 1973 (Kozier et al., 2014). According to Bowman, Thompson and Sutton (as cited in Adeyemo & Olaogun, 2013), Australia adopted and commenced usage of the nursing process in practice in 1974 after it had gone through the phases of resistance, acceptance and institutionalisation. In the present day, the nursing process is the standard in most health systems for nursing care delivery around the world, especially in developed countries (Akbari & Shamsi, 2011).

Several countries in Africa have also adopted the use of the nursing process in their health care systems. In Nigeria, the nursing process was introduced in the 1980s through the degree programmes in the Universities. However, the implementation in the clinical areas did not start until the 1990s (Adeyemo & Olaogun, 2013).

The Nursing Council of Kenya made the nursing process one of the mandatory contents in all nursing schools curricula, with the Kenyan Department of Nursing including it as a framework for nursing care in its 2008–2013 strategic plan (Ngao, 2015; Wagoro & Rakuom, 2015). In Ethiopia, the Federal Ministry of Health has been investing in the training of all cadres of nurses in the nursing process after its introduction, making it a standard for nursing care planning and delivery in all health care settings since 2011 (Habte, 2015; Hagos et al., 2014).

In Ghana, the nursing process was introduced with the commencement of the comprehensive nursing programme in the 1970s (Laryea, 1994). Since its inception, all registered nurses and registered midwives passing through the Nursing Training Colleges and Universities have been given nursing process theoretical and clinical training. They are therefore expected by the Nursing and Midwifery Council and the Ministry of Health of Ghana to use the nursing process as a tool for meeting the total health needs of patients, families and communities (MOH, 2005; NMCGH, 2007).

The Nursing Process

The nursing process is widely considered as a problem-solving modified scientific method for the delivery of quality and professional nursing care (Orlando, 1990; Smeltzer, Bare, Hinkle, & Cheever, 2010; Wagoro & Rakuom, 2015). The nursing process provides the framework in which nurses use their knowledge, skills, attitudes and values to express human caring (Chabeli, 2007) in the provision of nursing care as envisaged by Orlando's Deliberative Nursing Process Theory.

The nursing process was first described as a four-stage process by Ida Jean Orlando in 1958 (Orlando, 1961). It has however gone through modifications over the years to become a five-step process (Smeltzer, Bare, Hinkle, & Cheever, 2010). The American Nurses Association (2010) Standard of Clinical Nursing Practice includes an additional component (outcome identification) as a separate step. This step, however, forms part of the planning step under the widely used five-step nursing process.

Notwithstanding the number of steps used, the nurse works closely with the patient to individualise the care and build a relationship of mutual trust and respect at each stage of the nursing process (Kozier et al., 2014). The five steps of the nursing process, as shown in Figure 1 and described in details below in the ensuing paragraphs, is not linear in practice as often conceptualised. There is a feedback loop from evaluation to assessment for purposes of re-assessment for unmet goals and plan modifications to achieve desirable patient outcomes (ANA, 2010).

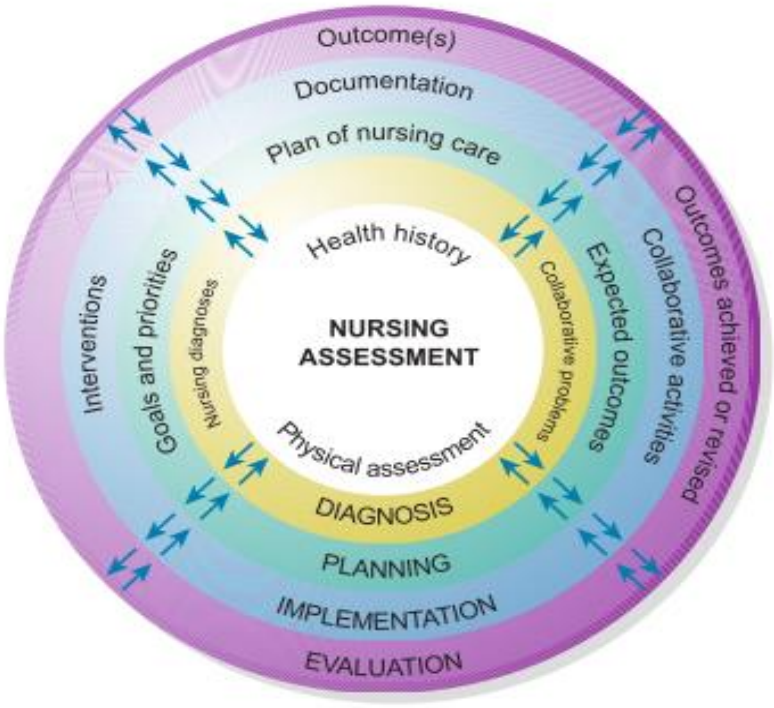

Figure 1: Schematic diagram of the nursing process (Smeltzer et al., 2010)

Assessment

This is the first step of the nursing process and involves the systematic collection, synthesis and analysis of patient's health history and physical assessment data to determine the health status and any actual or potential health problems of the patient (ANA, 2010; Smeltzer et al., 2010). It also involves the initiation and interpretation of diagnostic tests and procedures relevant to the patient's status. The patient, family, and other healthcare providers are usually involved as appropriate in the data collection process. Priority in data collection is given to the patient's immediate condition or the anticipated needs of the patient.

According to ANA (2010), the registered nurse or midwife is expected to adhere to ethical, legal, and privacy guidelines and policies in the collection, maintenance, use, and dissemination of data and information. In summary, what

is expected of a registered nurse during this step of the nursing process, according to Chabeli (2007), is that:

> The nurse uses critical thinking to identify the chief complaint and other health problems, collect information, analyse ideas and arguments, examine and interpret data, categorise and decode the significant data from the insignificant data and clarify the meaning for better understanding. The nurse has to verify the data with credible sources where there is doubt. Throughout the assessment phase, cognitive thinking skills are supported by the affective critical thinking dispositions…. The nurse has to be inquisitive and analytic and ask probing questions to collect a comprehensive health history from the patient. The nurse has to be open-minded, systematic when collecting data, seek for the truth, and demonstrate self-confidence and cognitive maturity to the patient and relatives so as to build a good rapport and develop a respecting and a trusting relationship with the patient. (p. 78).

Nursing diagnosis

"A nursing diagnosis is a clinical judgment concerning a human response to health conditions/life processes, or vulnerability for that response, by an individual, family, group, or community" (NANDA-I, 2014, p. 25). It is the second step of the nursing process and involves the drawing of conclusions from the assessment data collected in the first step to form diagnostic statements that describe the patient's needs (Haapoja, 2014). During the formulation of nursing diagnoses, nurses make use of critical thinking skills such as inference-making, where synthesising and hypothesis-making play an integral part

(Chabeli, 2007). Smeltzer et al. (2010) indicated that this step involves the identification of the following patient problems:

Nursing diagnoses: These refer to actual or potential health problems that can be managed by independent nursing interventions

Collaborative problems: These refer to certain physiologic complications that a nurse monitors to detect onset or changes in status. Nurses manage collaborative problems using both physician prescribed and nurse prescribed interventions to minimise or deal with the complications of such problems.

Nursing diagnoses need to be documented in a comprehensive way, with the help of structured classifications (Haapoja, 2014). This enables satisfactory communication with colleagues and other healthcare team members. There exists a number of nursing diagnostic classifications for the purpose of uniformity in nursing diagnostic language such as Clinical Care Classification (CCC) and North American Nursing Diagnosis Association International (NANDA-I) among others. The NANDA-I classification is the foremost of all the standardised nursing diagnostic classifications (Haapoja, 2014). NANDA-I is an international professional nursing association, officially founded in 1982 as North American Nursing Diagnosis Association (NANDA-I, 2014). The association develops, researches, disseminates and refines the nomenclature, criteria, and taxonomy of nursing diagnoses worldwide.

Three types of nursing diagnosis have been proposed by NANDA-I and these include problem-focused nursing diagnoses, health promotion diagnoses and risk diagnoses (NANDA-I, 2014). Problem-focused nursing diagnoses contain defining characteristics and related factors while health promotion diagnoses generally have only defining characteristics, although related factors

may be used if they might improve the understanding of the diagnosis. It is only risk diagnoses that have risk factors.

Each nursing diagnosis possesses defining characteristics (observable cues/inferences that cluster as manifestations of a diagnosis), related factors (aetiologies, circumstances, facts, or influences that have some type of relationship with the nursing diagnosis) and risk factors (influences that increase the vulnerability of an individual, family, group, or community to an unhealthy event) (NANDA-I, 2014). However, a nursing diagnosis does not need to contain all types of diagnostic indicators (that is defining characteristics, related factors, and/or risk factors).

It is important that nursing diagnoses should not be confused with medical diagnoses. While medical diagnosis focuses on the disease and does not differentiate among individual needs of care, nursing diagnosis focuses on the individual patient and/or family's response to health-related problems (Ehrenberg & Ehnfors, 1999). NANDA-I (2014) underscores this in the following statement:

> A medical diagnosis deals with a disease, illness or injury. A nursing diagnosis deals with actual or potential human responses to health problems and life processes. For example, a medical diagnosis of cerebrovascular attack (CVA or stroke) provides information about the patient's pathology. The nursing diagnoses of impaired verbal communication, risk for falls, interrupted family processes, chronic pain, and powerlessness provide a more holistic understanding of the impact of that stroke on this particular patient and his/her family…. If nurses only focus on the stroke, they might miss the chronic pain the

> patient suffers, his sense of powerlessness, and even the interrupted family processes. All of these issues will have an impact on his potential discharge home, his ability to manage his new therapeutic regimen, and his overall quality of life. It is also important to remember that, while a medical diagnosis belongs only to the patient, nursing treats the patient and his family, so diagnoses regarding the family are critical because they have the potential to influence – positively or negatively – the outcomes you are trying to achieve with the patient. (p. 112).

Therefore, though medical and nursing diagnoses are different, they complement each other to provide the best health care service to the patient and his family.

Planning

When the nursing diagnosis has been formulated, the planning phase of the nursing process begins. It is the third step of the nursing process and immediately follows assessment and diagnosis. Planning is described as a proposed sequence of actions aimed at addressing the identified client problems (Haapoja, 2014). Wilkinson (2006) indicates that the nurse makes use of her critical thinking and good decision-making skills during the planning phase in selecting the most appropriate evidence-based and ethical nursing interventions.

According to Smeltzer et al. (2010), the planning phase involves the assigning of priorities to the nursing diagnoses and collaborative problems, specifying expected outcomes, specifying the immediate, intermediate, and long- term goals of nursing action, identifying specific nursing interventions appropriate for attaining the expected outcomes, as well as identifying inter-dependent interventions. Additionally, documenting the nursing diagnoses,

collaborative problems, expected outcomes, nursing goals, and nursing interventions on the nursing care plan document is very important. Furthermore, it is important to communicate any assessment data that points to health care needs to other members of the health care team if those personnel can best meet those needs.

However, nurses often move directly from nursing diagnosis to nursing intervention without planning or consideration of desired outcomes (NANDA-I, 2014). It is vital for nurses to consider the urgency of the patient problems in choosing the interventions, with the most critical problems receiving the highest priority (ANA, 2010; Smeltzer et al., 2010). The planned interventions must be patient-focused, outcome-directed, and implemented with compassion, confidence, and a willingness to accept and understand the patient's responses. The goals and outcomes must be SMART (Specific, Measurable, Attainable, Realistic and Time-bound). It is equally important to note that planning in the nursing process is an ongoing process, and not a one-time event (Chabeli, 2007).

Implementation

The implementation phase of the nursing process involves nurses undertaking both independent and interdisciplinary interventions in the proposed plan of nursing care (NANDA-I, 2014). The nurse carries out or delegates other capable members of the nursing team to undertake the interventions that were laid down in the planning phase for achieving the set patient recovery goals or desired outcomes (Chabeli, 2007). The nurse, however, assumes responsibility for the implementation and coordinates the activities of all those involved in the implementation process, including the

patient and family, other members of the nursing team, and other members of the health care team (Smeltzer et al., 2010).

When choosing an intervention, it is important to use evidence-based interventions to facilitate the patient's progress towards the desired outcome. It is equally important for the nurse to consider the feasibility of successfully implementing the intervention, the acceptability of the intervention to the patient and the capability of the nurse to execute the intervention safely with competence (Chabeli, 2007). The designated nursing interventions must focus on the immediate, intermediate, and long-term care goals (Smeltzer et al., 2010). The nurse is expected to assess on a continuous bases the patient and his response to the nursing care; making revisions to the plan of care as the patient's condition improve.

Referrals to other professionals should be made when the nurse anticipates that expertise in specialised areas would help the patient (Chabeli, 2007). In collaborating with other professionals, requests or orders from other health care team members must not be followed blindly but should be assessed critically and questioned when necessary. The implementation phase of the nursing process ends when the nursing interventions have been completed (Smeltzer et al., 2010).

Patient participation in the implementation phase also plays a vital role. However, it is important to note that the degree of participation in this phase depends on the patient's health status and the available resources as well as the type of action being considered. The effectiveness of the implementation phase also depends largely on the nurse's ability to create good communication and building of good rapport with the patient (Kozier et al., 2014).

Evaluation

Evaluation, the final step of the nursing process, allows the nurse to determine the patient's response to the nursing interventions and the extent to which the objectives of patient care have been achieved (Smeltzer et al., 2010). Concise and objective data in relation to the nursing diagnoses and patient's response to the interventions must be captured and documented in a systematic manner in the patients' records or according to the policy of the institution, specifying whether the outcomes were met or not (ANA, 2010; Chabeli, 2007; Haapoja, 2014; Smeltzer et al., 2010).

Though the nursing process is conceptualised as a stepwise process, evaluation in the nursing process is an ongoing process (NANDA-I, 2014). Information about a patient's state of health, nursing interventions and the patient's responses to the interventions are collected, evaluated and documented on an on-going basis. Where the care goals and expected patient outcomes are not met or partially met, a revision of the plan or entire process is carried out, and the new plan implemented. It is important to note that if the steps in the nursing process are not carried out in a systematic manner, the continuity of patient care could be compromised (Lopes et al., 2010).

Importance of the Nursing Process

According to Wagoro and Rakuom, (2015), scholars in Nursing agree that implementation of the nursing process improve communication among nurses, provides a system for evaluating nursing interventions and improves clients' satisfaction with care. Pokorski et al. (2009) and NMCGH (2007) sees the nursing process a means of standardising nursing care, and the maintenance of professional autonomy (Afolayan et al., 2013).

In a study to determine whether the use of the nursing process achieves better health outcomes for patients, it was found that patients assigned to the nurses who used the nursing process had better control of their chronic diseases and incurred lower drug costs as compared to patients who were nursed without the nursing process (Pérez Rivas et al., 2016).

In a systematic review to examine the impact of nursing diagnoses, interventions and outcomes (Nursing process) on nursing practice, Müller-Staub et al. (2006) found that the use of nursing diagnostics improved assessment documentation, the quality of nursing interventions and stated outcomes were attained. In a Nigerian study, Afolayan et al. (2013) found that there was a strong correlation between application of the nursing process and patients' recovery.

Lambie, Schwend and Scholl (2015) upon evaluating the clinical reasoning ability of student nurses through the utilisation of the nursing process in a simulation learning activity found that there were notable differences between the pre- and post-simulation nursing process records. In the pre-simulation nursing records, patient problems were incorrectly identified, leading to the development of an inappropriate course of nursing actions. Following the simulation experience, students' ability to process patient assessment information and identify pertinent patient problems as well as and relevant clinical care actions increased. This demonstrated the use of the nursing process during clinical simulation aided in the refinement of the students' ability to translate theory to practice through clinical reasoning.

Additionally, Afolayan et al. (2013) summarised the benefits of the nursing process to include the improvement in critical thinking and clinical evidence-based decision making skills in an organised and goal-directed manner. It also enables the nurse to communicate professional topics with colleagues from all clinical specialities in the practices setting using a unified nursing language. It helps in proper documentation of nurses' contribution to patient care and the health care team. The nursing process also sets a global standard upon which nursing care can be audited.

In further highlighting the importance of the nursing process as a framework that facilitates critical thinking in nurses, Chabeli (2007) observed that the nursing profession cannot afford nurses who use strategies such as guessing, display of disorganised thoughts, applying unreasonable criteria and using illogical reasoning for making clinical judgments. Chabeli (2007) thus observed that:

> The days of "just carry out the doctor's prescription without understanding the effects and side effects of the treatment" and conformity based on fear, are over. The nursing profession does not need nurses who will just carry out daily routines without question, rely on routine activities and protocols to meet the divergent health needs of patients and nurses who are counter- productive. Nurses subjecting themselves to be handmaidens of other health professions, especially when rational clinical decisions are to be made, should be history. (p.70).

Critique of Reviewed Theoretical Literature

In spite of the usefulness of the nursing process in facilitating critical thinking and the provision of quality nursing care, a number of nurse researchers have raised concerns about it. The implementation of the nursing process has been found to be time-consuming for nurses (Axelsson, Björvell, Mattiasson, & Randers, 2006; Mahmoud & Bayoumy, 2014). The massive amounts of documentation generated when using the nursing process have also been flagged. Varcoe (1996) argues that the role of the nurse is to provide care and not to be heavily engaged with the lengthy administrative records.

The nursing process/nursing process theory assumes that most patients are conscious and are able to interact with nurses and make inputs into their care plans and care delivery. However, this is not always the case, as patients come into healthcare facilities in different states of consciousness and ability to appreciate the importance of the detailed history the nurse will be taking from the patient. This point was underscored by Meleis (2012) when she observed that, the apparent focus on ill people in acute care; particularly those who are aware and conscious and on immediate situations as the downside of the nursing process theory.

The cultural nuances of the patient have not also been taken into consideration. In some cultural settings, the open expression of sickness or suffering is frowned upon as a sign of weakness. A patient from such a setting is most likely not to be forthcoming with vital information needed to diagnose and plan his care. Meleis (2012) similarly observed that:

> The theory [Nursing Process Theory] appeared initially to be culturally bound because it was perceived by nurses that patients in other parts of

> the world and from other cultures may not want to participate in identifying their needs, and may not feel free to engage in interpretations of meanings. It was also assumed that patients may prefer to rely on their significant others and health care professionals to do that for them, and that they may misinterpret the continuous validation proposed in this theory as lack of knowledge, lack of expertise, or lack of accountability in the care process... (p. 249).

Empirical Literature Review

Demographic Characteristics and the use of the Nursing Process

Nurses' demographics characteristics such as gender, age, educational level, professional category and rank appear to influence the use of nursing process in a number of studies. In the study of the factors affecting the use of the nursing process in Ogbomoso town, Adeyemo and Olaogun (2013) found that nurses who were professional (registered nurses) were more likely to implement the nursing process than those who were not professional.

In Afoi et al. (2012) study in Kaduna, Nigeria, the educational level and qualification indicated that, 23.9% had single qualification of RN or RM, 47.2% had a second educational/professional qualification in addition to their basic RN or RM qualification, while 8.6% have three qualifications, with only one nurse (0.6%) being a graduate (BSc. Nursing). It was also found that the rank of nurses related significantly with the implementation of the nursing process while qualification (educational level) did not relate significantly to the implementation of the nursing process.

In the systematic review by Zamanzadeh et al. (2015), it was also established that female respondents in one of the studies had more positive

attitudes than males towards the use of the nursing process in providing high-quality nursing care. This suggests that male nurses are less likely to use the nursing process for patient care as compared to their female counterparts.

Findings of a study on the factors influencing the use of the nursing process by Mangare (2012) in Kenya showed statistically significant correlation between demographic characteristics such as gender, age and educational qualification with factors that hindered the use of the nursing process.

However, in a study by Assefa (2014) in Bale Zone hospitals in Ethiopia to identify factors affecting the implementation of the nursing process, it was found that demographic characteristics (age, gender, educational level) had no statistically significant association with implementation of the nursing process.

Knowledge Level about the Nursing Process

In the mixed study by Assefa (2014) in Bale Zone hospitals in Ethiopia to identify factors affecting the implementation of the nursing process, it was further found that 54.1% of respondents were highly knowledgeable, 22.6% were moderately knowledgeable and 23.3% had poor knowledge about the nursing process. Further analysis found that highly knowledgeable nurses were 3 times more likely to use the nursing process than moderately and low knowledge group nurses.

Aseratiie (2011), in the cross-sectional study of 192 nurses to assess factors affecting implementation of the nursing process in selected governmental hospitals in Addis Ababa, Ethiopia, found that only 16.1% of respondents were highly knowledgeable about the nursing process, 52.6% were moderately knowledgeable while 31.2% had poor knowledge. About 46.4 % were rated highly in clinical nursing skills, 51% were moderately skilful while

only 2.6% had poor clinical nursing skill. Inferential analysis showed that nurses who were highly knowledgeable in the nursing process were 38.9 times more likely to utilise the nursing process in patient care while moderately knowledgeable nurses were 7.9 times more likely to utilise the nursing process than those with low knowledge.

Agyeman-Yeboah and Korsah (2016) found in their qualitative study that participants had basic knowledge on the nursing process but lacked the needed skills to do a proper assessment and formulate nursing diagnoses. Additionally, it was found that nurses carried out various nursing interventions that were not based on the nursing diagnosis as they were neither formulating nor documenting the nursing diagnosis. This suggests an inadequacy in their theoretical and clinical skill knowledge of the nursing process.

In a study in health institutions in Ogbomoso town in Nigeria, Adeyemo and Olaogun (2013) found knowledge factors as the highest predictor of the use of nursing process. This finding indicates that nurses with adequate knowledge of the nursing process were more likely to use the nursing process for patient care.

Contrary to the findings of several studies showing the positive effect of high nursing process knowledge level on its utilisation, the findings of Ngao (2015) revealed there was no significant association between understanding (knowledge of the nursing process) and implementation of the nursing process.

Extent of Utilisation of the Nursing Process

This section of the literature review deals with the extent to which the nursing process has been used for patient care in different studies. The nursing process provides an organised framework to guide and standardise nursing

practice (Edet et al., 2013). The effective use or implementation of the nursing process is therefore very vital to professional nursing practice as it leads to improved quality of care, improved patient outcomes, stimulation of theoretical as well as scientific nursing knowledge based on the best clinical practice (Pokorski et al., 2009). While the nursing process has been successfully applied in the West, studies in other parts of the world have shown different levels of utilisation.

In a retrospective cross-sectional Spanish study by Pérez Rivas et al. (2016), it was found that the patients assigned to nurses who used the nursing process had received better nursing care, with these patients having better control of their chronic diseases than the other patients. A systematic review by Müller-Staub et al. (2006) to examine the impact of nursing diagnoses and interventions on nursing practice found that the use of nursing diagnosis improved the quality of documented patient assessments, identification of commonly occurring diagnoses within similar settings, and coherence among nursing diagnoses, interventions and outcomes.

However, despite the professional standards and quality care the nursing process seeks to ensure, ample evidence from several studies shows varying degrees of use of the nursing process for patient care by nurses. In a descriptive study of the implementation of the nursing process in 158 Spanish health institutions (137 public and 21 private, all with a staff of 10 or more professional nurses), it was found that 155 (98%) out of the 158 institutions applied the nursing process in patient care (Huitzi-Egilegor et al., 2014).

In a retrospective cross-sectional study of 302 medical records in a Brazilian hospital to identify the steps of the nursing process as captured in

patient's records during the first 48 hours after admission, it was discovered that all the steps of the nursing process were recorded by nurses except for the diagnosis (Pokorski et al., 2009).

Another retrospective Brazilian study by Lopes et al. (2010) discovered that, although all steps of the nursing process had been used for patient care by nurses, they were not carried out consistently. It was noted that, on the day of admission, 97.1% of the patient's records included a complete or partial record of the history and 91.2% included the physical examination. Subsequently, the other phases of the nursing process were included, with histories and physical examinations being present in 60.3% and 92.6% respectively, nursing diagnoses being present in 48.5%, the nursing intervention was present in 69.1%, and evaluations were present in 72% of the patient's records reviewed.

A descriptive study conducted by Ofi and Sowunmi (2012) to determine the extent of utilisation of the nursing process for documentation of nursing care in three selected hospitals in Nigeria found that utilisation of nursing process for care was 100%, 73.6% and 34.8% respectively in the three hospitals. In a similar study in a Neuro-psychiatric hospital in Nigeria, Afolayan et al. (2013) found that even though nurses at the hospital had good theoretical knowledge of the nursing process, they did not apply the nursing process in the care of their patients. The study also found a strong positive correlation between application of the nursing process and patients' recovery.

A study of 210 nurses of 6 hospitals in Nigeria to determine whether nursing process was used in patient care or not showed that 57.1% of respondents made use of the nursing process for patient care, while 14.1%

revealed that the nursing process started but was not completed and 25.8% indicated that it is not used in patients care (Afoi et al., 2012).

In a cross-sectional study of 192 nurses from selected government hospitals in Ethiopia, Aseratiie (2011) found that close to half of the respondents (47.9%) did not utilise the nursing process during patient care, with only 52.1% indicating that they use the nursing process in patient care. In a similar study conducted by Hagos et al. (2014) in 6 Mekelle Zone Hospitals in Ethiopia, all of the respondents in the 6 hospitals indicated that they did not use the nursing process during provision of nursing care to their patients. In a similar Ethiopian study to identify factors affecting the implementation of the nursing process, Assefa (2014) found that 52.1% of respondents use the nursing process in patient care while 18.5% did not.

In Ghana, there have been limited published studies on the nursing process, with the few studies sighted – Agyeman-Yeboah and Korsah (2016), Korsah, Agyeman-Yeboah and Okrah, (2017), and Laryea (1994) – mainly investigating the barriers to the use of the nursing process as well as knowledge and opinions about the nursing process. The study by Agyeman-Yeboah and Korsah (2016) qualitatively assessed the determinants of clinical utilisations of the nursing process by nurses of 37 Military Hospital and found that there was no systematically organised way of planning to inform patient care. Similarly, Korsah et al. (2017) sought to explore the views and opinions of nurses on the use of the nursing process, while Laryea (1994) studied the barriers to the implementation of the nursing process. None of these studies attempted to estimate the extent to which nurses use the nursing process for patient care.

These studies were also conducted in different hospitals in the southern part of Ghana.

Factors that Serve as Barriers to the use of the Nursing Process

Nursing process knowledge and clinical skills barriers (Capability factors)

In a study to assess the factors affecting the use of nursing process in Health institutions in Ogbomoso Town in Nigeria, Adeyemo and Olaogun (2013) found that knowledge factors were one of the most flagged factors affecting the use of the nursing process by nurses. Knowledge factors in particular were found to be the highest predictor of the use of nursing process. This finding indicates that nurses with inadequate knowledge of the nursing process were less likely to use the nursing process for patient care.

In a study to identify the difficult and easy aspects of performing the different stages of the nursing process among 83 nurses working 20 hospitals in São Paulo, Brazil, Takahashi, Barros, Michel and Souza (2008) found that, most of the difficulties were related to the nurses' theoretical and clinical knowledge to perform the phases of the process.

In Afoi et al.'s (2012) study of 210 nurses of 6 hospitals in Kaduna State, Nigeria to determine whether nursing process was used in patient care or not, it was further found that, of those who indicated they did not use the nursing process, 16.6% attributed poor exposure of nurses to clinical nursing process skills as the reason. Similarly, in their qualitative study, Agyeman-Yeboah and Korsah (2016) found that though their participants had some knowledge of the nursing process, they were unable to properly utilise the nursing process because they lacked the needed nursing process clinical skills. Also, in an Egyptian study by Mahmoud and Bayoumy (2014), it was also found that

having the theoretical knowledge and clinical experience was the most facilitator for easy execution of the nursing process.

The mixed study by Assefa (2014) in Ethiopia found that highly knowledgeable nurses were more likely use the nursing process than moderately and low knowledge group nurses. Respondents also identified knowledge gap about the nursing process, during an in-depth interview, as a major impediment to the utilisation of the nursing process for patient care.

In a systematic review of published studies on challenges associated with the implementation of the nursing process, Zamanzadeh, Valizadeh, Tabrizi, Behshid and Lotfi (2015) established that differences exist between what is taught in school with regards to the nursing process and what actually occurs in clinical field, creating some challenges. In effect, some nurses have a difficulty in translating the classroom nursing process knowledge into clinical practice.

Aseratiie (2011) in an Ethiopian study found that nurses who were highly knowledgeable in the nursing process were 38.9 times more likely to utilise the nursing process in patient care while moderately knowledgeable nurses were 7.9 times more likely to utilise the nursing process than those with low knowledge.

In the same way, inadequate theoretical knowledge (Agyeman-Yeboah & Korsah, 2016) and lack of clinical nursing process skills (Agyeman-Yeboah & Korsah, 2016; Laryea, 1994) were cited as impediments to the use of the nursing process for nursing care delivery. This suggests that inadequacy in theoretical knowledge and clinical skill of the nursing process leads to poor utilisation of the nursing process.

Despite the positive relationship between nursing process knowledge and the use of the nursing process, Ngao (2015) surprisingly found that there was no significant association between understanding (knowledge of the nursing process) and implementation of the nursing process. The implication of this finding is that the knowledge level about the nursing process does not influence significantly the use of the nursing process in the study.

Institutional-related barriers (Opportunity factors)

Further findings by Afoi et al. (2012) in Kaduna, Nigeria showed the shortage of nursing staff (54.0%) as the major factor that militated against the implementation of the nursing process in the 6 hospitals. Furthermore, insufficient equipment (28.2%) and insufficient nursing process forms (14.7%) were identified as the second and third major hindrances to the implementation of the nursing process.

In an in-depth interview of a mixed study by Assefa (2014) in Ethiopia to identify factors affecting the implementation of nursing process, it was found that the most challenging factors that hindered the use of the nursing process were lack of resources (consumables), lack of manpower (nursing staff), performing non-nursing tasks, poor in-service training and high work load.

In Adeyemo and Olaogun (2013) study, what they described as institutional factors were found to be the second highest predictor of the use of the nursing process. According to the researchers, reducing problem associated with the institutions with regard to issues that affect the nursing process will lead to a greater usage of the nursing process.

Aseratiie (2011), in a cross-sectional study of 192 nurses to assess factors affecting implementation of nursing process in Ethiopia also found that

72.9% respondents were working in a stressful working environment, with a binary logistic regression analysis indicating that nurses working in a stressful working environment were 2.8 times less likely to implement nursing process than even disorganized working environment. On accessibility to resources needed for nursing care, nurses who worked in hospitals with adequate resources to give nursing care were 2.248 times more likely to implement nursing process than nurses working in facilities with resource challenges were.

In the systematic review by Zamanzadeh et al. (2015), it was also established that the lack of adequate support from the management and inadequate time to implement the nursing process due to large numbers of patients can hinder the use of the nursing process by nurses. Documentation of the steps of the nursing process, especially paper-based documentation is cumbersome and time-consuming. despite the fact that most nurses agree to the importance of the nursing process, the amount of time it takes to assess, plan, implement, evaluate and document makes it cumbersome, leading to most of them being less willing to use it (Zamanzadeh et al., 2015).

A cross-sectional study of 98 nurses by Shewangizaw and Mersha (2015) to assess factors affecting implementation of nursing process at a general hospital in Ethiopia established that early discharge of patients negatively affected the application of the nursing process in the hospital. Furthermore, a strong association existed between the early patient discharges (length of stay of patients in the ward) with the ability of nurses to implement the nursing process in their care. Nurses, therefore, did not have enough time to use the nursing process for the care of patients who were discharged immediately after admission.

In their paper on streamlining Kenya's nursing process, Wagoro and Rakuom (2015) observed that hospitals that scored poorly on the use of the nursing process had a problem of lacked support from nursing service managers and continuing professional development coordinators to the coordinators of the nursing process in those hospitals. Also identified were inadequate staffing level and the inability to cope with the required patient assessment and massive documentation (high workload) required in mainstreaming Kenya-Nursing Process.

Attitudinal and self-motivation-related barriers (Motivation factors)

In Afoi et al.'s (2012) study in Kaduna, Nigeria, it was further found that lack of interest in the nursing process was cited by about 10.4% of the those who indicated that they did not use the nursing process as a reason for their inability to use it. Similarly, Assefa (2014) found that some staff nurses perceived the nursing process as something extra added to their daily work (a burden). Also, in the mixed study by Assefa (2014), it was found that close to a quarter of the respondents had a negative attitude towards the application of nursing process.

In the systematic review by Zamanzadeh et al. (2015), it was also established that most respondents (80%) believed that nursing process was able to uniquely define nursing actions and presented an appropriate image of nursing (positive attitude/view). Respondents who are without this belief will less likely be motivated to use the nursing process. In the same way, Adeyemo and Olaogun (2013) found that attitudinal factors predicted the use of the nursing process by nurses in Ogbomoso town. They concluded that, positive attitude of nurses towards the nursing process will lead to a better

implementation of nursing process while negative attitudes hinder the use of the nursing process.

However, in the quantitative findings of the mixed study by Habte (2015), it was revealed that, a nurse's attitude towards the nursing process had no significant association with the utilisation of nursing process. However, most of the key informants in the qualitative section mentioned that attitude of nurses towards nursing process was affecting its utilization.

Critique of Reviewed Empirical Literature

Though many of the quantitative studies were conducted with sample sizes above hundred, a number of the studies (Afoi et al., 2012; Takahashi et al., 2008) had relatively small samples, calling in to question the representativeness of the samples. Afoi et al. (2012) study was conducted with a sample of 210 in 6 hospitals (an average of 35 participants per hospital). In Takahashi et al. (2008) study, only 83 participants working in 20 different hospitals were used (an average of 4 participants per hospital).

A number of the studies reviewed (Afoi et al., 2012; Aseratiie, 2011; Assefa, 2014) were based on self-reported levels of use of the nursing process, captured using questionnaires. These are prone to social desirability biases. However, none of the researchers indicated how they minimised that. Additionally, with self-reportage being bias prone, retrospective studies of nursing records or direct participant observation as in the studies by Lopes et al. (2010) and Pokorski et al. (2009), would considerably minimise this likely bias and objectively bring to the fore the extent of use of the nursing process.

Theoretical/Conceptual Framework for the Study

Theoretical framework

Theoretically, the study was guided by the Capability, Opportunity, Motivation and Behaviour system model (COM-B system) by Michie, van Stralen and West (2011). This system is one of the numerous theories/models used in Evidence-based Practice (EBP), where it is aimed at understanding and/or explaining what influences implementation outcomes (Nilsen, 2015). In the 'behaviour system' model, as shown in Figure 2, capability, opportunity, and motivation interact to generate behaviour which in turn influences capability, opportunity and motivation (Michie et al., 2011). Capability refers to the individual's psychological and physical capacity to engage in the behaviour concerned. It includes having the necessary knowledge and skills. Motivation refers to all those brain processes that energise and direct behaviour, not just goals and conscious decision-making. It includes emotional and habitual processes, as well as analytical decision-making. Opportunity refers to all the factors that lie outside the individual that make the behaviour possible. In effect, issues under these three pre-requisites to behaviour affect the successful occurrence or otherwise of the desired behaviour.

The COM-B System Model was selected to underpin this study because, apart from determining the extent to which nurses use the nursing process (behaviour) for patient care in the hospital, the study also aims at unearthing challenges that impact its use (capability, motivation and opportunity factors).

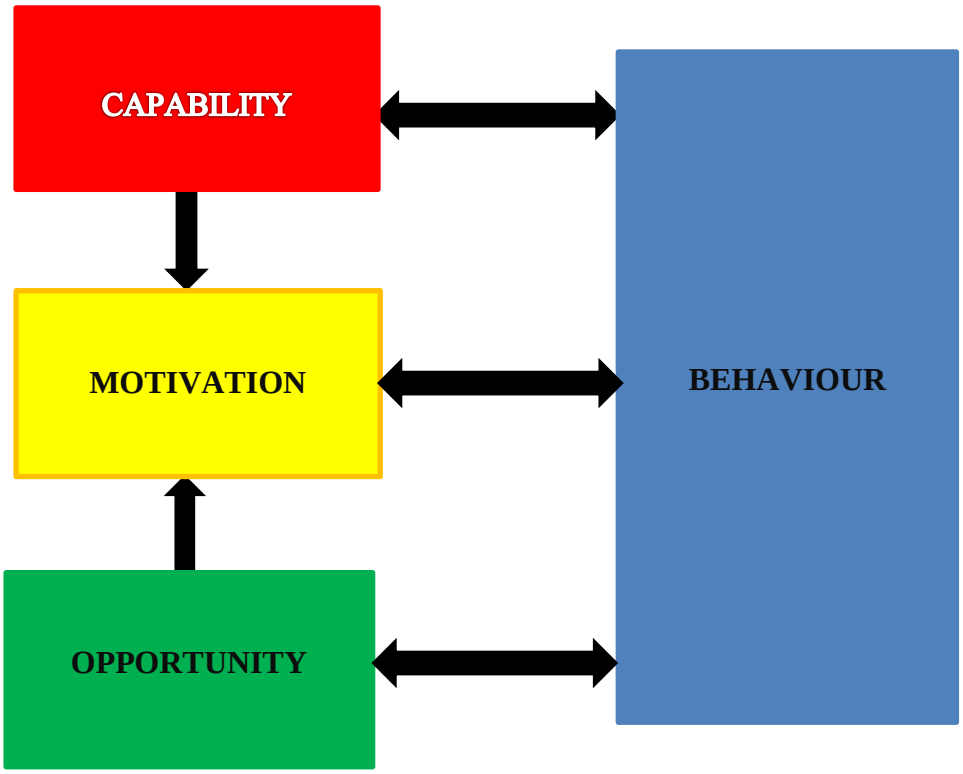

Figure 2: The COM-B System Model (Michie et al., 2011)

Conceptual framework

A conceptual framework refers to an abstract set of concepts and theories that are related to one another and may be used to organise ideas and guide analysis within a study (Gerrish & Lathlean, 2015). In addition to demographic characteristics, and for purposes of this study, the researcher was only interested in the influence of capability, motivation and opportunity on behaviour, and not the influence of behaviour on capability, opportunity and motivation of the COM-B System Model.

The framework of the COM-B system was therefore adapted to conceptualise the study based on the reviewed literature. The conceptual framework considered the influence of barriers related to demographic characteristics (gender, age, educational level, professional category, rank), barriers related to capability factors (knowledge about nursing process and

clinical nursing process skills), barriers related to opportunity factors (staffing, stressful work environment, workload, burden with non-nursing activities, nursing process policy, managerial support, monitoring and supervision by nurse managers, further nursing process training, adequate supply of consumables/stationery, and length of patient stay in the ward), and barriers related to motivation factors (attitude toward nursing process and self-motivation to use nursing process) that influence the occurrence of behaviour of nurses (use of the nursing process for patient care) as captured in Figure 3.

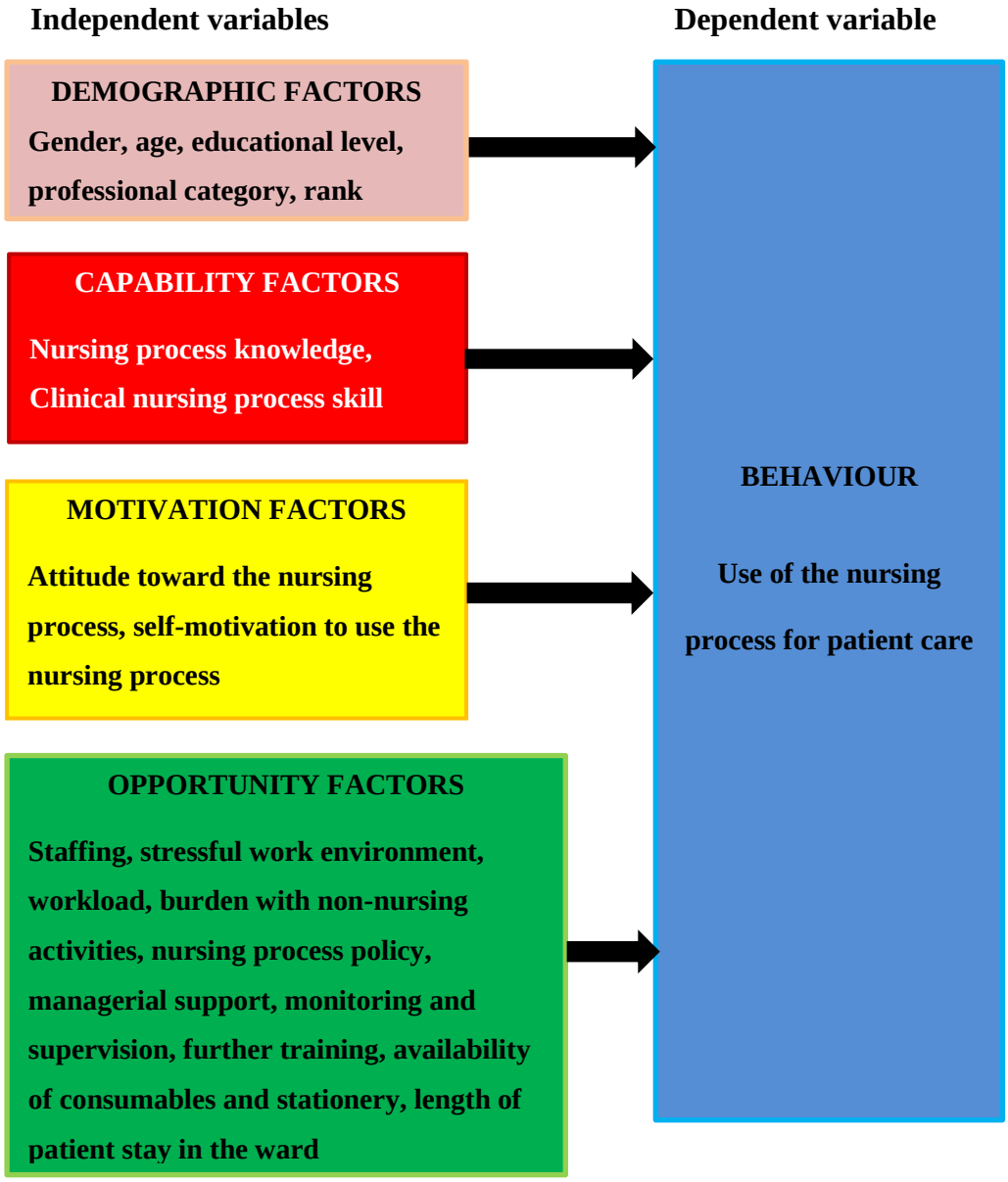

Figure 3: Researcher's own Concept of the Study

Chapter Summary

It is very clear from the reviewed literature that use of the nursing process for patient care is a global standard expected of all registered nurses and midwives the world over, including Ghana. The proper use of the nursing process leads to the delivery of quality nursing care and improved patient outcomes. It also promotes critical thinking on the part of nurses while ensuring professional autonomy and the building of the body of nursing knowledge.

However, despite the benefits and regulatory demands placed on nurses to use the nursing process to deliver patient care, several studies have shown different levels of utilisation from different hospitals and countries, and in some instances, within the same country (Afolayan et al., 2013; Aseratiie, 2011; Assefa, 2014; Edet et al., 2013; Huitzi-Egilegor et al., 2014; Lopes et al., 2010; Ofi & Sowunmi, 2012; Pérez Rivas et al., 2016; Pokorski et al., 2009).

Most researchers flagged issues of opportunity and capability factors as the leading barriers that to the use of the nursing process for patient care (Adeyemo & Olaogun, 2013; Afoi et al., 2012; Afolayan et al., 2013; Agyeman-Yeboah & Korsah, 2016; Assefa, 2014; Korsah et al., 2017; Laryea, 1994; Mangare, 2012; Shewangizaw & Mersha, 2015; Takahashi et al., 2008; Zamanzadeh et al., 2015). These were followed by motivational factors and demographic factors.

In Ghana however, few studies were sighted for review. These studies did not estimate the extent of use of the nursing process. They concentrated mainly on barriers to the implementation as well as benefits of the nursing process (Agyeman-Yeboah & Korsah, 2016; Korsah et al., 2017; Laryea, 1994), presenting an area in the nursing process in need of further investigation.

Considering the fact that several studies outside Ghana have revealed differences in the extent of use of the nursing process, coupled with the fact that nurse researchers have not exhaustively examined the nursing process in Ghana, it is important that further research is conducted in the area of the nursing process in order to identify what exists in terms of the extent of use and barriers associated with its use in the country.

CHAPTER THREE

RESEARCH METHODOLOGY

The study sought to assess the extent of use and barriers/challenge associated with the use of the nursing process at the Tamale Teaching Hospital. This chapter generally deals with the overall approach, principles and philosophy that guided the research. The chapter captures the research design, study area, population under study, sampling procedure, data collection instrument and procedure, ethical issues, data analysis as well as a summary of the chapter and limitations during the research process.

Research methodology refer to the techniques used by researchers to structure a study in terms of the gathering and analysis of data relevant to the research questions (Polit & Beck, 2008). It therefore represents the general research strategy that outlines the way in which the research is to be conducted. Generally, two main methods are used in research – quantitative and qualitative methods.

Quantitative research, often referred to as scientific or empirical method, is said to be philosophically underpinned by a tradition that proposes scientific truths termed positivism (Gerrish & Lathlean, 2015). These truths emerge from what can be observed and measured with minimal bias so that greater confidence can be accorded findings of enquiry to enable generalizability. Quantitative research employ a general set of systematically disciplined procedures to collect evidence that can be transformed into numerical data for statistical manipulation in order to confirm or refute the hypotheses, answer research questions, make predictions or indicate trends (Gerrish & Lathlean, 2015; Polit & Beck, 2008).

Qualitative research methods on the other hand falls within an interpretivist tradition based on assumptions that in order to make sense of the world, human behaviour should be interpreted by taking into account interactions between people and the social processes that we engage in (Gerrish & Lathlean, 2015). This method of inquiry put emphasis on the ability of humans to shape and create their own unique experiences, and the idea that truth is what a person tells you it is. Consequently, this method emphasises an understanding the human experience as it is lived, usually through the careful collection and analysis of qualitative data that are narrative and subjective (Polit & Beck, 2008). Thus, there is no single interpretation, truth or meaning.

A growing trend in research today is the use of mixed method. A number of researchers today believe that many areas of inquiry can be enriched through the use of qualitative and quantitative methods within single study or cluster of studies (Polit & Beck, 2014). These two paradigms are combined to tap into and make up for the paradigm and methodological strengths and differences of quantitative and qualitative methods. The mixed method therefore blends quantitative and qualitative methods to help generate unique insight into a complex social phenomenon that may not be unearth from either methods alone (Bhattacherjee, 2012).

Study Design

Study design is a comprehensive plan or a blueprint for data collection in an empirical research project aimed at answering specific research questions or testing specific hypotheses (Bhattacherjee, 2012). Different study designs exist, and depending on the aims and objectives of a study, one can use designs such as field experiments, case control, and ethnography or field surveys.

This study employed a quantitative cross-sectional survey design. Cross-sectional designs obtain information on the status of a phenomenon of a population at a particular point in time, so as to observe and describe what exists (Sim & Wright, 2000). The main advantage of cross-sectional surveys is that they are economical and easy to manage (Polit & Beck, 2014). Independent and dependent variables are measured at the same point in time (Bhattacherjee, 2012) and it is also suitable for estimating the prevalence of a behaviour or phenomenon in a population (Sedgwick, 2014). Based on these advantages, coupled with the limited time available, the present study employed a cross-sectional survey design since the study sought to assess the extent of use and barriers/challenge associated with the use of the nursing process at the Tamale Teaching Hospital at the same time in the study.

However, it is claimed that cross-sectional surveys are subject to social desirability bias, and that cause-effect relationships are difficult to infer (Bhattacherjee, 2012). Pre-testing and participant self-completion of the data collection instrument helps in overcoming these weaknesses, though it is reported to be practically impossible to totally prevent social desirability bias in surveys (Bhattacherjee, 2012)

Study Setting

The Tamale Teaching Hospital is located in the Tamale Metropolis, the capital of the Northern Region of Ghana. It is a tertiary referral health facility, with a bed capacity of about 400, serving the three northern regions (Northern, Upper East and Upper West), part of the Brong Ahafo and northern part of the Volta region (TTH Nursing Directorate, 2015). It also serves patients referred

from Togo, Burkina Faso and Mali. It is also a centre for medical/nursing education and research.

The Tamale Teaching Hospital was chosen for this study because, as a tertiary health facility and a centre for the clinical training of nurses and midwives, registered nurses and midwives of this hospital are expected to exhibit the highest of standards of knowledge, practices and professionalism, that meet the standards demanded by the Nursing and Midwifery Council of Ghana as well as the Ministry of Health. Furthermore, some nursing units within the hospital had cause to cite the lack of application of the nursing process in patient care as a challenge faced in the delivery of nursing care in the Nursing Directorate's 2014 Performance Review (TTH Nursing Directorate, 2014).

Study Population

The study population was all registered nurses and registered midwives in Tamale Teaching Hospital. The hospital has a total of 838 nurses and midwives of various categories, specialties and ranks (TTH Nursing Directorate, 2015). Registered nurses and registered midwives together constituted 88.54% (742) of this number, comprising 647 registered general nurses (RGNs), 12 registered mental nurses (RMNs) and 83 registered midwives (RMs). These registered nurses/midwives work with auxiliary nurses/midwives in the various in-patient and out-patient units of the hospital, rendering nursing/midwifery services, clinical training of nursing/midwifery students as well as the conduct of nursing/midwifery research.

As earlier on indicated, the study was limited to only registered nurses and midwives (RGNs, RMs and RMNs) of the Tamale Teaching Hospital. These nurses and midwives were included in the study based on the fact that the

nursing process is part of their training curricular, and the Nursing and Midwifery Council of Ghana places a demand on them to use the nursing process as a tool for meeting the total health needs of patients, families and communities (NMCGH, 2012).

Enrolled nurses, enrolled midwives, certificate midwives and community health nurses were excluded from the study. This is because the nursing process does not form part of the training curricular of these groups of nurses and midwives, and no demand is placed on them to use it in patient care.

Sampling Procedure

Sample size

The sample size for the study was determined using Yamane's (1967) sample size formula $n = \frac{N}{1+N(e)^2}$, where 'n' is the sample size, 'N' is the population size (742), 'e' is the margin of error or level of precision (0.05). Using this formula, the sample size of participants needed for this study was calculated as follows: N = 742, e = 0.05, n = ?,

$$n = \frac{742}{1 + 742(0.05)^2}$$

$$n = \frac{742}{2.855}$$

$$n = 260$$

Israel (2009) recommends the addition of up to 10 % of the sample size to take care of non-response. Adding 10% as recommended, a final sample size of 286 was realised. Therefore, 286 registered nurses and registered midwives were sampled out of the 742 at the Tamale Teaching Hospital for this study.

Sampling technique

Stratified random sampling technique was used to select the 286 participants needed for the study. According to Gerrish and Lathlean (2015), stratified random sampling is helpful in situations where the sampling frame (target population) contains heterogeneous units as we have it in the nursing/midwifery front in Tamale Teaching Hospital. It helps in achieving adequate representativeness of each group in the sample.

A list of all registered nurses and registered midwives (742 in a Microsoft Excel format) was obtained from the Nursing Directorate of Tamale Teaching Hospital. Using a sampling frame of all the registered nurses and registered midwives, and a strata of the three registered nursing/midwifery categories in the hospital (647 RGN, 83 RMs and 12 RMNs), a proportional sample of 249 RGN, 32 RMs and 5 RMNs was drawn randomly without replacement from these professional categories to get the 286 participants needed for the study as depicted in Figure 4. This approach is said to minimise sampling bias and increases the representativeness of the sample so that findings can be generalised to the wider population (McLeod, 2014) of 742 professional nurses and midwives under study.

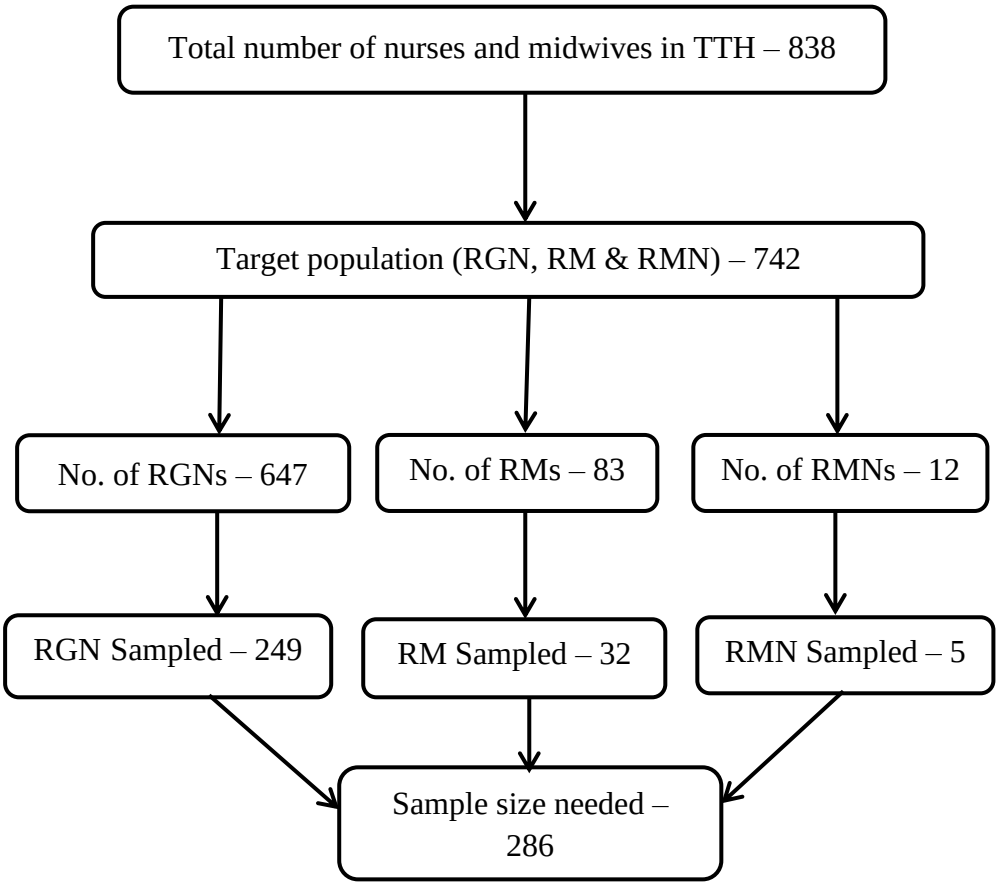

Figure 4: Schematic Representation of the Sampling Process

Data Collection Instrument

A semi-structured and self-completing questionnaire, developed by the researcher, was used for data collection (See Appendix A). The questionnaire was developed following an extensive review of theoretical and empirical literature on nursing, the nursing process and the research objectives. The questionnaire had four sections – A, B, C and D – with 38 items, consisting of open-ended, close-ended and ordinal scale items.

The sections and items were developed based on the research objectives and the study's conceptual framework. Section A had seven items that captured participants' demographic data. Section B contained 9 items that sought to reveal the knowledge level of participants about the nursing process. Section C had 4 items that measured the extent to which participants use the nursing

process for patient care, while section D contained 18 items, which was aimed at identifying the barriers to the utilisation of the nursing process in the hospital.

Pre-test/pilot study

The questionnaire was pre-tested at the Cape Coast Teaching Hospital (CCTH) in April 2017. The piloting was carried out on a sample of 30 registered nurses and registered midwives as recommended by Perneger, Courvoisier, Hudelson and Gayet-Ageron (2015). Perneger, Courvoisier, Hudelson and Gayet-Ageron (2015) pointed out that, the power to detect problems in a sample increases with increasing sample size. They further showed that, a sample size of 30 and above gives a statistical power of 80% or more.

There was a 100% questionnaire return rate. The questionnaire originally had 44 items. However, expunging of irrelevant items, modification of ambiguous ones, re-numbering and other corrections on the questionnaire after the piloting, brought the final number of items to 38. It was realised that, after item number 4, the questionnaire did not capture item number 5, and rather continued with item 6. This was identified and corrected. Item number 8, which was wrongly classified under section B, was re-classified under section A. Item number 10 on the pre-pilot instrument was expunged, as none of the participants answered it. Items 23 was modified and re-positioned as item 20.

Data from the pilot study was statistically tested to determine normality of the data as well as the internal consistency of the instrument. The test of normality showed a statistically significant deviation from normality (Shapiro-Wilk's test = 0.722, $p < 0.001$, at an alpha level of 0.05) (See Appendix J). This indicated that, the data to be obtained from the actual study was most likely to

be skewed, as registered nurses and midwives of the Tamale Teaching Hospital and Cape Coast Teaching Hospitals shared similar characteristics.

Validity and reliability

Validity refers to the ability of an instrument to measure what it is supposed to measure correctly and accurately (Gerrish & Lathlean, 2015). There are different types of validity. Face validity is a subjective assessment that the items in the instrument appear to be relevant, clear and unambiguous. Content validity is assessed by asking experts to judge whether items in the instrument fully represent the concept or construct to be measured. A growing number of researchers recommend the rating of items in an instrument on a four-point scale (1 = not relevant, 2 = somewhat relevant, 3 = relevant, and 4 = very relevant) to arrive at what is termed the Content Validity Index (CVI) (Polit & Beck, 2008; 2014). A CVI score of 0.80 or better indicates good content validity for an instrument. Bowling and Ebrahim (2005) underscored this view by indicating that the review of literature and consulting with experts helps generate relevant items that ensure face and content validity.

Items on the questionnaire were reviewed and rated on the four-point scale as recommended by Polit and Beck (2008, 2014) by three nursing lecturers of Nursing at the School of Nursing and Midwifery of the University of Cape Coast, and two clinical nurses of Cape Coast Teaching Hospital to confirm its face and content validity. A Content Validity Index (CVI) score of 0.96 was realised from their ratings. This shows that the questionnaire had a very high content validity.

Reliability refers to the repeatability of an instrument, that is, it will measure what it is supposed to measure in a consistent manner (Gerrish & Lathlean, 2015). Reliability can be demonstrated statistically in a number of ways including the use of internal consistency. Internal consistency reflects how well items are related to each other. A questionnaire is judged to be reliable when its Cronbach's alpha (α) statistic exceeds 0.70 (Macnee & McCabe, 2006). An analysis of the results of the pilot study at the Cape Coast Teaching Hospital showed a Cronbach's alpha statistic of 0.83 (See Appendix J), indicating high reliability.

Recruitment and Training of Field Assistant

A field assistant, with some experience in data collection, was recruited and trained to assist with the administration and collection of the questionnaires from participants. The assistant was given sufficient background knowledge about the study. He was also taken through how and why certain details are being collected (the ultimate aim and the specific information the items in the questionnaire sought to elicit).

Data Collection Procedure

Data collection was carried out personally with the assistance of the trained field assistant from 18th-21st April, 2017 at Tamale Teaching Hospital. A cover information sheet explained what the study was about, why it is important, how findings will be used and why the participant was selected. The information sheet further clarified ethical issues surrounding confidentiality and anonymity, and provided contact information for participants if they have questions as recommended by Gerrish and Lathlean (2015).

The participants were randomly selected from the stratified list, approached directly, and invited to participate in the study. They were contacted during less busy hours in each shift (morning, afternoon and night duties). When a selected nurse or midwife declined participation, another participant from the same strata was randomly selected and invited to participate in the study. Participants who agreed to participate in the study then signed an informed consent form, which was presented to them. They were then given a questionnaire to self-complete individually. The researcher, assisted by the field assistant, retrieved the completed questionnaires from participants. The collection was done within 48 hours after distribution of the questionnaires. A questionnaire return rate of 98.60% was achieved.

The main challenge encountered during the data collection process had to do with the fatigue we experienced in moving around the various units/wards on daily basis to distribute questionnaires to participants and retrieve the completed ones. The Tamale Teaching Hospital has over 30 wards/units within which registered nurses and midwives render nursing services daily. To deal with this problem, the 30 wards/units were grouped into two sections. The research assistant was responsible for one section (under the researcher's daily supervision) while the researcher was responsible for the other.

Ethical Considerations

Ethical clearance to undertake the study was obtained from the Institutional Review Board of the University of Cape Coast (UCCIRB/CHAS/2016/104) (See Appendix E), the Tamale Teaching Hospital Department of Research and Development (TTH/R&D/SR/17/03) (See Appendix F) and the Cape Coast Teaching Hospital Ethical Review Committee

(CCTHERC/RS/EC/2017/3) (See Appendix D). Information about the research such as what the research is about, why each participant was selected, confidentiality and anonymity among others (See Appendix B), were attached to the consent form (See Appendix C) and the questionnaire for participants review. Clarifications and explanations were given to those participants who needed them. Participants who agreed to part take in the study also signed the consent form that was attached to the questionnaire as a sign of their voluntary agreement. No adverse effect or distress was reported by any of the participants.

The confidentiality and anonymity of participants was guaranteed, as they were not required to provide their names and addresses. Retrieved completed questionnaires were stored under lock and key in a drawer, where the researcher was the only one with access to it. Participants have not been named in this or any subsequent report likely to emanate from this study.

One major ethical problem encountered during the data collection procedure was the demand by some participants to be given lunch and other material rewards before they would consent to participate despite the provision of information about the purpose and ethical considerations of participation. To solve this problem, the researcher further explained to them that their participation was voluntary, with no compensation, and giving them such rewards may bring about an ethical breech. A few declined after this explanation, but majority consented and went ahead to complete the questionnaire.

Data Processing and Analysis

Upon retrieval of the completed questionnaires from the participants, the questionnaires were checked to ensure they were completely filled. The researcher then organised and kept them in a drawer under lock and key, accessible to only the researcher. The data was cleaned, coded and then entered into the International Business Machines Statistical Package for Social Sciences software version 23 (IBM SPSS 23.0) in a computer for statistical analysis. Both variables (independent and dependent) were measured at the same time, using the questionnaire containing mostly Likert scale items. The results of the analysis are presented in Chapter Four.

Research questions 1 to 3 were addressed through the analysis of frequency distributions and reportage on the percentages of the variables of interest. The analysis of research question one was based on the percentage of correct responses of participants to the knowledge measurement items. The analysis for the second research question was based on the percentage of participants who strongly agreed or agreed to the statements that suggested that they made use of the nursing process during patient care. Analysis to answer research question 3 was arrived at by examining the percentage of participants who strongly disagreed or disagreed with the statements measuring the presence of those factors that enhance the use of the nursing process.

To answer research questions 4 and 5, the Kruskal-Wallis H Test of association and a Multiple Logistic Regression Model were used. The Kruskal-Wallis H Test tested for significant associations between the independent variables (demographic characteristics and the nursing process utilisation barriers) and the dependent variable (use of the nursing process) at the 0.05

alpha level. The Multiple Logistic Regression Model was then used to determine the predictive effect of factors related to the significantly associated independent variables on the dependent variable at a 95% confidence interval.

The Kruskal–Wallis H test of association has been used by a number of researchers (Acar & Sun, 2013; Francis, Merk, Namuth-Covert, & Robbins, 2013; Merk, 2013; Suttner et al., 2016) to test associations primarily for skewed and ordinal level data. The H statistic in Kruskal-Wallis test approximates the Chi-square distribution with a k-1 degrees of freedom (Merk, 2013; Kruskal & Wallis, 1952). The Kruskal–Wallis H test was therefore used to test for significant associations in the variables because the data was expected to deviate significantly from normal distribution (following the analysis of the pilot study). Secondly, the dependent and most of the independent variables were measured at the ordinal level, making the Kruskal-Wallis H Test a suitable tool for this analysis (Kruskal & Wallis, 1952).

Chapter Summary

This chapter presented the methodological issues considered in the study. The study used a cross-sectional survey design with a quantitative approach. A sample of 286 registered nurses and registered midwives, selected using stratified random sampling technique from a strata of the three registered nursing and midwifery groups at the Tamale Teaching Hospital, was used for the study. Data was collected using a self-developed self-completing questionnaire, which had a reliability and content validity indices of 0.83 and 0.96 respectively. A questionnaire return rate of 98.60% (282) was realised.

Data obtained was cleaned, coded and entered into the IBM SPSS version 23.0 for statistical analysis. The descriptive analysis took the form of frequency distribution tables, while inferential analysis employed Kruskal-Wallis H Test and a Multiple Logistic Regression Model at an alpha level of 0.05.

Findings of this study may not be generalizable to other hospitals because the study was conducted at Tamale Teaching Hospital and hence the findings could be peculiar to only Tamale Teaching Hospital. Additionally, as a nurse from the facility, the researcher's presence could have led to social desirability bias. However, this possibility was minimised as much as possible by allowing the participants to self-complete the questionnaire in the absence of the researcher. Furthermore, the study employed a cross-sectional quantitative study design and data collected at one point in time. As such, in-depth meanings of answers as well as further clarification of answers could not be sought from participants.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents and discusses the results of the analysis of the data. The discussion is presented under separate subheadings, taking into consideration the research questions and conceptual framework. The study sought to assess the extent of use and barriers/challenge associated with the use of the nursing process at the Tamale Teaching Hospital.

A cross-sectional survey of 286 registered nurses and midwives was done using a self-completing semi-structured questionnaire in April 2017. The researcher successfully sampled the 286 participants, randomly drawn from a strata of the three professional nursing categories. They completed the questionnaires, with a return rate of 98.6% (282). The study therefore used data from a final sample of 282.

The data was primarily measured at the ordinal level. The data was entered into IBM SPSS version 23 for the descriptive and inferential analyses. Where necessary, some ordinal variables were transformed into dichotomous variables to allow for better discussion and communication of findings. The Shapiro-Wilk's test of normality at an alpha level of 0.05 showed that the data significantly deviated from normality ($W_s = 0.848$, $p < 0.001$) (See Appendix K). The Kruskal-Wallis H Test of association was therefore used to test for significant associations, and a Multiple Logistic Regression Model used to predict the effects of the significantly associated variables on the dependent variable at an alpha level of 0.05. The results and findings are presented in tables in the ensuing sections.

Presentation of Results/Findings

Demographic Characteristics of Participants

Data on participants' demographical characteristics such as gender, age, educational level, professional nursing category, rank and years of experience were collected during the survey. Table 1 represents the distribution of participants' demographic characteristics. As shown, of the 282 participants in the study, Females participants were 51.8%, while Males were 48.2%. On the distribution of participants' ages, 49.3% fell between the ages of 26 – 30 years, 31.6% were in the ages of 31 – 35 years and 9.2% fell between the ages of 20 – 25 years. Thus, majority of the participants (90.1%) were aged between 20 – 35 years. Also, 63.1% were holders of Diploma Certificates in Nursing, 32.6% held Bachelors Degree in Nursing, while 4.3% had Master Degrees. Registered General Nurses (RGNs) constituted 86.9% of the participants, Registered Midwives (RMs) were 11.3%, while Registered Mental Nurses (RMNs) were 1.8%.

Regarding the rank of nurses, Staff Nurses/Staff Midwives and Senior Staff Nurses/Senior Staff Midwives were 72.0%, Nursing Officers/Midwifery Officers and Senior Nursing Officers/Senior Midwifery Officers were 23.4%, while 4.6% of the participants were in the rank category of Principal Nursing Officers/Principal Midwifery Officers and Deputy Directors of Nursing Services. The Majority (59.6%) of the participants had been working in the Tamale Teaching Hospital between 1 – 5 years. Those who had worked for 6 – 10 years were 34.0%, while the rest (6.4%) had working experiences ranging from 11 years to 30 years.

Table 1: Frequency Distribution of Demographic Characteristics of Participants

Demographic characteristic	Frequency	Percentage (%)
Gender		
Female	146	51.8
Male	136	48.2
Total	282	100
Age of participants (years)		
20 – 25	26	9.2
26 – 30	139	49.3
31 – 35	89	31.6
36 – 40	16	5.7
41 – 45	4	1.4
46 – 50	3	1.1
51 – 55	3	1.1
56 – 60	2	0.7
Total	282	100
Educational level		
Diploma	178	63.1
BSc/BA	92	32.6
MSc/MPhil	12	4.3
Total	282	100
Professional nursing category		
RGN	245	86.9
RM	32	11.3
RMN	5	1.8
Total	282	100
Rank of participants		
SN/SSN/SM/SSM	203	72.0
NO/SNO/MO/SMO	66	23.4
PNO/PMO/DDNS	13	4.6
Total	282	100
Years of working experience		
1 – 5	168	59.6
6 – 10	96	34.0
11 – 15	8	2.8
16 – 20	3	1.1
21 – 25	3	1.1
26 – 30	4	1.4
Total	282	100

Source: Field Survey (2017)

Research Question 1: What is the Knowledge Level of Nurses at the Tamale Teaching Hospital about the Nursing Process?

Participants' knowledge level of the nursing process was also assessed. The distribution of participants' responses to items that helped measure participants' nursing process knowledge level is presented in Table 2. As shown, Majority of the participants (98.9%) indicated that they were taught the nursing process in their Nursing Training Colleges and Universities, with 1.1% indicating that they were not taught. On the question of whether participants have had any further training on the nursing process since completing Nursing Training College or the University, 74.8% pointed out that they have not had any further training since completing nursing training, while only 25.2% indicated otherwise.

Furthermore, majority of the participants (72.7%) were able to define correctly the nursing process, while 27.3% could not. About 91.1% of the participants were able to point out that the nursing process had five systematic steps. When asked to identify the five systematic steps from statements, 94.0% were able to correctly identify the Assessment step as the 1st step, 72.3% correctly identified the Nursing Diagnosis as the 2nd step, 78.7% identified the Planning step correctly as the 3rd step, 95.0% were able to identify the Implementation step as the 4th step, while 85.5% of participants correctly identified the Evaluation step as the 5th step.

Based on the correct responses given by the participants to the knowledge measurement items, 71.0% of the 282 participants were found to be highly knowledgeable in the nursing process, 21.6% were moderately

knowledgeable, while those with poor knowledge were 7.4%. This is also captured in Table 2.

Table 2: Distribution of Participants Responses to Nursing Process Knowledge Measurement Items and Knowledge Level of Participants

NP knowledge level measurement	Frequency	Percentage (%)
Taught NP in College or University		
Yes	279	98.9
No	3	1.1
Total	282	100
Had further training		
Yes	71	25.2
No	211	74.8
Total	282	100
Definition of nursing process		
Correct	205	72.7
Not correct	77	27.3
Total	282	100
Number of steps of the nursing process		
Correct	257	91.1
Not correct	25	8.9
Total	282	100
Assessment step		
Correct	265	94.0
Not correct	17	6.0
Total	282	100
Nursing diagnosis step		
Correct	204	72.3
Not correct	78	27.7
Total	282	100
Planning step		
Correct	222	78.7
Not correct	60	21.3
Total	282	100

Table 2, Continued

Implementation step		
Correct	268	95.0
Not correct	14	5.0
Total	282	100
Evaluation step		
Correct	241	85.5
Not correct	41	14.5
Total	282	100
Nursing process knowledge level		
Highly Knowledgeable	200	71.0
Moderately Knowledgeable	61	21.6
Poor Knowledge	21	7.4
Total	282	100

Source: Field Survey (2017)

Research Question 2: What is the Extent of use of the Nursing Process for Patient Care in the Hospital?

Table 3 represents the distribution of participants' responses to statements aimed at measuring the extent to which participants made use of the nursing process during patient care. As shown in the table, only 32.3% made use of the nursing process during patient care. Majority (67.7%) indicated that they were not using the nursing process for patient care in Tamale Teaching Hospital.

Of the 91 participants who said they made use of the nursing process for patient care, only 12.1% of them followed the steps of the nursing process systematically, while 87.9% (80) of them indicated that they did not use the nursing process systematically. Additionally, of the 91 participants who used the nursing process, 5.5% of them used it all the time, 26.4% used it most of the time, while 68.1% used it some of the time.

Furthermore, of the 80 participants who used the nursing process but did not use it systematically, 20.0% of them cited assessment as the most difficult step for them, 27.5% cited the nursing diagnosis step, 22.5% cited the planning step, 8.7% cited the implementation step while 21.3% cited the evaluation step as the most difficult step that prevented them from systematically utilising the nursing process in the hospital.

Table 3: Frequency Distribution of the Level of Utilisation of the Nursing Process in Tamale Teaching Hospital

NP Utilisation level	Frequency	Percentage (%)
We use the nursing process		
Strongly agree or agree	91	32.3
Strongly disagree or disagree	191	67.7
Total	282	100
We systematically follow the steps		
Strongly agree or agree	11	12.1
Strongly disagree or disagree	80	87.9
Total	91	100
How often do you use the NP used?		
All the time	5	5.5
Most of the time	24	26.4
Some of the time	62	68.1
Total	91	100
Most difficult nursing process step		
Assessment	16	20.0
Nursing Diagnosis	22	27.5
Planning	18	22.5
Implementation	7	8.7
Evaluation	17	21.3
Total	80	100

Source: Field Survey (2017)

When the use of the nursing process was cross-tabulated with the demographic characteristics of participants, as shown in Table 4, 32.2% of females and 32.4% of males respectively reported using the nursing process. Those aged between 41 – 45 years and 31 – 35 years were found to be the highest users of the nursing process (50.0% and 27.0% respectively) in the age category. None of those aged 46 years and above admitted to using the nursing process for patient care. Those with diploma certificates were found to be the highest users of the nursing process (36.0%) when participants' educational level was considered, while 40.6% of Registered Midwives and 31.8% of Registered General Nurses s reported using the nursing process during patient care. None of the Registered Mental Nurses made use of the nursing process.

In terms of ranks, the highest users of the nursing process were Staff Nurses, Staff Midwives, Senior Staff Nurses and Senior Staff Midwives, with 36.5% of them reportedly using the nursing process. Those with 1 – 5 years of working experience were the highest users of the nursing process, with 38.7% of them reportedly using the nursing process. None of those with experiences of 16 years and above made use of the nursing process.

Table 4: Cross-tabulation of the Extent of use of the Nursing Process by Participants Demographic Characteristics

Demographic Characteristics		We use Nursing Process		Total
		Strongly Agree/Agree	Disagree/Strongly Disagree	
Gender				
Female	Frequency	47	99	146
	Percentage (%)	32.2%	67.8%	100%
Male	Frequency	44	92	136
	Percentage (%)	32.4%	67.6%	100%
Total	Frequency	91	191	282
	Percentage (%)	32.3%	67.7%	100%
Age (Years)				
20 – 25	Frequency	5	21	26
	Percentage (%)	19.2%	80.8%	100%
26 – 30	Frequency	57	82	139
	Percentage (%)	41.0%	59.0%	100%
31 – 35	Frequency	24	65	89
	Percentage (%)	27.0%	73.0%	100%
36 – 40	Frequency	3	13	16
	Percentage (%)	18.8%	81.3%	100%
41 – 45	Frequency	2	2	4
	Percentage (%)	50.0%	50.0%	100%
46 – 50	Frequency	0	3	3
	Percentage (%)	0.0%	100.0%	100%
51 – 55	Frequency	0	3	3
	Percentage (%)	0.0%	100.0%	100%
56 – 60	Frequency	0	2	2
	Percentage (%)	0.0%	100.0%	100%
Total	Frequency	91	191	282
	Percentage (%)	32.3%	67.7%	100%
Educational level				
Diploma	Frequency	64	114	178
	Percentage (%)	36.0%	64.0%	100%
BSc/BA	Frequency	24	68	92
	Percentage (%)	26.1%	73.9%	100%

Table 4, Continued

MSc/MPhil	Frequency	3	9	12
	Percentage (%)	25.0%	75.0%	100%
Total	Frequency	91	191	282
	Percentage (%)	32.3%	67.7%	100%
Nursing category				
RGN	Frequency	78	167	245
	Percentage (%)	31.8%	68.2%	100%
RM	Frequency	13	19	32
	Percentage (%)	40.6%	59.4%	100%
RMN	Frequency	0	5	5
	Percentage (%)	0.0%	100.0%	100%
Total	Frequency	91	191	282
	Percentage (%)	32.3%	67.7%	100%
Rank				
SN/SSN/SM/	Frequency	74	129	203
SSM	Percentage (%)	36.5%	63.5%	100%
NO/SNO/MO/	Frequency	16	50	66
SMO	Percentage (%)	24.2%	75.8%	100%
PNO/PMO/D	Frequency	1	12	13
DNS	Percentage (%)	7.7%	92.3%	100%
	Frequency	91	191	282
Total	Percentage (%)	32.3%	67.7%	100%
Years of working Experience				
1 – 5	Frequency	65	103	168
	Percentage (%)	38.7%	61.3%	100%
6 – 10	Frequency	24	72	96
	Percentage (%)	25.0%	75.0%	100%
11 – 15	Frequency	2	6	8
	Percentage (%)	25.0%	75.0%	100%
16 – 20	Frequency	0	3	3
	Percentage (%)	0.0%	100.0%	100%
21 – 25	Frequency	0	3	3
	Percentage (%)	0.0%	100.0%	100%
26 – 30	Frequency	0	4	4
	Percentage (%)	0.0%	100.0%	100%
Total	Frequency	91	191	282
	Percentage (%)	32.3%	67.7%	100%

Source: Field Survey (2017)

Table 5 shows the results of the cross-tabulation of the extent of use of the nursing process by participants' knowledge level of the nursing process. As shown in the table, of those who were highly knowledgeable in the nursing process, 36.5% made use of it during patient care, 27.9% of moderately knowledgeable participants made use it, while only 4.8% of the poorly knowledgeable participants used the nursing process for patient care in the hospital.

Table 5: Cross-tabulation of the Extent of use of the Nursing Process by Participants Nursing Process Knowledge Level

Nursing process knowledge level		**We use Nursing Process**		**Total**
		Strongly Agree/Agree	**Disagree/Strongly Disagree**	
Highly Knowledgeable	Frequency	73	127	200
	Percentage (%)	36.5%	63.5%	100.0%
Moderate Knowledge	Frequency	17	44	61
	Percentage (%)	27.9%	72.1%	100.0%
Poor Knowledge	Frequency	1	20	21
	Percentage (%)	4.8%	95.2%	100.0%
Total	Frequency	91	191	282
	Percentage (%)	32.3%	67.7%	100.0%

Source: Field Survey (2017)

Research Question 3: Which Factors Serves as Barriers and Challenges to the use of the Nursing Process in Tamale Teaching Hospital?

Participants were presented with positively worded statements meant to elicit responses that will point to the presence or absence of capability and opportunity-related barriers. Agreeing (strongly agree/agree) with the statements meant that capability and opportunity-related barriers did not exist in the hospital, while disagreement (disagree/strongly disagree) with the statements meant the existence of capability and opportunity-related barriers in the hospital. The results are presented in Table 6.

Statements meant to elicit responses that point to the presence of motivation-related barriers were negatively worded, where an agreement (strongly agree/agree) with the statements meant the presence of such barriers and a disagreement (disagree/strongly disagree) meant absence of such a barrier. Many of the major barriers were related to opportunity factors. These results are also presented in Table 6.

Nursing process knowledge and clinical skills barriers (Capability factors)

As shown in Table 6, those with poor knowledge in the nursing process were 7.4%, while 42.9% participants disagreed with the statement that they possessed the nursing process clinical skills to enable them utilise the nursing process.

Institutional barriers (Opportunity factors)

Also found in Table 6 are the major opportunity-related barriers pointed out by participants. As much as 96.8% of the participants indicated that their units were either highly or moderately stressful while 62.1% reported being burdened with non-nursing activities as a barrier. Again, 52.8% cited inadequate

staffing while 81.2% cited inadequate supply of consumable/stationery. As well, 91.5% cited lack of opportunity for further nursing process training from Tamale Teaching Hospital, 67.4% cited lack of managerial support from the hospital management, 94.7% and 85.5% respectively cited absence of a hospital and individual ward nursing process policy, 86.5% cited lack of nursing process monitoring/supervision by nurse managers, 40.8% flagged length of stay of patients on the ward, while 39.7% flagged heavy workload as barriers to the use of the nursing process in the hospital.

Attitudinal and motivation barriers (Motivation factors)

For motivation-related barriers almost twenty percent (19.9%) of participants considered the nursing process to be burdensome, 18.1% were not self-motivated to use the nursing process, while 11.3% saw the nursing process as a tool that will unnecessarily waste the time of nurses. Additionally, 7.4% were of the opinion that the nursing process is not applicable in their professional practice, with 6.0% indicating that the use of the nursing process should be left to nurses with higher education (BSc. and higher degrees). The distribution the responses are also presented in Table 6.

Table 6: Frequency Distribution of Nursing Process Utilisation Barriers in Tamale Teaching Hospital

NP utilisation barriers	Frequency	Percentage (%)
Capability factors		
Nursing process knowledge level		
Highly Knowledgeable	200	71.0
Moderately Knowledgeable	61	21.6
Poor Knowledge	21	7.4
Total	282	100
Possess clinical nursing process skills		
Strongly agree or agree	161	57.1
Strongly disagree or disagree	121	42.9
Total	282	100
Opportunity factors		
Stressful work environment		
Highly stressful	161	57.1
Moderately stressful	112	39.7
Less stressful	7	2.5
Not stressful	2	0.7
Total	282	100
Burdened with non-nursing activities		
Yes	175	62.1
No	107	37.9
Total	282	100
Adequate staffing		
Strongly agree or agree	133	47.2
Strongly disagree or disagree	149	52.8
Total	282	100
Adequate supply of consumable/stationery		
Strongly agree or agree	53	18.8
Strongly disagree or disagree	229	81.2
Total	282	100
Had further NP training		
Strongly agree or agree	24	8.5
Strongly disagree or disagree	258	91.5
Total	282	100
Management support NP use		
Strongly agree or agree	92	32.6
Strongly disagree or disagree	190	67.4
Total	282	100

Table 6, Continued

Hospital has NP policy		
Strongly agree or agree	15	5.3
Strongly disagree or disagree	267	94.7
Total	282	100
Ward has NP policy		
Strongly agree or agree	41	14.5
Strongly disagree or disagree	241	85.5
Total	282	100
Nurse managers monitor & supervise		
Strongly agree or agree	38	13.5
Strongly disagree or disagree	244	86.5
Total	282	100
Patients stay in wards long enough		
Strongly agree or agree	167	59.2
Strongly disagree or disagree	115	40.8
Total	282	100
Workload optimal		
Strongly agree or agree	170	60.3
Strongly disagree or disagree	112	39.7
Total	282	100
Motivation factors		
I feel self-motivated to use NP		
Yes	231	81.9
No	51	18.1
Total	282	100
Use of NP is burdensome		
Strongly agree or agree	56	19.9
Strongly disagree or disagree	226	80.1
Total	282	100
NP unnecessarily wastes nurses time		
Strongly agree or agree	32	11.3
Strongly disagree or disagree	250	88.7
Total	282	100
NP is applicable in my practice		
Strongly agree or agree	261	92.6
Strongly disagree or disagree	21	7.4
Total	282	100
NP should be left to only Bsc. Nurses		
Strongly agree or agree	17	6.0
Strongly disagree or disagree	265	94.0
Total	282	100

Source: Field Survey (2017)

Research Question 4: Are there any Significant Associations between Participants Demographic Characteristics and the use of the Nursing Process in the Hospital?

The test of the association between participants' demographic characteristics and the use of the nursing process was done using Kruskal-Wallis H Test of association (See Table 7). The significantly associated demographic characteristics were then put into a Multiple Logistic Regression Model to ascertain which associated characteristics was a significant predictor of the use of the nursing process in the hospital (See Appendix I). All 282 cases were included in the analysis, with 74.1% accuracy in classification as against the null model's 67.7%. The predictive ability of the model was good [(Omnibus test of Model Coefficients = 86.554, df = 39, $p < 0.001$) and (Hosmer and Lemeshow Test = 5.799, df = 8, $p = 0.670$)], with 26.4% to 36.9% of the variance in the use of the nursing process explained by the significantly associated factors (Cox and Snell $R^2 = 0.264$, Nagelkerke $R^2 = 0.369$).

As shown in Table 7, age (χ^2 (7, N = 282) = 16.642, $p = 0.020$), educational level (χ^2 (2, N = 282) = 6.537, $p = 0.038$), rank (χ^2 (2, N = 282) = 8.935, $p = 0.011$), as well as years of working experience (χ^2 (5, N = 282) = 12.133, $p = 0.033$) were significantly associated with the use of the nursing process. On the other hand, gender (χ^2 (1, N = 282) = 0.367, $p = 0.545$) and nursing category (χ^2 (2, N = 282) = 0.342, $p = 0.843$) were statistically not significant. When put into the Multiple Logistic Regression Model, none of the significantly associated demographic characteristics was a significant predictor of the use of the nursing process (See Appendix I).

Table 7: Kruskal-Wallis H Test of Association Between Participants Demographic Characteristics and the use of the Nursing Process

Dependent Variable	Independent Variables	N	χ^2	df	*p* value
We use Nursing Process	Gender	282	0.367	1	0.545
	Age (Years)	282	16.642	7	0.020*
	Educational level	282	6.537	2	0.038*
	Nursing category	282	0.342	2	0.843
	Participants ranks	282	8.935	2	0.011*
	Experience(Years)	282	12.133	5	0.033*

* Significant at $p < 0.05$

Research Question 5: Are there any Significant Associations between the Barriers and the use of the Nursing Process in the Hospital?

The test of association between barrier factors related to capability, opportunity and motivation factors, and the use of the nursing process was done using Kruskal-Wallis H Test of association (See Table 8). The significantly associated barrier factors were entered into a Multiple Logistic Regression Model to ascertain which of them would significantly predict the use of the nursing process in the hospital (See Table 9).

Association of capability-related barrier factors with the use of the nursing process

As shown in Table 8, the association between use of the nursing process and clinical nursing process skills (χ^2 (3, N = 282) = 10.374, p = 0.016) was statistically significant. Interestingly, the association between use of the nursing process and participants knowledge level of the nursing process was statistically not significant (χ^2 (2, N = 282) = 5.338, p = 0.069).

Results of the Multiple Logistic Regression analysis of the significantly associated capability factors (Table 9) showed that, participants who strongly agreed to possessing the requisite nursing process clinical skills were 6.745 times more likely to use the nursing process as compared to those who strongly disagreed (OR = 6.745, 95% CI (1.279 – 35.566)). Further, those who agreed were 8.084 times more likely to use the nursing process than those who strongly disagreed (OR = 8.084, 95% CI (1.865 – 35.037)).

Association of opportunity-related barrier factors with the use of the nursing process

The association between use of the nursing process and monitoring and supervision (χ^2 (3, N = 282) = 16.271, p = 0.001), hospital nursing process policy (χ^2 (3, N = 282) = 22.578, p < 0.001), ward/unit nursing process policy (χ^2 (3, N = 282) = 19.859, p < 0.001), supply of consumables/stationery (χ^2 (3, N = 282) = 11.995, p = 0.007), and the length of stay of patients on the ward (χ^2 (3, N = 282) = 10.409, p = 0.015), were statistically significant. On the other hand, staffing level (χ^2 (3, N = 282) = 1.157, p = 0.763), stress level in participants wards/units (χ^2 (3, N = 282) = 1.617, p = 0.656), workload (χ^2 (3, N = 282) = 4.944, p = 0.276), managerial support for nursing process (χ^2 (3, N = 282) = 7.328, p = 0.062), further training on the nursing process (χ^2 (3, N = 282) = 6.016, p = 0.111), and being burdened with non-nursing activities (χ^2 (1, N = 282) = 0.375, p = 0.540), were statistically not significant. These are also captured in Table 8.

The results of the Multiple Logistic Regression analysis of the significantly associated opportunity factors (See Table 9) showed that, those participants who strongly agreed that their wards had nursing process

policies/protocols were 17.548 times more likely to use the nursing process as compared to those who strongly disagreed (OR = 17.548, 95% CI (1.943 – 158.506)). Participants who disagreed that they had enough consumables/stationery in their wards were 0.225 times less likely to use the nursing process as compared to those who strongly disagreed (OR = 0.225, 95% CI (0.085 – 0.598)). Also, those participants who disagreed that patients stayed long enough to enable them use the nursing process were 3.772 times more likely to use the nursing process as compared to those who strongly disagreed (OR = 3.772, 95% CI (1.175 – 12.113)). The rest of the significantly associated barrier factors were found to be statistically insignificant at predicting the use of the nursing process (See Appendix I).

Association of motivation-related barrier factors with the use of the nursing process

As shown in Table 8, the association between use of the nursing process, and participants' view that nursing process wastes the time of nurses (χ^2 (3, N = 282) = 20.586, p < 0.001), as well as, the view that nursing process unnecessarily burdens nurses (χ^2 (3, N = 282) = 16.721, p = 0.001), were statistically significant. However, association of being self-motivated to use the nursing process (χ^2 (1, N = 282) = 0.006, p = 0.939) and the view that nursing process should be left to nurses with higher education (χ^2 (3, N = 282) = 4.716, p = 0.194) were statistically not significant. None of the significantly associated motivation-related barrier factors was a significant predictor of the use of the nursing process in the Multiple Logistic Regression model (See Appendix I).

Table 8: Kruskal-Wallis H Test of Association Between Nursing Process Utilisation Barrier Factors and the use of the Nursing Process

Dependent Variable	Independent Variables	N	χ^2	df	*p* value
Capability factors					
We use Nursing Process	NP Knowledge level	282	5.338	2	0.069
	Clinical NP skills	282	10.374	3	0.016*
Opportunity factors					
We use Nursing Process	Staffing level	282	1.157	3	0.763
	Stressful wards	282	1.617	3	0.656
	Workload	282	4.944	3	0.176
	Mgt. support NP	282	7.328	3	0.062
	Monitoring/supervision	282	16.271	3	0.001*
	Hospital NP policy	282	22.578	3	0.000*
	Ward NP policy	282	19.859	3	0.000*
	Further NP training	282	6.016	3	0.111
	Supply of consumables/stationery	282	11.995	3	0.007*
	Non-nursing activities burden	282	0.375	1	0.540
	Length of patient stay in ward	282	10.409	3	0.015*
Motivation factors					
We use Nursing Process	Self-motivated to use nursing process	282	0.006	1	0.939
	Nursing process wastes nurses time	282	20.586	3	0.000*
	Nursing process burdens nurses unnecessarily	282	16.721	3	0.001*
	Leave nursing process to nurses with higher education	282	4.716	3	0.194

* Significant at $p < 0.05$

Table 9: Multiple Logistic Regression Analysis Results of the Predictive Effect of some Significantly Associated Independent Variables on the use of the Nursing Process

Independent Variable		B	Wald	df	*p* value	OR	95% CI	
							Lower	Upper
Clinical nursing process skills	SA	1.909	5.064	1	0.024*	6.745	1.279	35.566
	A	2.090	7.802	1	0.005*	8.084	1.865	35.037
	D	1.504	3.777	1	0.052	4.501	0.987	20.521
	SD		9.038	3	0.029			
Ward nursing process policy	SA	2.865	6.510	1	0.011*	17.548	1.943	158.506
	A	0.349	0.162	1	0.687	1.418	0.259	7.755
	D	-0.024	0.001	1	0.970	0.976	0.280	3.402
	SD		7.485	3	0.058			
Supply of consumables & stationery	SA	0.371	0.140	1	0.708	1.449	0.207	10.125
	A	0.376	0.452	1	0.501	1.457	0.487	4.358
	D	-1.492	8.952	1	0.003*	0.225	0.085	0.598
	SD		19.188	3	0.000			
Patients length of stay on the ward	SA	0.173	0.074	1	0.786	1.189	0.342	4.137
	A	0.506	0.790	1	0.374	1.658	0.543	5.060
	D	1.328	4.974	1	0.026*	3.772	1.175	12.113
	SD		8.058	3	0.045			

* Significant at $p < 0.05$ (SA – Strongly Agree, A – Agree, D – Disagree, SD – Strongly Disagree, B – Regression coefficient, NP – Nursing process, OR – Odds ratio, df – Degrees of freedom, CI – Confidence interval)

Discussion of Results/Key Findings

The discussion is organised and presented around the research questions and conceptual framework of the study. The findings are interpreted and evaluated with reference to current theoretical and empirical evidence in the area of the nursing process. This allowed for the drawing of sound conclusions and recommendations.

Research Question 1: What is the Knowledge Level of Nurses at the Tamale Teaching Hospital about the Nursing Process?

Majority of participants (71.0%) were found to be highly knowledgeable about the nursing process, with 21.6% being moderately knowledgeable, while 7.4% had poor knowledge in the nursing process. The high knowledge level about the nursing process exhibited by participants could be attributed to the fact that majority of them were relatively young, between the ages of 20 – 35 years (90.1%), with working experiences ranging from 1 – 5 years post completion of nursing training. Hence, the theoretical nursing process taught in school may well still have been very fresh in their minds. This finding concurs with the finding of Assefa (2014), whose study in Ethiopia found that, majority of respondents in Bale Zone hospitals in Ethiopia were highly knowledgeable (54.1%) in the nursing process. Moderately knowledgeable respondents were 22.6%, and poorly knowledgeable were 23.3%.

Conversely, the findings of this study on the nursing process knowledge level of participants are inconsistent with those of Aseratiie (2011), who found that only 16.1% of respondents were highly knowledgeable about the nursing process, with 52.6% being moderately knowledgeable, while 31.2% had poor knowledge. Similarly, the finding of this study fails to agree with the finding of

a Ghanaian study by Agyeman-Yeboah and Korsah (2016) which suggested that there was inadequate theoretical knowledge of the nursing process among participants.

Research Question 2: What is the Extent of use of the Nursing Process for Patient Care in the Hospital?

Though majority of the participants in this study were found to be highly knowledgeable in the nursing process, it did not reflect in the level of its usage. Findings from this study showed that, over all, only 32.3% of the participants utilised the nursing process during patient care in the hospital. Majority of the participants (67.7%) admitted to not using it in patient care activities.

Of those who used the nursing process for patient care, only a few of them (12.1%) followed the steps systematically, with majority (87.9%) not using it systematically. Furthermore, only 5.5% of those who made use of the nursing process use it all the time. About 26.4% made use of it most of the time, while as much as 68.1% of the 91 participants used it some of the time. Of those participants who did not use the nursing process systematically, nursing diagnosis step was cited by 27.5% as the most difficult step of the nursing process, followed by the planning step, which was cited by 22.5%. The evaluation step was cited by 21.3% of the participants as the third most difficult step, 20% cited assessment, while implementation was cited by 8.8% as the most difficult step of the nursing process for them to use.

Furthermore, females and males used the nursing process almost equally (32.2% and 32.4% respectively). Those aged between 41 – 45 years and 31 – 35 years were found to be the highest users of the nursing process in the age category, with older nurses (46 years and above) not using it. Similarly,

participants at the rank of Staff Nurses, Staff Midwives, Senior Staff Nurses and Senior Staff Midwives were the highest users of the nursing process (36.5%). In addition, it was found that participants with less than 6 years of working experience were the highest users of the nursing process (38.7%), with all participants with experiences of 16 years and above not using the nursing process.

Participants with Diploma Certificates were found to be the highest users of the nursing process (36.0%) when participants' educational levels were considered, while 40.6% of Registered Midwives and 31.8% of Registered General Nurses reportedly used the nursing process during patient care. None of the Registered Mental Nurses made use of the nursing process. It was also found that only 36.5% of those who were highly knowledgeable in the nursing process reportedly used it, with as low as 4.8% of poorly knowledgeable participants using it for patient care. These findings of the extent of use of the nursing process could be attributed to other barriers aside poor knowledge about the nursing process.

These findings in the study corroborate those of Ofi and Sowunmi (2012), Lopes et al. (2010), Afoi et al. (2012) and Pokorski et al. (2009). Ofi and Sowunmi (2012), found that in one of three Nigerian hospitals, utilisation of nursing process for patient care was at 34.8% in that hospital. A Brazilian study by Lopes et al. (2010) revealed that, though all steps of the nursing process had been used for patient care by nurses, it was however not carried out consistently. Afoi et al. (2012) found that as low as 14.1% of their respondents indicated that they used the nursing process. They however did not use it systematically. Another Brazilian study by Pokorski et al. (2009) found that all

the steps of the nursing process were used and recorded by nurses except for the diagnosis, making it the most difficult step of the process for them.

Contrary to the findings of this study, are the findings of Huitzi-Egilegor et al. (2014), Afoi et al. (2012), Aseratiie (2011), Assefa (2014) and Hagos et al. (2014). A Spanish study conducted by Huitzi-Egilegor et al. (2014) found that 98% of respondents in their study applied the nursing process in patient care, as compared to 32.3% at the Tamale Teaching Hospital. In a study by Afoi et al. (2012) conducted in Nigeria, majority of the respondents (57.1%) were found to have made use of the nursing process for patient care, while about 25.8% did not use the nursing process for patients care as compared to this current study, where majority (67.7%) did not utilise the nursing process, with only 32.3% indicating that they utilise it for patient care.

In an Ethiopian study by Aseratiie (2011), it was found further that majority of the respondents (52.1%) used the nursing process for patient care, while 47.9% did not utilise it. Assefa (2014) equally found that 52.1% of respondents used the nursing process in patient care while 18.5% did not.

Though utilisation of the nursing process in Tamale Teaching Hospital was relatively low (32.3%), it was better as compared to the findings of a similar study conducted by Hagos et al. (2014) in 6 Hospitals in Ethiopia, which found that none of the respondents made use of the nursing process during the provision of nursing care to their patients.

Compared to findings of this current study that males slightly used the nursing process more than females, findings from the systematic review by Zamanzadeh et al. (2015) suggests that male nurses are less likely to use the nursing process for patient care as compared to their female counterparts.

Research Question 3: Which Factors Serve as Barriers to the use of Nursing Process in the Hospital?

Findings about the presence or otherwise of capability-related, opportunity-related and motivation-related factors that serve as barriers showed that, majority of the most flagged barriers were opportunity-related. This was followed by motivation-related barriers, and to a lesser extent, capability-related factors.

Capability-related factors

Capability-related factors (inadequate nursing process clinical skills and poor knowledge) had the second highest frequency of participants pointing to it as a challenge to their ability to use the nursing process. Inadequate nursing process clinical skills (42.9%), and to a lesser extent, poor knowledge level (7.4%) were identified as the major and minor capability-related challenges to the use of nursing process in the hospital. This could be due to theory-practice gap in the training of registered nurses and midwives. The high nursing process knowledge level, low nursing process clinical skill level and poor use of the nursing process points to a theory-practice gap in the nursing process in Tamale Teaching Hospital.

These findings are in line with the findings of Zamanzadeh et al. (2015), who in a systematic review established among others that there is a difficulty in translating the theoretical nursing process know-how into clinical practice. Having the theoretical knowledge and clinical experience was the most facilitator for easy execution of the nursing process in an Egyptian study by Mahmoud and Bayoumy (2014). Habte (2015) supported this by indicating that the application of the nursing process requires scientific knowledge and clinical

problem-solving skills. This could account for these findings as well as the earlier finding that, though participants were highly knowledgeable in the nursing process, it did not reflect in the level of utilisation of the process, with a considerable number of them (42.9%) reporting of the lack of clinical nursing process skills. Similarly, the lack of clinical nursing process skills was identified by Afoi et al. (2012), Agyeman-Yeboah and Korsah, (2016) and Laryea (1994) as impediments to the use of the nursing process for nursing care delivery.

The findings are however at variance with those of Aseratiie (2011) who found that, 31.2% of respondents were poorly knowledgeable about the nursing process. In contrast, poorly knowledgeable participants at the Tamale Teaching Hospital were 7.4%. With regards to clinical nursing skills to implement the nursing process, Aseratiie, (2011) also found that only 2.6% of the respondents had poor clinical nursing skills, while findings of this study showed 42.9%. Similarly, Assefa (2014) also found that, as much as 23.3% had poor knowledge about the nursing process, while Laryea (1994) found that nurses in his study lacked the clinical skills to implement the nursing process.

Opportunity-related barriers

Findings from the study revealed that the most flagged barriers to the use of the nursing process in Tamale Teaching Hospital were opportunity-related. Mainly, stressful work environment (96.8%), unavailability of a hospital-wide and individual ward nursing process policy (94.7% and 85.5% respectively), absence of further nursing process training (91.5%), lack of monitoring and supervision of the use of the nursing process by nurse managers (86.5%), inadequate supply of consumable/stationery (81.2%), lack of hospital management support for the nursing process (67.4%), burdening nurses with

non-nursing activities (62.1%) as well as inadequate staffing (52.8%). Though lower than 50% each, a considerable number of participants also cited length of stay on the ward by patients (40.8%) and heavy workload (39.7%) as barriers to the use of the nursing process in the hospital.

These findings are in line with findings of Afoi et al. (2012), Aseratiie (2011), Wagoro and Rakuom (2015), Shewangizaw and Mersha (2015), Zamanzadeh et al. (2015) and Assefa (2014). Afoi et al. (2012) in their study found that the shortage of nursing staff was the major factor that militated against the implementation of nursing process. Furthermore, insufficient resources and nursing process forms (consumables/stationery) were identified some of the major barriers to the implementation of nursing process. In Aseratiie (2011) study, it was found that 72.9% of respondents were working in a stressful working environment.

The study by Assefa (2014) revealed that the most challenging factors that hindered the use of the nursing process for patient care were lack of materials/equipment, lack of manpower (nursing staff), performing non-nursing tasks, poor in-service training and high work load. In the systematic review by Zamanzadeh et al. (2015), it was also realised that the absence of adequate support from management, large number of patients (high workload) and the time it takes to assess, plan, implement, evaluate and document the nursing process makes it cumbersome, leading to most nurses being less willing to use the use of the nursing process. Shewangizaw and Mersha (2015) on the other hand established among others that, early discharge of patients affect negatively the nursing process implementation in the hospital, with a strong association between early discharge of patients (length of stay of patient in the

ward) with the ability of nurses to implement the nursing process early in their care.

Wagoro and Rakuom (2015) observed that, in hospitals that scored poorly on the use of the nursing process, nursing process coordinators lacked support from nursing service managers and continuing professional development coordinators. The nurses' also held the view that they were under staffed and could not cope with the required patient assessment and massive documentation (high workload) required. Also, the findings of Wagoro and Rakuom (2015) is similar to the findings of this study, where nurses were more likely to use the nursing process in the presence of policies/protocols. Furthermore, they observed an increase in the use of nursing process after the adoption of the Kenya-Nursing Process as the official framework (policy) for nursing practice in Kenya.

The findings of this study however disagreed with those of Takahashi et al. (2008) and Adeyemo and Olaogun (2013). In Takahashi et al.'s (2008) study, it was established that most of the difficulties encountered by nurses during the use of the nursing process were found to be related to the nurses' theoretical and clinical knowledge (capability-related) on the nursing process. However, in this study, skills and knowledge related issues were the second most identified challenge to the use of nursing process after opportunity factors. Adeyemo and Olaogun's (2013) study identified institutional factors (opportunity-related) as the second highest predictor of the use of the nursing process, making it contrary to the findings of this study, where opportunity-related factors were the highest. As compared to the sixth most flagged barriers (inadequate supply of consumable/stationery) to the nursing process at the Tamale Teaching Hospital,

further findings from Afoi et al. (2012) showed that insufficient equipment and insufficient nursing process forms were identified as the second and third major hindrances to the implementation of nursing process in their study.

Motivation-related barriers

Motivation-related factors had the least frequencies in terms of the number of participants who identified them as challenges. The views that the nursing process will burden nurses (19.9%), unnecessarily wastes nurses' time (11.3%), nursing process not being applicable in their practice (7.4%), and the nursing process should be left to nurses with higher education (6.0%), were cited by participants as motivation- related barriers in their quest to use the nursing process in the hospital. Lack of self-motivation to use the nursing process (18.1%) was also identified as a barrier. Though on the low side, these views and sentiments point to a negative attitude towards the use of the nursing process by some of the participants, which likely contributed to the low usage of the nursing process for patient care.

These stated finding are similar to the findings of Afoi et al. (2012) and Assefa (2014). Afoi et al. (2012) also found that, of those who indicated that they did not use the nursing process in their study, 10.4% was due to lack of interest in the nursing process. In the mixed study by Assefa (2014), it was also found that about 15% of the respondents had a negative attitude towards implementation of nursing process. Assefa (2014) also found that some staff nurses perceived the nursing process as something extra added to their daily work – as a burden. In another mixed study, Hagos et al. (2014) established that most of the respondents had a positive attitude towards the nursing process. This finding agrees with the finding of this study in which only a handful showed a

negative attitude toward the nursing process. Habte (2015) also observed that, the application of nursing process requires among others, a positive attitudes towards nursing process, as found in this current study.

The findings are however at variance with the findings of Axelsson et al. (2006), Habte (2015) and Adeyemo and Olaogun (2013). Though cited by some participants in this current study as time wasting, Axelsson et al. (2006) found that some steps of the nursing process (nursing diagnosis) are time-saving, making enough time available for other nursing care activities. In the study by Habte (2015), it was also found that most of the key informants indicated that the attitude of nurses towards nursing process was poor, and thereby affecting its utilisation. Adeyemo and Olaogun (2013) further found that, the least predictor of the use of the nursing process by nurses in Ogbomoso town was attitudinal factors.

Research Question 4: Are there any Significant Associations between Participants Demographic Characteristics and the use of the Nursing Process in the Hospital?

Findings of this study revealed that there were statistically significant associations between the use of the nursing process and the age, educational level, rank, and years of working experience of participants. Gender and professional nursing category were not significantly associated with the use of the nursing process. When put into a multiple logistic regression model, none of the significantly associated demographic variables was found to be a significant predictor of the use of the nursing process (See Appendix I).

These findings agrees with that of Mangare (2012) and Afoi et al. (2012). In Mangare (2012) study, it was found that demographic characteristics such as age and educational qualification significantly correlated with the use of the nursing process. Afoi et al. (2012) found that the rank of nurses related significantly with the implementation of nursing process.

These findings are however contrary to those of Assefa (2014), Mangare (2012), Afoi et al. (2012), Adeyemo and Olaogun (2013) and Zamanzadeh et al. (2015). Findings from Assefa's (2014) study showed that age, educational level had no statistically significant association with implementation of nursing process. In Mangare's (2012) study, it was also found that gender significant correlated with the use of the nursing process. Likewise, Afoi et al. (2012) found that educational qualification and years of experience did not significantly relate with the implementation of nursing process.

Furthermore, in their study, Adeyemo and Olaogun (2013) also found that nurses who were professional (registered nurses) were more likely to implement the nursing process than those who were not professional (non-registered nurses). In their systematic review, Zamanzadeh et al. (2015) suggest that male nurses are less likely to use the nursing process for patient care as compared to their female counterparts.

Research Question 5: Are there any Significant Associations between the Barriers and the use of the Nursing Process in the Hospital?

Capability-related barriers

Findings of this study revealed that the associations between the use of the nursing process and the possession of clinical nursing process skills were statistically significant. It was also found that participants who possessed the

requisite nursing process clinical skills were 6.745 times more likely to use the nursing process than those who did not. Knowledge level of the nursing process, however, did not associate significantly with the use of the nursing process. Though majority of participants were highly knowledgeable in the nursing process, it did not reflect in its usage, as the extent of use of the nursing process in the hospital was low.

These findings about participants theoretical knowledge and clinical nursing process level skills are in agreement with the findings of Ngao (2015) whose finding revealed there was no significant association between understanding (knowledge of the nursing process) and implementation of nursing process. In their qualitative study, Agyeman-Yeboah and Korsah (2016) found that though their participants had some knowledge on the nursing process, they were unable to properly utilise the nursing process because they lacked the needed nursing process clinical skills.

The findings are, however, at variance with those of Adeyemo and Olaogun (2013), Afoi et al. (2012), Assefa (2014) and Aseratiie (2011). Contrary to the finding of this present study, the findings of Adeyemo and Olaogun (2013) indicates that, nurses with adequate knowledge of the nursing process were associated significantly and more likely to use the nursing process for patient care. In an Ethiopian study, Assefa (2014) found that, highly knowledgeable nurses were 3 times more likely and were significantly associated with the implementation of nursing process than moderately and low knowledge group nurses. In another Ethiopian study, Aseratiie (2011) found that participants who were highly knowledgeable in nursing process were 38.9 times more likely to utilise the nursing process in patient care while moderately

knowledgeable nurses were 7.9 times more likely to utilise the nursing process than those with low knowledge.

Opportunity-related barriers

Findings of this study revealed that there were statistically significant associations between the use of the nursing process and monitoring/supervision by nurse managers, hospital nursing process policy, ward nursing process policy, adequate supply of consumables/stationery, and length of stay of patient in the wards/units. In the presence of these significantly associated barriers, it is not surprising that the utilisation of the nursing process is relatively low in the Tamale Teaching Hospital. On the other hand, further training on the nursing process, staffing level, stress level in wards/units, workload, hospital management support for nursing process, and being burdened with non-nursing activities were found not to be significantly associated with the use of the nursing process in the Tamale Teaching Hospital.

It was also found that, participants who strongly agreed that their wards had nursing process policies/protocols were 17.548 times more likely to use the nursing process. Those who disagreed that they had enough consumables/stationery in their wards were 0.225 times less likely to use the nursing, while those who disagreed that patients stayed long enough in their wards were 3.772 times more likely to use the nursing process as compared to those who strongly disagreed.

These findings are in agreement with the findings those of Adeyemo and Olaogun (2013), Assefa (2014), Aseratiie (2011) and Shewangizaw and Mersha (2015). Findings by Shewangizaw and Mersha (2015) indicated a strong association between early discharge of patients (length of stay of patient on the

ward) and the ability of nurses to implement the nursing process. In an in-depth interview in Assefa's (2014) mixed study, it was found that the most challenging factors that hindered the use of the nursing process for patient care were lack of materials/equipment, lack of manpower (nursing staff), performing non-nursing tasks, poor in-service training and high work load.

Similarly, in Adeyemo and Olaogun's (2013) study, institutional-related factors (same as opportunity factors in this study) were found to be one of the highest predictor of the use of the nursing process. Aseratiie (2011) also found that nurses in hospitals with adequate resources to give nursing care were 2.248 times more likely to implement nursing process than those working in facilities with resource challenges.

On the contrary, Habte (2015) found that workload was associated with the use of the nursing process, with nurses who work in units with optimum nurse-patient ratio 2.5 times more likely to utilise nursing process than their counterparts

Motivation-related barriers

Though a relatively small number of participants held the view that the nursing process wastes the time of nurses, as well as unnecessarily burdensome to nurses, findings of this study showed that there was a statistically significant association between these views and the use of the nursing process. On the other hand, the association between the use of the nursing process and being self-motivated, as well as the view that nursing process should be left to nurses with higher education, were statistically not significant. Holding these views likely resulted in an unfavourable attitude towards the use of the nursing process, contributing to the low level of usage as found by this study. The significantly

associated motivation-related factors were however not significant predictors of the use of the nursing process in the Multiple Logistics Regression Model (see Appendix I).

These findings are in line with that of Ngao (2015) who found that motivation was not significantly associated with the implementation of nursing process. Adeyemo and Olaogun (2013) also found that the least predictor of the use of the nursing process by was attitudinal factors. They concluded that, positive attitude of nurses towards the nursing process will lead to a better implementation of nursing process. Afoi et al.'s (2012) study in Kaduna, Nigeria also revealed that, of those who indicated that they did not use the nursing process, lack of interest in the nursing process was cited as one of the barriers.

The quantitative results of a mixed study by Habte (2015) indicated that attitude towards nursing process had no significant association with the utilisation of nursing process. However, most of the key informants in the qualitative section mentioned that attitude of nurses towards nursing process was affecting its utilization.

Chapter Summary

This chapter presented the results and findings of the study, which encompassed the statistical manipulations, presentation, description and comparison of the results to what is theoretical and empirically known in the field of the nursing process. The discussion of the results was done in line with the research questions that were to be answered. A total of 282 participants participated in the study (51.8% Females, 48.2% Males). Most of the participants (90.1%) were aged between 20 – 35 years, with 59.6% having between 1 – 5 years of working experience. Majority (63.1%) were holders of

diploma certificates in nursing. About 71.0% were highly knowledgeable, 21.6% were moderately knowledgeable, while 7.4% were poorly knowledgeable in the nursing process. Majority of the participants (74.8%) pointed out that they have had no further training since completing nursing training.

Though majority of the participants in this study were found to be highly knowledgeable in the nursing process, it did not reflect in the level of its usage. Only 91 (32.3%) indicated that they made use of the nursing process during patient care, with 191 (67.7%) not using the nursing process for patient care in the hospital. This finding of the extent of use of the nursing process could be attributed to other barriers aside poor knowledge about the nursing process.

The most flagged barriers to the use of the nursing process were related to opportunity factors (examples include the lack of opportunity for further nursing process training, overburdening nurses with non-nursing activities, and inadequate supply of consumable/stationery and lack of nursing process policy). This was followed by capability-related barriers (example, lack of clinical nursing process skills) and motivation-related barriers (example, view that the nursing process is be burdensome) respectively.

The high nursing process knowledge level coupled with low nursing process clinical skill level and poor use of the nursing process points to a theory-practice gap in the nursing process in Tamale Teaching Hospital. The high nursing process knowledge level coupled with low nursing process clinical skill level and poor use of the nursing process points to a theory-practice gap in the nursing process in Tamale Teaching Hospital. Though on the low side, negative views/sentiments expressed by some participants under the motivation-related

barriers towards the use of the nursing process, could have also contributed to the low usage of the nursing process for patient care.

There were statistically significant associations between the use of the nursing process and participants age, educational level, rank, and years of working experience, possession of clinical nursing process skills, monitoring and supervision by nurse managers, presence of hospital/ward nursing process policy, adequate supply of consumables/stationery, and length of stay of patient in the wards. Surprisingly, knowledge level of the nursing process, as well as gender, professional nursing category, participants wards/units of work, staffing level, stress level in wards/units, workload, management support for nursing process, and burdening nurses with non-nursing activities were found not to be significantly associated with the use of the nursing process in the hospital.

It was also found that, participants who possessed the requisite nursing process clinical skills, and whose wards had nursing process policies/protocols, were more likely to use the nursing process than those who did not. Participants who indicated inadequate supply of consumables/stationery in their wards were less likely to use the nursing process. Ironically, participants whose patients did not stay long enough in the wards were more likely to use the nursing process.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary of Study

The study sought to assess the extent of use and barriers/challenge associated with the use of the nursing process at the Tamale Teaching Hospital. This study was expected to provide empirical evidence, so that recommendations can be made to nurses, midwives and management of the hospital to improve its use. To meet this overall aim, the study set out to answer five questions. The findings are summarised in the ensuing paragraphs.

A cross-sectional survey of 286 registered nurses and registered midwives of the Tamale Teaching Hospital was undertaken, using a self-completing semi-structured questionnaire, mostly containing Likert scale items, in April 2017. Using a stratified random sampling technique, 245 registered general, 32 registered midwives and 5 registered mental nurses were randomly selected from a strata of these three professional nursing categories to participate in the study. With a questionnaire return rate of 98.6%, the study made use of data from a final sample of 282 drawn from about 28 wards/units across the hospital.

The data was primarily measured at the ordinal level. Nevertheless, there were a few nominal and continuous level measurements. The data was entered into IBM SPSS version 23.0 for descriptive and inferential analyses. Where necessary, some ordinal variables were transformed into dichotomous variables to allow for better communication of findings and inferential analyses. The Shapiro-Wilk's Test of normality at an alpha level of 0.05 showed that the data significantly deviated from normality ($W_s = 0.848$, $p < 0.001$). The Kruskal-

Wallis H Test of association was therefore used to test for significant associations, and a Multiple Logistic Regression model used to predict the effects of the significantly associated independent variables on the use of the nursing process.

Males and females participants in the study were almost equally divided, with an overwhelming majority aged between 20 – 35 years, and relatively inexperienced (1 – 5 years). Majority were holders of Diploma Certificates in nursing, with ranks of Staff Nurses/Midwives and Senior Staff Nurses/Midwives. They worked in about 28 different wards/units within the hospital.

Majority of the participants were found to be highly knowledgeable about the nursing process theoretically. This could be attributed to the fact that majority of the participants were relatively young and fresh from school, and for that matter, the theoretical knowledge was still fresh in their minds. However, close to half of the participants reported that they did not have the requisite clinical or clinical nursing process skills despite the high theoretical knowledge level. This is likely due to inadequate clinical nursing process training.

Interestingly, the high theoretical knowledge level did not reflect in the use of the nursing process, as the majority of the participants indicated that they were not making use of the nursing process in rendering nursing care in the hospital. Even for those who used it, the majority of them indicated that they unsystematically used it some of the time. Of those participants who did not use the nursing process systematically, the nursing diagnosis was cited as the most difficult step of the nursing process utilisation. This was followed by planning,

evaluation, assessment and the implementation steps respectively. Similarly, younger nurses/midwives with less than 6 years of experience (Staff Nurses, Staff Midwives, Senior Staff Nurses and Senior Staff Midwives) and those with diploma certificates were found to be the highest users of the nursing process. Nurses with experiences of 16 years and over as well as Registered Mental Nurses did not make use of the nursing process.

Opportunity-related barriers were the most flagged barriers to the use of the nursing process, followed by capability-related and to a lesser extent, motivation-related barriers respectively. Though a small number of participants were poorly knowledgeable in the nursing process, they can derail efforts at improving the quality of patient care through the systematic use of the nursing process in the hospital.

There were statistically significant associations between the use of the nursing process and participants' age, educational level, rank, and years of working experience. The possession of clinical nursing process skills, monitoring and supervision by nurse managers, presence of hospital/ward nursing process policy, supply of consumables/stationery, and length of stay of patient on the wards were also found to be significantly associated with the use of the nursing process.

However, gender, professional nursing category and participants wards/units of work did not significantly associate with the use of the nursing process. Surprisingly, the knowledge level of the nursing process, in addition to staffing level, stress level in wards/units, workload, hospital management support for nursing process, and being burdened with non-nursing activities (examples include the performance of some duties of other categories of

workers such as orderlies, computer data entry clerks, hospital security personnel, medical officers, and pharmacists) were found not to be significantly associated with the use of the nursing process in the hospital.

It was also found that, participants who possessed the requisite nursing process clinical skills or whose wards had nursing process policies/protocols were more likely to use the nursing process than those who did not. Ironically, participants whose patients did not stay long enough in the wards were more likely to use the nursing process. Inadequate supply of consumables/stationery made it less likely that participants would make use of the nursing process.

Conclusion

Based on the findings of this study, it was concluded that a theory-practice gap exists, as the findings revealed that registered nurses and registered midwives of Tamale Teaching Hospital were highly knowledgeable theoretically about the nursing process. However, majority of them lacked the clinical nursing process skills, translating into poor clinical use of the nursing process for patient care activities. Even for the few who made use of the nursing process, it was used an unsystematic manner, contrary to the requirements of the Nursing and Midwifery Council and the Ministry of Health of Ghana.

Nursing diagnosis was the most difficult phase of the nursing process for nurses and midwives of Tamale Teaching Hospital, followed by planning, evaluation, assessment and the implementation phases respectively. In the face of the Tamale Teaching Hospital's Nursing Directorate vision of being a centre of excellence for the delivery of tertiary nursing and midwifery care, training and research, these findings are worrisome. They are a threat to the achievement of this vision and a clear violation of the requirement placed on registered

Nurses and Midwives by the Nursing and Midwifery Council and the Ministry of Health of Ghana.

Major barriers to the use of the nursing process in Tamale Teaching Hospital were opportunity-related (institutional), followed by capability-related (clinical skills and knowledge) and motivation-related (self-motivation and attitude) respectively. The presence of nursing process policies/protocols will lead to an increased utilisation of the nursing process for patient care in the hospital. Inadequate supply consumables/stationery in the wards negatively affects the use of the nursing process. Burdening nurses and midwives with non-nursing activities interfered with their ability to use the nursing process. These included the performance of some duties of other categories of workers such as orderlies, computer data entry clerks, hospital security personnel, medical officers, and pharmacists.

Demographically, participants' age, educational level, rank, and years of working experience had a connection with the use of the nursing process in the hospital. The hospital should therefore encourage further education, promote staff, and retain experienced nurses and midwives.

Recommendations

Based on the findings of this study, the following recommendations are made for the attention of the following institutions and professionals.

Tamale Teaching Hospital/Nursing Directorate

1. A continuous professional development course on the clinical application of the nursing process should be instituted for registered nurses and midwives of the hospital to improve their clinical nursing process skills.

2. The Nursing Directorate should collaborate with nursing training institutions to organise a forum on the way forward for bridging the nursing process theory-practice gap.
3. The hospital management should demand and facilitate the development of a nursing process policy by the Nursing Directorate for the hospital.
4. The hospital management should support the Nursing Directorate to develop nursing care plan form (a form used for the application and documentation of nursing process) as replacement for the existing nurses' notes forms in patient folders.
5. The hospital management should endeavour to supply adequate quantities of consumables and nursing process stationery to all wards and units.
6. The Nursing Directorate should put in place a clinical team with a coordinator to work towards streamlining the use of the nursing process in all wards/units within the hospital.

Nursing and Midwifery Council /Ministry of Health of Ghana

1. The Nursing and Midwifery Council of Ghana should conduct a countrywide review of the extent of use of the nursing process for patient care in all public and private health facilities.
2. The Nursing and Midwifery Council, with support from the Ministry of Health of Ghana, should developed a countrywide clinically based nursing process policy and its use enforced in all clinical institutions in the country.

3. The Nursing and Midwifery Council of Ghana should review the training curricula of registered nurses and midwives, with emphasis on clinical nursing process skills.
4. The Nursing and Midwifery Council should facilitate the design and enforcement of a continuous professional development course on clinical nursing process skills for all registered nurses and midwives.

Nurses/Midwives/Nurse educators

1. Nurse Managers and unit In-Charges should institute daily monitoring and supervision of the use of the nursing process during each shift.
2. Registered nurses and midwives should make efforts to seek continuous professional development to improve and sharpen their nursing process clinical skills.
3. Registered nurses and midwives should always advocate for the provision of adequate quantities of consumables and stationery by nurse and hospital managers.
4. Registered nurses and midwives should not take on the responsibilities and work of other categories of workers in the hospital to the detriment of their core function.
5. All registered nurses and midwives should endeavour to use the nursing process for patient care activities fulfilment of the requirement by the Nursing and Midwifery Council and the Ministry of Health of Ghana.
6. Nurse educators and clinicians (Registered nurses and midwives) should put more emphasis on the clinical training on the nursing process while continuing with theoretical teaching.

Suggestions for Further Research

I recommend that further studies should be conducted into the following identified areas to get a better understanding of the nursing process in Ghana and elsewhere:

1. A qualitative study of the barriers to the use of the nursing process in hospitals from the perspectives of hospital management, nurse/midwifery managers, nurses and midwives.
2. A study of the impact of the non-application of the nursing process on patient care, nursing care quality and patient outcomes.
3. An action research on the application of the nursing process in a model ward in the Tamale Teaching Hospital.

REFERENCES

Acar, E. F., & Sun, L. (2013). A generalized kruskal-wallis test incorporating group uncertainty with application to genetic association studies. *Biometrics*, *69*(2), 427–435. https://doi.org/10.1111/biom.12006.

Adeyemo, F. O., & Olaogun, A. A. A. E. (2013). Factors affecting the use of nursing process in health institutions in Ogbomoso town, Oyo State. *International Journal of Medicine and Pharmaceutical Sciences (IJMPS)*, *3*(1), 91–98.

Afoi, B. B., Emmanueul, A., Garba, S. N., Gimba, S. M., & Afuwai, V. (2012). Evaluation of the implementation of nursing process among nurse clinicians. *Continental Journal of Nursing Science*, *4*(1), 34–46. https://doi.org/10.5707/cjnsci.2012.4.1.34.46.

Afolayan, J. A., Donald, B., Baldwin, D. M., Onasoga, O., & Babafemi, A. (2013). Evaluation of the utilization of nursing process and patient outcome in psychiatric nursing: Case study of psychiatric Hospital Rumuigbo, Port Harcourt, Nigeria. *Advances in Applied Science Research*, *4*(5), 34–43.

Agyeman-Yeboah, J., & Korsah, K. A. (2016). Determinants of clinical utilizations of the nursing process by nurses : a study at the 37 Military Hospital, Accra. *International Journal of General Medicine and Pharmacy(IJGMP)*, *5*(6), 1–23. Retrieved from http://www.iaset.us/download.php?fname=--1481108519-7. IJGMP - determinants of clinical utilizations of the nursing process by.pdf

Akbari, M., & Shamsi, A. (2011). A Survey on Nursing Process Barriers from the nurses ' view of Intensive Care Units. *Iranian Journal of Critical Care Nursing*, *4*(3), 181–186.

American Nurses Association [ANA]. (2010). *Nursing: Scope and Standards of Practice* (2nd ed.). Silver Spring, maryland: American Nurses Association. Retrieved from http://www.nursingworld.org/Nursing-Scope-Standards.

Aseratiie, M. (2011). *Assessment on Factors Affecting Implementation of Nursing Process among Nurses in Selected Governmental Hospitals, Addis Ababa, Ethiopia*. Addis Ababa University, College of Health Science Department. Retrieved from http://etd.aau.edu.et/bitstream/12345 6789/2947/3/MULUGETA ASERATIE.pdf

Assefa, T. (2014). *Factors affecting nursing process implementation and utilization in directing patient care in Bale zone hospitals*. Addis Ababa University, College of health Sciences. Retrieved from http://etd.aau. edu.et/bitstream/123456789/5244/1/Tesfaye A ssefa final1.pdf

Axelsson, L., Björvell, C., Mattiasson, A. C., & Randers, I. (2006). Swedish registered nurses' incentives to use nursing diagnoses in clinical practice. *Journal of Clinical Nursing*, *15*(8), 936–945. https://doi.org/10.1111/ j.1365-2702.2006.01459.x.

Bhattacherjee, A. (2012). *Social Science Research: principles, methods, and practices*. *Textbooks collection* (2nd ed., Vol. 9). Florida: Creative Commons. https://doi.org/10.1186/1478-4505-9-2.

Bowling, A., & Ebrahim, S. (Eds.). (2005). *Handbook of Health Research Methods: Investigation, Measurement and Analysis* (1st ed.). Maidenhead: Open University Press.

Chabeli, M. . (2007). Facilitating critical thinking within the nursing process framework: a literature review. *Health SA Gesondheid*, *12*(4), 69–89.

Craven, R. F., & Hirnle, C. J. (2008). *Fundamentals of nursing: Human health and function* (6th ed.). Philadelphia: Lippincott Williams and Wilkins.

Daaleman, T. P., Usher, B. M., Williams, S. W., Rawlings, J., & Hanson, L. C. (2008). An Exploratory Study of Spiritual Care at the End of Life. *Annals Of Family Medicine*, *6*, 406–412. https://doi.org/10.1370/afm.883.

Dal Sasso, G. T. M., Barra, D. C. C., Paese, F., de Almeida, S. R. W., Rios, G. C., Marinho, M. M., & Debétio, M. G. (2013). Computerized nursing process: methodology to establish associations between clinical assessment, diagnosis, interventions, and outcomes. *Revista da Escola de Enfermagem USP*, *47*(1),238–245. Retrieved from www.ee.usp.br/reeusp/.

DeLaune, S. C., & Ladner, P. K. (2002). *Fundamentals of Nursing: Standards & Practice (Nursing Education)* (2nd ed.). Philadelphia: Delmar Cengage Learning.

Ebrahimi, H., Torabizadeh, C., Mohammadi, E., & Valizadeh, S. (2012). Patients' perception of dignity in Iranian healthcare settings: a qualitative content analysis. *Journal of Medical Ethics*, *38*(12), 723–8. https://doi.org/10.1136/medethics-2011-100396.

Edet, A. B., Mgbekem, M. A., & Edet, O. B. (2013). Professional Nurses' Perception and Utilization of the nursing process at the University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria. *Research Gate*, 1–35. Retrieved from https://www.researchgate.net/publication/258422875

Ehrenberg, A., & Ehnfors, M. (1999). Patient Records in Nursing Homes. *Scandinavian Journal of Caring Sciences, 13*(2), 72–82. https://doi.org/10.1111/j.1471-6712.1999.tb00519.x.

Francis, D., Merk, H., Namuth-Covert, D., & Robbins, M. (2013). Marker-assisted selection for bacterial spot resistance in tomato: A case study. Retrieved February 2, 2017, from http://articles.extension.org/pages/32561/marker-assisted-selection-for-bacterial-spot-resistance-in-tomato:-a-case-study.

GACC. (2014). *Patients'Perception Index on Health Service Delivery in Ghana*. Accra, Ghana. Retrieved from http://www.gaccgh.org/publications/Patient Perception Index (PPI) on Health Service Delivery in Ghana.pdf

Gerrish, K., & Lathlean, J. (Eds.). (2015). *The Research Process in Nursing* (7th ed.). West Sussex: John Wiley and Sons. Retrieved from www.wiley.com/wiley-blackwel.

Haapoja, A. (2014). *The Nursing Process , a Tool to Enhance Clinical Care - A Theoretical Study*. Novia University of Applied Sciences, Vaasa, Finland. Retrieved from https://www.theseus.fi/bitstream/handle/10024/76170/The_Nursing_Process_AH.pdf?sequence=1.

Habte, S. (2015). *Nursing Process and Factors Affecting its Utilization in Governmental Hospitals in Harari and Dire Dawa Regions of Ethiopia*. Haramaya University, Harar, Ethiopia, Ethiopia. Retrieved from http://213.55.85.90/bitstream/handle/123456789/2959/SISAY HABTE.pdf?sequence=1&isAllowed=y.

Hagos, F., Alemseged, F., Balcha, F., Berhe, S., & Aregay, A. (2014). Application of nursing process and its affecting factors among nurses working in Mekelle zone Hospitals , Northern Ethiopia. *Nursing Research and Practice*, *2014*(675212), 1–9. https://doi.org/10.1155/2014/675212.

Huitzi-Egilegor, J. X., Elorza-Puyadena, M. I., Urkia-Etxabe, J. M., Asurabarrena-Iraola, C., Huitzi-Egilegor, J. X., Elorza-Puyadena, M. I., … Asurabarrena-Iraola, C. (2014). Implementation of the nursing process in a health area: models and assessment structures used. *Revista Latino-Americana de Enfermagem*, *22*(5), 772–777. https://doi.org/10.1590/0104-1169.3612.2479.

Israel, G. D. (2009). *Determining Sample Size*. *PEOD6*. Florida. Retrieved from http://www.webcitation.org/66kKEIC0b.

Korsah, K. A., Agyeman-Yeboah, J., & Okrah, J. (2017). Professional nurses' views on the use of the nursing process at the 37 Military Hospital, Accra. *International Journal of General Medicine and Pharmacy (IJGMP)*, *233*(0), 1–10. Retrieved from http://www.iaset.us/download.php?fname=CallforPapers-1477562313-article for publication by korsah joana and okrah.doc.

Kozier, B., Erb, G., Berman, A., Snyder, S. J., Buck, M., Yiu, L., & Stamler, L. L. (2014). *Fundamentals of Canadian Nursing: Concepts, Process, and Practice* (3rd Canadi). Toronto: Pearson Canada Inc.

Kruskal, W. H., & Wallis, W. A. (1952). Use of Ranks in One-Criterion Variance Analysis. *Journal of the American Statistical Association*, *47*(260), 583–621. Retrieved from http://links.jstor.org/sici?sici=0162-1459%28195212%2947%3A260%3C583%3AUORIOV%3E2.0.CO%3B2-A.

Lambie, A., Schwend, K., & Scholl, A. (2015). Utilization of the Nursing Process to Foster Clinical Reasoning During a Simulation Experience. *SAGE Open*, *5*(4), 1–6. https://doi.org/10.1177/2158244015617516.

Laryea, J. (1994). Barriers to the implementation of the nursing process. *West African College of Nursing Journal*, *5*(1), 10–17.

Lopes, M. H. B. de M., Higa, R., dos Reis, M. J., de Oliveira, N. R., Christóforo, F. F. M., Reis, … Christóforo, F. F. M. (2010). Evaluation of the Nursing Process Used at a Brazilian Teaching Hospital. *International Journal of Nursing Terminologies and Classifications*, *21*(3), 116–123. https://doi.org/10.1111/j.1744-618X.2010.01157.x.

Macnee, C. L., & McCabe, S. (2006). *Understanding Nursing Research: reading and using research in evidence-based practice* (2nd ed.). Philadelphia: Lippincott Williams and Wilkins.

Mahmoud, M. H. M. M. H., & Bayoumy, H. H. M. H. (2014). Barriers and facilitators for execution of nursing process from nurses'perspective. *International Journal of Advanced Research*, *2*(2), 300–315. Retrieved from http://journalijar.com/uploads/414_IJAR-2663.pdf

Mangare, L. N. (2012). *Factors influencing use of the nursing process in Naivasha District Hospital*. University of Nairobi, Kenya. Retrieved from http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/8259.

Mason, G. M. C. G. M. C., & Attree, M. (1997). The relationship between research and the nursing process in clinical practice. *Journal of Advanced Nursing*, *26*(5), 1045–1049. https://doi.org/10.1046/j.1365-2648.1997.00472.x.

McLeod, S. (2014). Sampling Methods. Retrieved November 27, 2016, from http://www.simplypsychology.org/sampling.html

Meleis, A. I. (2012). *Theoretical Nursing: Development and Progress*. *Journal of Neuroscience Nursing* (5th editio, Vol. 18). Philadelphia: Wolters Kluwer Health | Lippincott Williams & Wilkins.

Merk, H. L. (2013). Kruskal-Wallis Statistic to Identify Associations Between Markers and Traits. Retrieved May 27, 2017, from http://articles. extension.org/pages/32454/kruskal-wallis-statistic-to-identify-associations-between-markers-and-traits.

Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, *6*(1), 42. https://doi.org/10.1186/ 1748-5908-6-42.

Ministry of Health Ghana [MOH]. (2005). *Job Descriptions for Clinical , Nursing and Midwifery and Pharmacy Staff* (Part I, Volume II). Accra: Ministry of Health Ghana.

Müller-Staub, M., Lavin, M. A., Needham, I., & Van Achterberg, T. (2006). Nursing diagnoses, interventions and outcomes - Application and impact on nursing practice: Systematic review. *Journal of Advanced Nursing*, *56*(5), 514–531. https://doi.org/10.1111/j.1365-2648.2006.04012.x.

NANDA-I. (2014). *NANDA International Nursing Diagnoses: Definitions and Classification 2015-2017*. (T. H. Herdman & S. Kamitsuru, Eds.) (10th edition). Oxford: Wiley Blackwell. Retrieved from www.wiley.com/go/ nursingdiagnoses.

Ngao, M. D. (2015). *Assessing barriers to implementation of nursing process among nurses working at Machakos Level 5 Hospital*. University of Nairobi, Kenya. https://doi.org/10.1017/CBO9781107415324.004

Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation Science, 10*(1), 1–13. https://doi.org/10.1186/s13012-015-0242-0.

Nursing and Midwifery Council of Ghana [NMCGH]. (2007). Curriculum for the Registered General Nursing (RGN) Programme. Accra: Nusing and Midwifery Council of Ghana.

Ofi, B., & Sowunmi, O. (2012). Nursing documentation: Experience of the use of the nursing process model in selected hospitals in Ibadan, Oyo State, Nigeria. *International Journal of Nursing Practice*, *18*(4), 354–362. https://doi.org/10.1111/j.1440-172X.2012.02044.x.

Orlando, I. J. (1961). *The Dynamic Nurse-Patient Relationship: Function, process and principles.* New York: G. P. Putnam's Sons.

Orlando, I. J. (1990). *The dynamic nurse-patient relationship: Function, process and principles (Reissue of 1961 edition)* (1961 edition). New York: National League for Nursing, 1990.

Peacefmonline.com. (2015). Hospital Sued GH¢100,000…Over "Negligence of Duty". Retrieved December 24, 2016, from http://www.peacefmonline.com/pages/local/news/201507/248698.php

Pérez Rivas, F. J., Martín-Iglesias, S., Pacheco Del Cerro, J. L., Minguet Arenas, C., García López, M., & Beamud Lagos, M. (2016). Effectiveness of Nursing Process Use in Primary Care. *International Journal of Nursing Knowledge, 27*(1), 43–8. https://doi.org/10.1111/2047-3095.12073.

Perneger, T. V., Courvoisier, D. S., Hudelson, P. M., & Gayet-Ageron, A. (2015). Sample size for pre-tests of questionnaires. *Quality of Life Research*, *24*(1), 147–151. https://doi.org/10.1007/s11136-014-0752-2.

Pokorski, S., Moraes, M. A., Chiarelli, R., Costanzi, A. P., & Rabelo, E. R. (2009). Nursing process: from literature to practice. What are we actually doing? *Revista Latino-Americana de Enfermagem*, *17*(3), 302–307. https://doi.org/10.1590/S0104-11692009000300004.

Polit, D. F., & Beck, C. T. (2008). *Nursing Research: Principles and Methods* (7th editio). Philadelphia: Lippincott Williams and Wilkins.

Polit, D. F., & Beck, C. T. (2014). *Essentials of Nursing Research: Appraising Evidence for Nursing Research* (8th edition). Philadelphia: Wolters Kluwer Health | Lippincott Williams & Wilkins.

Sedgwick, P. (2014). Cross sectional studies: advantages and disadvantages. *Bmj*, *348*(mar26 2), g2276–g2276. https://doi.org/10.1136/bmj.g2276

Sellers, S. C. (1991). *A Philisophical Analysisi of Conceptual Models of Nursing*. Iowa State University, United States. https://doi.org/10.16953/deusbed.74839.

Shewangizaw, Z., & Mersha, A. (2015). Determinants towards Implementation of Nursing Process. *American Journal of Nursing Science*, *4*(3), 45–49. https://doi.org/10.11648/j.ajns.20150403.11.

Sim, J., & Wright, C. (2000). *Research in health care: concepts, designs and methods* (1st ed.). Cheltenham: Stanley Thornes.

Smeltzer, S. C., Bare, B. G., Hinkle, J. L., & Cheever, K. H. (2010). *Brunner and Suddarth's Textbook of Medical-Surgical Nursing* (12th edition, Vol. 1). Philadelphia: Wolters Kluwer Health | Lippincott Williams & Wilkins.

Suttner, L. H., Mejia, A., Dewey, B., Sati, P., Reich, D. S., & Shinohara, R. T. (2016). Statistical estimation of white matter microstructure from conventional MRI. *NeuroImage: Clinical*, *12*, 615–623. https://doi.org/10.1016/j.nicl.2016.09.010.

Takahashi, A. A., Barros, A. L. B. L. De, Michel, J. L. M., & Souza, M. F. De. (2008). Difficulties and facilities pointed out by nurses of a university hospital when applying the nursing process. *Acta Paulista de Enfermagem*, *21*(1), 32–38. https://doi.org/10.1590/S0103-21002008000100005.

Tamale Teaching Hospital [TTH Nursing Directorate]. (2014). *Nursing Directorate 2014 Annual Performance Review Report*. Tamale, Ghana.

Tamale Teaching Hospital [TTH Nursing Directorate]. (2015). *Nursing Directorate 2015 Annual Performance Review Report*. Tamale, Ghana.

Varcoe, C. (1996). Disparagement of the nursing process: the new dogma? *Journal of Advanced Nursing*, *23*(1), 120–125. https://doi.org/10.1111/j.1365-2648.1996.tb03144.x.

Wagoro, M. C. A., & Rakuom, C. P. (2015). Mainstreaming Kenya-Nursing Process in clinical settings: The case of Kenya. *International Journal of Africa Nursing Sciences*, *3*(2015), 31–39. https://doi.org/http://dx.doi.org/10.1016/j.ijans.2015.07.002.

Wilkinson, J. M. (2006). *Nursing Process and Critical Thinking* (4th edition). Upper Saddle River, New Jersey: Prentice Hall Health.

Wolf, K. A. (2012). Evidence-Based Against Ritualistic Nursing Practice. Retrieved December 14, 2016, from http://www.nursetogether.com/evidence-based-against-ritualistic-nursing-practice.

Yamane, T. (1967). *Statistics; An Introductory Analysis* (2nd ed.). New York, US: Harper & Row. Retrieved December 14, 2016 from http://www.gbv .de/dms/zbw/252 560191.pdf

Zamanzadeh, V., Valizadeh, L., Tabrizi, F. J., Behshid, M., & Lotfi, M. (2015). Challenges associated with the implementation of the nursing process: A systematic review. *Iranian Journal of Nursing and Midwifery Research*, *20*(4), 411–9. https://doi.org/10.4103/1735-9066.161002.

APPENDICES

APPENDIX A: Data Collection Instrument

RESEARCH QUESTIONNAIRE

TOPIC: Utilisation of the Nursing Process for Patient care in Ghana: The case of Nurses of Tamale Teaching Hospital.

SECTION A: DEMOGRAPHIC DATA

Please, tick the option that best represents you/your opinion to the questions below. Provide answers in the spaces provided where applicable.

1. Gender

Female ☐

Male ☐

2. Age (years) ……..

3. Educational level

Diploma ☐

BSc ☐

MSc/MPhil ☐

4. Which nursing/midwifery category are you?

RGN ☐

RM ☐

RMN ☐

5. Which rank are you?

SN/SSN/SM/SSM ☐

NO/SNO/MO/SMO ☐

PNO/PMO/DDNS ☐

6. Which ward/unit do you work in?.....

7. How many years have you been practicing as a nurse or midwife?……

SECTION B: KNOWLEDGE ABOUT THE NURSING PROCESS

Please, tick the option that best represents your opinion on the questions/statements below or provide answers in the spaces where applicable.

8. Were you taught the nursing process in your nursing/midwifery training?

Yes ☐ No ☐

9. Have you had any other training on the nursing process?

Yes ☐ No ☐

10. What is your understanding of the nursing process? .....

……..

……..

11. How many steps does the nursing process have? ……

Please, tick in the response column the option that best represents your opinion to the questions/statements about the nursing process below.

No	Question/Statement	Response	
12.	Under this step of the nursing process, the nurse/midwife collects health history and performs physical examination.	Vital signs	
		Nursing diagnosis	
		Planning	
		Evaluation	
		Implementation	
		Assessment	
		I have no idea	

13.	Under this step, the nurse or midwife prioritises the identified problems of the patient, set care goals or expected outcomes, and decides which interventions to implement.	Vital signs	
		Nursing diagnosis	
		Planning	
		Evaluation	
		Implementation	
		Assessment	
		I have no idea	
14.	The nurse or midwife assesses the effectiveness of the implemented, and revises a patient's plan of care where needed.	Vital signs	
		Nursing diagnosis	
		Planning	
		Evaluation	
		Implementation	
		Assessment	
		I have no idea	
15.	During this step, the nurse or midwife actually carries out the planned care interventions for the patient.	Vital signs	
		Nursing diagnosis	
		Planning	
		Evaluation	
		Implementation	
		Assessment	
		I have no idea	
16.	During this step of the nursing process, the nurse or midwife identifies a patient's response to actual or potential health problems, and makes a clear statement about it.	Vital signs	
		Diagnosis	
		Planning	
		Evaluation	
		Implementation	
		Assessment	
		I have no idea	

SECTION C: EXTENT OF USE OF THE NURSING PROCESS

Please, tick the option that best represents your opinion on the extent of use of the nursing process in TTH or provide answers in the spaces where applicable. **Guide: Strongly Agree - SA, Agree - A, Disagree - D, Strongly Disagree - SD**

No.	Question/Statement	Response			
		SA	A	D	SD
17.	We use the nursing process for patient care.				
18.	If **strongly agree or agree to question 17**, we follow it systematically.				

19. If **strongly agree or agree to question 17**, how often?

All the time ☐

Most of the time ☐

Some of the time ☐

20. If **disagree or strongly disagree in question 18**, which step of the nursing process do you find difficult applying?

Assessment ☐

Nursing diagnosis ☐

Planning ☐

Implementation ☐

Evaluation ☐

SECTION D: BARRIERS TO THE USE OF THE NURSING PROCESS

Please, tick the option that best represents your opinion on the questions/statements below about possible challenges that hinder the use of nursing process in TTH or provide answers in the spaces where applicable.

21. How would you rate the stress of work in your ward/unit?

Highly stressful ☐

Moderately stressful ☐

Less stressful ☐

Not stressful ☐

22. Does non-nursing activities interfere with your ability to make use of the nursing process?

Yes ☐ No ☐

23. If **Yes to question 22**, which the non-nursing activity are you usually burdened with? ……

Kindly indicate your level of agreement or disagreement with the following statements about the likely presence or absence of barriers related to the use of the nursing process in TTH. **Guide: Strongly Agree - SA, Agree – A, Disagree – D, Strongly Disagree – SD**

No.	**Question/Statement**	**Response**			
		S	**A**	**D**	**SD**
24.	I possess the nursing process clinical skills				
25.	The staffing level in my unit/ward is adequate to be able to use the nursing process for patient care.				
26.	We have adequate supply of consumables/stationery to enable us apply the nursing process for patient care.				

27.	I have had further training on the use of the nursing process organised by TTH.				
28.	The hospital management supports the use of the nursing process for patient care.				
29.	The hospital has a policy on the use of the nursing process for patient care.				
30.	My ward/unit has a policy to guide the use of the nursing process for patient care.				
31.	There is monitoring and supervision by nurse managers to ensure that we duly use the nursing process.				
32.	The workload in my ward/unit is optimal to be able to use the nursing process for patient care.				
33.	Patients stay long enough in my ward/unit for us to be able to use nursing process for their care.				
34.	The nursing process will unnecessarily burden nurses and midwives.				
35.	Using the nursing process wastes the time of nurses and midwives.				
36.	The application of the nursing process should be left to only staff with higher education (BSc and above).				
37.	I believe the nursing process is applicable in my professional practice.				

38. I am personally motivated to use the nursing process for patient care.

Yes ☐ No ☐

THANKS FOR YOUR TIME AND PARTICIPATION

APPENDIX B: Information about Research to Participants

UNIVERSITY OF CAPE COAST

INFORMATION ABOUT RESEARCH TO PARTICIPANT

Research Title: Utilization of the nursing process for patient care in Ghana: The case of nurses of Tamale Teaching Hospital.

Principal Investigator: Osman Wahab

Address: School of Nursing and Midwifery, College of Health and Allied Sciences, University of Cape Coast, University Post Office, Cape Coast. Ghana.

General information about the Research: This research is aimed at determining the extent to which nurses of Tamale Teaching Hospital (TTH) use the nursing process for patient care. It will also identify barriers to its use in the hospital. I am a final year (level 850) Master of Nursing student of the School of Nursing and Midwifery, University of Cape Coast. The motivation for this study is that, the quality of nursing care rendered in this hospital can be enhanced through the proper use of the nursing process for patient care. Hence the need to determine the extent of its use and challenges facing it application so as to help put in place appropriate strategies to deal with the challenges and boost its use to enhance the quality nursing services in this hospital.

Procedure: If you agree to take part, you will be required to sign a consent form and complete a questionnaire on your own. The questionnaire will be provided and retrieved by me or by the field assistant when you are done. About 10 minutes or less of your time will be required to complete the questionnaire. You are been invited to take part in this research because of your role as a professional nurse or midwife and your interest in providing quality nursing care to your clients.

Possible Risks and Discomforts: I do not anticipate any risk or discomfort from participating in this research.

Possible Benefits: Your participation will help in determining the extent of use of the nursing process for patient care as well as challenges to its utilisation in this hospital. This will help devise appropriate strategies to deal with the identified challenges to promote the use of the nursing process to enhance the quality of nursing care services, improve training of nursing/midwifery students and promote nursing/midwifery research as envisioned by the Nursing Directorate of this hospital. It will also serve as your contribution to building a knowledge base for the nursing/midwifery profession in Ghana.

Confidentiality: Information you will provide will be treated with the utmost confidentiality. Therefore, your name and address or telephone number is not required. The information will be used for academic and professional purposes only. Additionally, you will not be named in any report emanating from this research.

Compensation: You will not be provided any payment for participation. Participation is voluntary.

Voluntary Participation and Right to Leave the Research: Participation is voluntary. You can change your mind if you do not wish to continue even after accepting to take part.

Funding for Research: The research is been funded personally.

Your rights as a Participant: This research has been reviewed and approved by the Institutional Review Board of University of Cape Coast (UCC-IRB). If you have questions about your rights as a participant, contact the administrator through the phones lines: 0332133172 and 0244207814 or email address:

irb@ucc.edu.gh or the HOD of Department of Research and Development, Tamale Teaching Hospital, through 0209281020.

For further information/enquiries, contact:

Osman Wahab, Tamale Teaching Hospital, Department of Surgery, Orthopaedics and Trauma Unit, P. O. Box 16, Tamale. Telephone: 0208381462/0268381462. Email: wahab.osman@stu.ucc.edu.gh or zaabuni@gmail.com

APPENDIX C: Participant Informed Consent Form

VOLUNTEER/PARTICIPANT AGREEMENT

The participant information document describing the benefits, risks and procedures for the research title **(*Utilization of the Nursing Process for Patient Care in Ghana: The Case of Nurses of Tamale Teaching Hospital*)** has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Signature or mark of volunteer/participant_____

Date _____

Name Signature of researcher who obtained consent_____

Date_____

APPENDIX D: CCTHERC Ethical Clearance Letter to Pre-test Questionnaire

CAPE COAST TEACHING HOSPITAL
ETHICAL REVIEW COMMITTEE

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

Our Ref.: CCTH

Your Ref.:

P. O. Box CT.1363
Cape Coast
Tel: 03321-34010-14
Fax: 03321-34016
Website: www.ccthghana.org
email: info@ccthghana.com

20th February 2017

Osman Wahab
College of Health and Allied Sciences
School of Nursing and Midwifery
University of Cape Coast
Cape Coast

Dear Mr. Osman,

ETHICAL CLEARANCE – REF: CCTHERC/RS/EC/2017/3

The Cape Coast Teaching Hospital Ethical Review Committee (CCTHERC) is glad to inform you that you have been granted permission to undertake pre-testing of your questionnaire for your theses research work titled, **"Utilization of the nursing process for patient care in Ghana: The case of nurses of Cape Coast Teaching Hospital"**.

Please note that any modification of the project must be submitted to the CCTHERC for review and approval before its implementation.

You are also required to submit a copy of your final report to the CCTHERC Office.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

DR. ERIC NGYEDU
MEDICAL DIRECTOR

APPENDIX E: UCC-IRB Ethical Clearance Letter

UNIVERSITY OF CAPE COAST

INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 03321-33172/3 / 0207355653/ 0244207814
E-MAIL: irb@ucc.edu.gh
OUR REF: UCC/IRB/A/2016/101
YOUR REF:
OMB NO: 0990-0279
IORG #: IORG0009096

C/O Directorate of Research, Innovation and Consultancy

4TH APRIL, 2017

Mr Osman Wahab
School of Nursing and Midwifery
University of Cape Coast

Dear Mr Wahab,

ETHICAL CLEARANCE –ID :(UCCIRB/CHAS/2016/104)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted **Provisional Approval** for the implementation of your research protocol titled **'Utilization of the nursing process for patient care in Ghana: A case of nurses of Tamale Teaching Hospital.'**

This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

ADMINISTRATOR
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST
Date:.....

Samuel Asiedu Owusu
Administrator

APPENDIX F: Letter of Clearance to Conduct the Study in Tamale Teaching Hospital

Department of Research &Development
Tamale Teaching Hospital

TTH/R&D/SR/17/03
08/02/2017

TO WHOM IT MAY CONCERN

CERTIFICATE OF AUTHORIZATION TO CONDUCT RESEARCH IN TAMALE TEACHING HOSPITAL

I hereby introduce to you **Mr. OSMAN WAHAB,** a level 850 Masters of Nursing (MN) graduate student of the School of Nursing and Midwifery, University of Cape Coast. Who has been duly authorized to conduct a study on **"Utilization of the Nursing Process for Patient care in Ghana: The Case of Tamale Teaching Hospital".**

Please accord him the necessary assistance to be able to complete his study. If in doubt, kindly contact the Research Unit at the second floor of the administration block or on Telephone 0209281020. In addition, kindly report any misconduct of the Researcher to the Research Unit for necessary action, please.

Please note that this approval is given for a period of six months, beginning from 8th of February, 2017 to 31st of August, 2017.

Thank You.

ALHASSAN MOHAMMED SHAMUDEEN
(HEAD, RESEARCH & DEVELOPMENT)

APPENDIX G: Email Requesting for Nursing Process Information from the Nursing and Midwifery Council of Ghana

University of Cape Coast Mail - Literature on Nursing Process utilization or application needed.

Wahab Osman <wahab.osman@stu.ucc.edu.gh

Literature on Nursing Process utilization or application needed.

Wahab Osman <wahab.osman@stu.ucc.edu.gh>
22 September 2016 at 23:35
To: nmcghana2016@gmail.com

Hi,

I am Registered General Nurse and a Masters of Nursing student of the University of Cape Coast.

I am currently developing my Thesis/Research proposal on Nursing process utilization or application in Ghana and needs your help.

I need some articles on nursing process utilization or application in Ghana. I have had a lot of articles on this topic from around the world but that of Ghana is difficult to come by.

I would therefore appreciate the help of NMC Ghana in getting the available literature in the case of Ghana (articles, technical reports, annual reviews etc.).

I eagerly await your response.

Thank you.

Best regards

Osman Wahab
RGN, Dip., BSN, MN (MPhil) Student
School of Nursing and Midwifery
University of Cape Coast
Cape Coast. Ghana. West Africa.
Tel:+233208381462/+233268381462

APPENDIX H: Reply by the Nursing and Midwifery Council of Ghana to the Request for Nursing Process Information

University of Cape Coast Mail - Literature on Nursing Process utilization or application needed.

Wahab Osman <wahab.osman@stu.ucc.edu.gh>

Literature on Nursing Process utilization or application needed.

Nursing and Midwifery Council Ghana <nmcghana2016@gmail.com>
16 December 2016 at 16:14
To: Wahab Osman <wahab.osman@stu.ucc.edu.gh>

Hello Wahab,

I am sorry we have no literature available for you from the Council. I will kindly advise you visit your school library because some past students may have done similar researches, to help you deduce your required literature.

Thank you

APPENDIX I: Multiple Logistic Regression Model of Significantly Associated Independent Variables on the Dependent Variable

Null Model Classification Table				
Observed		Predicted		
		We us the nursing process		Percentage (%) Correct
		Disagree/Strongly Disagree	Strongly Agree/Agree	
We use the nursing process	Disagree/Strongly Disagree	191	0	100%
	Strongly Agree/Agree	91	0	0.0%
Overall Percentage				67.7%

Predicted Model Classification Table				
Observed		Predicted		
		We use the nursing process		Percentage (%) Correct
		Disagree/Strongly Disagree	Strongly Agree/Agree	
We use the nursing process	Disagree/Strongly Disagree	170	21	89.0%
	Strongly Agree/Agree	52	39	42.9%
Overall Percentage				74.1%

Omnibus Tests of Model Coefficients			
	Chi-square	df	Sig.
Step	86.554	39	0.000
Block	86.554	39	0.000
Model	86.554	39	0.000

Significant at $p < 0.05$

Hosmer and Lemeshow Test		
Chi-square	**df**	**Sig.**
5.799	8	0.670

Significant at $p < 0.05$

Predicted Model Summary		
-2 Log likelihood	**Cox & Snell R Square**	**Nagelkerke R Square**
268.137	0.264	0.369

Variables in the Equation							
Independent variables	**B**	**Wald**	**df**	**Sig.**	**OR**	**95% CI for EXP(B)**	
						Lower	**Upper**
Age (Years)							
56-60		7.493	7	.379			
20 – 25	24.361	.000	1	1.000	37993186464.674	.000	.
26 – 30	26.022	.000	1	1.000	200131747020.404	.000	.
31 – 35	25.514	.000	1	1.000	120434796846.484	.000	.
36 – 40	25.494	.000	1	1.000	117953346563.329	.000	.
41 – 45	46.933	.000	1	.999	241347879231795630000.000	.000	.
46 – 50	3.665	.000	1	1.000	39.061	.000	.
51 – 55	.365	.000	1	1.000	1.441	.000	.
Educational level							
Masters		.834	2	.659			
Diploma	-.265	.065	1	.799	.767	.100	5.883

Bachelors	-.593	.403	1	.526	.553	.089	3.448
Rank of participants							
PNO/PMO/ DDNS		1.083	2	.582			
SN/SM/SSN/ SSM	-2.172	.789	1	.374	.114	.001	13.721
NO/MO/SNO /SMO	-2.412	.979	1	.322	.090	.001	10.658
Years of experience							
21 – 25		.443	4	.979			
1 – 5	-3.016	.000	1	1.000	.049	.000	.
6 – 10	-3.200	.000	1	1.000	.041	.000	.
11 – 15	-3.984	.000	1	1.000	.019	.000	.
16 – 20	-45.317	.000	1	.999	.000	.000	.
Possess clinical nursing process skill							
SD		9.038	3	.029			
SA	1.909	5.064	1	.024	6.745	1.279	35.566
A	2.090	7.802	1	.005	8.084	1.865	35.037
D	1.504	3.777	1	.052	4.501	.987	20.521
Nurse manager monitor & supervise nursing process use							
SD		3.487	3	.322			
SA	-2.342	2.459	1	.117	.096	.005	1.795
A	-.226	.098	1	.754	.798	.194	3.274
D	.245	.244	1	.622	1.278	.482	3.387
Hospital has nursing process policy							
SD		2.342	3	.504			
SA	-20.558	.000	1	.999	.000	.000	.
A	1.367	2.317	1	.128	3.923	.675	22.809
D	.615	1.102	1	.294	1.849	.587	5.826
Ward has nursing process policy							
SD		7.485	3	.058			
SA	2.865	6.510	1	.011	17.548	1.943	158.506
A	.349	.162	1	.687	1.418	.259	7.755
D	-.024	.001	1	.970	.976	.280	3.402

Adequate supply of consumables/stationery							
SD		19.188	3	.000			
SA	.371	.140	1	.708	1.449	.207	10.125
A	.376	.452	1	.501	1.457	.487	4.358
D	-1.492	8.952	1	.003	.225	.085	.598
Patients stayed long enough							
SD		8.058	3	.045			
SA	.173	.074	1	.786	1.189	.342	4.137
A	.506	.790	1	.374	1.658	.543	5.060
D	1.328	4.974	1	.026	3.772	1.175	12.113
Nursing process wastes nurses time							
SD		2.805	3	.423			
SA	-1.105	.248	1	.619	.331	.004	25.647
A	-.649	.088	1	.767	.523	.007	37.868
D	.064	.001	1	.977	1.066	.014	84.136
Nursing process is burdensome to nurses							
SD		1.473	3	.688			
SA	1.139	.583	1	.445	3.125	.168	58.185
A	1.514	1.076	1	.300	4.544	.260	79.356
D	1.536	1.037	1	.309	4.645	.242	89.251
Constant	-23.689	.000	1	.999	.000		

Significant at $p < 0.05$

Variables: Dependent variable (We use nursing process for patient care)

APPENDIX J: Results of tests of Reliability and Normality of the Pre-test Data

Reliability test

Reliability Statistic
Cronbach's Alpha
0.834

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
We use the nursing process	44.77	37.517	0.433	0.827
We follow the steps systematically	44.45	32.260	0.839	0.802
How often do you use nursing process?	44.45	32.260	0.839	0.802
I feel personally motivated to use the nursing process	45.23	34.565	0.924	0.808
Workload is optimal to use the nursing process	44.36	36.052	0.241	0.842
Staffing level is adequate to use nursing process	44.27	32.208	0.754	0.805
Adequate supply of consumables/stationery to use nursing process	43.14	42.695	-0.452	0.856
Had further nursing process training in TTH	42.82	37.013	0.496	0.824

I possess the nursing process clinical skills	44.64	32.623	0.665	0.811
Hospital management support use of nursing process	44.09	32.468	0.531	0.821
Hospital has policy on nursing process	44.00	37.238	0.398	0.827
Unit/ward has policy on nursing process	44.00	37.238	0.398	0.827
Nurse managers monitor/supervise the use of nursing process	43.82	37.013	0.496	0.824
Patients stay long enough to use enable the use of nursing process	43.27	34.589	0.444	0.825
I believe the nursing process is applicable in my practice	44.95	37.760	0.317	0.830
I believe the nursing process wastes nurses time	43.14	42.695	-0.452	0.856
Use of nursing process unnecessarily burdens nurses	43.14	42.695	-0.452	0.856
What is your understanding of the nursing process?	45.05	34.426	0.880	0.808
How many steps does nursing process have?	45.55	39.974	0.000	0.836

Tests of Normality of Pre-test Data							
	Gender	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
We use the nursing process	Female	0.353	19	0.000	0.722	19	0.000
	Male	0.353	11	0.000	0.649	11	0.000

Significant at $p < 0.05$.

APPENDIX K: Results of Test of Normality of Survey Data

Tests of Normality of Survey Data							
		Kolmogorov-Smirnov			Shapiro-Wilk		
	Gender	Statistic	df	Sig.	Statistic	df	Sig.
We use the nursing process	Female	0.248	146	0.000	0.848	146	0.000
	Male	0.281	136	0.000	0.843	136	0.000

Significant at $p < 0.05$