SCHOOL OF NURSING AND MIDWIFERY

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

MIDWIVES' ADHERENCE TO PROTOCOLS IN THE MANAGEMENT OF PRE-ECLAMPSIA/ ECLAMPSIA IN THE ACCRA METROPOLIS

BY

ADAM AL-HASSAN MARIAM

(10704030)

THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PHILOSOPHY IN NURSING

OCTOBER 2020

DECLARATION

I, Mariam Al-Hassan Adam, hereby state that this thesis is my original research. Except for references made to the work of others, which have been appropriately acknowledged and cited in the reference column, this work has never been submitted to any other institution.

Mariam Al-Hassan Adam	.....	11/03/2021
(10704030)	Signature	Date
Dr. Florence Naab	.....	11/03/2021
(Principal Supervisor)	Signature	Date
Rev. Dr. T. A. Ndanu	.....	15/03/2021
(Co-supervisor)	Signature	Date

ABSTRACT

Ensuring quality for patient care, evidence for practice, and uniformity of care were the reasons for developing protocols and guidelines. Even though protocols designed for managing pre-eclampsia and eclampsia are appropriately initiated, adherence to these protocols has been reported to be poor. Midwives are crucial in the implementation of protocols designed to improve maternal health outcomes. However, little is known concerning the utilization of protocols by midwives. In Ghana, there is limited empirical information about midwives' behaviour towards the use of protocols when dealing with cases of pre-eclampsia and eclampsia.

This study sought to investigate the determinants of protocols adherence by midwives in the Accra Metropolis. In this cross-sectional, descriptive study, a census of 235 midwives working in government hospitals within the Accra metropolis, were surveyed. Data was collected using the Planned Behaviour questionnaire consisting of two sections, the demographics (section A) and according to the constructs of the Decomposed Theory of Planned Behaviour (section B). Data was analysed using SPSS version 23.0. Both descriptive and inferential techniques were used. A confidence level of 95% and a *p*-value < 0.05 were used.

A total response rate of 100% was achieved. Majority of the respondents were female (n= 233, 99.1%). The mean age of respondents was 33.4 ± 6.98 and a majority held a diploma in midwifery (59.6%, n=140). Most of the respondents (88.0%, n=206) had under 10 years' work experience in the unit. The two top ranks were senior staff midwife (33.6%, n=79) and staff midwife (33.2%, n=78). The results showed high mean scores for the various

constructs, attitude (5.92 ± 0.89), subjective norms (5.17 ± 1.47), perceived behavioural control (5.13 ± 1.02), behavioural intention (5.72 ± 1.25), behaviour (4.79 ± 1.52). There was a positive significant relationship between attitude, subjective norms, perceived behavioural control, behavioural intention, and behaviour. Subjective norms and behavioural intention were the two most significant predictors, with subjective norms being the highest contributor. Age, attitude, subjective norms, perceived behavioural control, and behavioural intention explained 23.4% of the variance in behaviour. Behavioural intention partially mediated the association between subjective norms and adherence to protocols when managing pre-eclampsia and eclampsia.

Midwifery practice needs to change towards quality improvement to improve maternal care by adhering to protocols. Hence, it is essential to prepare midwives by supporting, transferring the needed knowledge, and skills required for protocol adherence.

DEDICATION

This thesis dedicated to my parents, Mr. Al-Hassan Adam and Miss Mary Abakeh, who ensured the value of education was indoctrinated in me. This study is also dedicated to my siblings and friends for their encouragement, prayers, and extraordinary support in different ways towards the success of my studies.

ACKNOWLEDGEMENT

I am grateful to God for granting me the grace, wisdom, and forte during this programme. I am also thankful to the University of Ghana, School of Nursing and Midwifery, and especially, the Department of Maternal and Child Health for the opportunity and immense support during my study.

My heartfelt gratitude goes to my supervisor, Dr. Florence Naab, Head of Department, Maternal and Child Health, for her dedication, tolerance, guidance, and efforts made in ensuring my work was completed. I am earnestly grateful to my second supervisor Rev. Dr. T. A. Ndanu of the Department of Community and Preventive Dentistry, University of Ghana Dental School/ College of Health Sciences, for his immense support and time spent with me to put my analysis together. I am forever grateful.

My sincere appreciation goes to Dr. Mary Ani-Amponsah, of the Maternal and Child Health Department, School of Nursing and Midwifery, for her continuous guidance and reassurances during my study. I would also like to acknowledge the Dean of the School of Nursing and Midwifery, Prof. Lydia Aziato, for her words of wisdom and encouragement. Finally, I wish to thank the management and staff of the Regional Health Directorate, Accra Health metropolis, Heads of all the facilities I visited, and especially, the midwives who participate in this study.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

BPG:	Best Practice Guidelines
CHAG:	Christian Health Association of Ghana
CPGs:	Clinical Practice Guidelines
DIC:	Disseminated Intravascular Coagulation
DTPB:	Decomposed Theory of Planned Behaviour
EBM:	Evidence-based medicine
EBP:	Evidence-Based Practice
GHS:	Ghana Health Service
HDP:	Hypertensive Disorders of Pregnancy
HICs:	High Income Countries
ICT:	Information Communication Technology
LMICs:	Low and Middle-Income Countries
MDGs:	Millennium Development Goals
MOH:	Ministry Of Health
NMC:	Nursing and Midwifery Council
SDGs:	Sustainable Developmental Goals
TAM:	Technological Acceptance Model
TPB:	Theory of Planned Behaviour
UNDP:	United Nations Development Program
UTAUT:	Unified Theory of Acceptance and Use of Technology questionnaire
WHO:	World Health Organization

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Globally, maternal morbidity and mortality are issues of great concern (Say et al., 2014). After the Safe Motherhood Initiative in 1987, both national and international organizations put in efforts to decrease maternal mortality (United Nations Development Programme, 2019). Subsequently, at the United Nations (UN) Summit in 2000, national leaders committed to fighting starvation, poverty, illness, illiteracy, ecological degradation, and discrimination against women (United Nations Development Programme, 2019).

There were eight Millennium Development Goals (MDGs) and two of them (MDGs 4&5) were directly targeted at improving maternal and child health worldwide by 2015 (World Health Organization, 2015a). After the era of the MDGs, the Sustainable Development Goals (SDGs) was developed in 2015 to build on the successes and failures of the MDGs and to move the world towards a sustainable path (United Nations Development Programme, 2019).

The SDGs came into effect in 2016 and set out to achieve 17 targets by 2030 (United Nations Development Programme, 2019). Sustainable Development goal 3 is targeted at improving good health and well-being. The SDG 3.1 and 3.2 are focused specifically on maternal and child health, respectively (United Nations Development Programme, 2019). Through the combined efforts of all stakeholders, in 2015 there was a 44% reduction in maternal mortality worldwide (World Health Organization, 2015b).

In Africa, the top five rated countries with the most maternal deaths are Sudan, Nigeria, Chad, Central African Republic, and Sierra Leone, recording maternal deaths, ranging from 789 to 1360 per 100,000 live births (World Health Organization, 2015b). About half of maternal deaths are caused by haemorrhage, hypertensive disorders and sepsis (Say et al., 2014). These are preventable with proper health management.

Worldwide, hypertensive disorders of pregnancy (HDP) are considered the second cause of direct morbidity and mortality in pregnant women, contributing about 14.0% of maternal deaths (Say et al., 2014), making it an issue of great concern. In the United States, approximately 5-10% of all pregnancies are complicated with hypertensive disorders while 3% are attributed to pre-eclampsia, whereas, in Africa, 10 out of every 100 pregnancies are affected by pre-eclampsia, this is higher than the approximated 2% global average (Nakimuli et al., 2015). Furthermore, African-American women are more at risk of death from hypertensive disorders as compared to women of Hispanic, Native American, Asian and Caucasian lineage (Lo, Mission, & Caughey, 2013).

Globally, the approximate incidence of pre-eclampsia and eclampsia are 4.6% and 1.4% of all deliveries, with a vast difference across the various W.H.O. regions of the world (Abalos, Cuesta, Grosso, Chou, & Say, 2013). With the Eastern Mediterranean (EURO) and Western Pacific (WPRO) regions recording the lowest estimates (Abalos et al., 2013). However, the incidence is higher in Africa, 5.6% for pre-eclampsia, and 2.9% for eclampsia (Abalos et al., 2013).

In Low and Middle-Income countries (LMICs), most maternal deaths occur around the time of delivery, with pre-eclampsia and eclampsia accounting for 16.4% of the deaths (Saleem et al., 2014; Wagnew, Dessalegn, Worku, & Nyagero, 2016). In Africa, the lack of

triage, transportation, and treatment are the three main delays that increase the incidence of mortality from pre-eclampsia (Firoz, Sanghvi, Merialdi, & von Dadelszen, 2011). Furthermore, HDP, in Ghana, are linked with a high incidence of adverse maternal outcomes, especially with cases of pre-eclampsia (Adu-Bonsaffoh, Obed, & Seffah, 2014).

Pre-eclampsia is a pregnancy-specific multisystem disorder of unknown aetiology, exclusive to a pregnancy, and complicates 3% to 8% of all pregnancies. It contributes significantly to maternal morbidity and mortality worldwide and in Ghana (Adu-Bonsaffoh et al., 2014; Townsend, O'Brien, & Khalil, 2015). Pre-eclampsia is the start of hypertension after 20 weeks of pregnancy characterized with chronic hypertension (diastolic blood pressure ≥ 90 mm Hg) and significant proteinuria (> 0.3 g/24 hours), or maternal organ dysfunction or foetal growth restriction (Dekker, 2014). Eclampsia is classified as an emergency in obstetric care; it is characterized by episodes of fits, if untreated can result in severe organ complications (Townsend et al., 2015), such as chronic kidney disease (Spaan, van Balen, Peeters, & Spaanderman, 2015). The priority is to stabilize the mother using magnesium sulphate (Townsend et al., 2015).

Numerous factors have been identified to intensify one's risk for pre-eclampsia, although there are no specific causes of the disease. The risk of pre-eclampsia is associated with an individual's first pregnancy, primi-paternity, advanced maternal age, obesity, existing diabetes, family history, pre-existing hypertension and/or kidney disease, or gestational hypertension, and susceptible genetic factor (Shiozaki & Saito, 2018). However, Paré et al. (2014) reported that obesity or overweight was the most significant risk factor and independent predictor of the disease. Implying that the current fight against obesity may reduce mortality connected with pre-eclampsia (Ananth, Keyes, & Wapner, 2013). Besides

the life-threatening effect of this condition to mothers, there are other consequences of pre-eclampsia and eclampsia that affect the unborn baby such as intrauterine foetal growth restriction, intrauterine foetal death, acute kidney injury and renal insufficiency (Bokslag, van Weissenbruch, Mol, & de Groot, 2016; Witcher, 2018).

Efforts by the World Health Organisation (W.H.O) to control the effects of pre-eclampsia/eclampsia, especially in LMICs, led to the development of a guideline on pre-eclampsia/eclampsia management. Nonetheless, it appears that different countries have guidelines to suit their contexts; however, most implement the WHO recommendations such is the case in Ghana. The main goal of the guide is to improve the quality of care and care outcomes of expectant mothers, while promoting pre-eclampsia and eclampsia management using scientific evidence (World Health Organization, 2011).

The guide strongly recommends the supplementation with calcium to pregnant women in places with low dietary intake of calcium and among high-risk groups. Additionally, health practitioners should give soluble aspirin to women of high-risk to prevent pre-eclampsia, treat severe hypertension with antihypertensive drugs in pregnant women, and use magnesium sulphate as the preferred drug for the avoidance and management of seizures in expectant mothers with severe pre-eclampsia.

Following these recommendations, many institutions, worldwide, implemented clinical protocols to decrease the prevalence of maternal mortality and morbidity related to pre-eclampsia and eclampsia (O'Brien, Duong, Winterton, Haring, & Kuhlmann, 2018). Studies conducted in high-income countries (HICs) like the United States (Gupta, Greene, & Kilpatrick, 2018; Shields, Wiesner, Klein, Pelletreau, & Hedriana, 2017) and Finland (Jaatinen & Ekholm, 2016) on the use of protocols established a reduction in morbidity and

mortality from hypertension and pre-eclampsia/eclampsia. Crediting these achievements to management changes and increased awareness (Schaap, van den Akker, Zwart, van Roosmalen, & Bloemenkamp, 2019).

However, LMICs have experienced challenges with the implementation of these guidelines. Barriers encountered include the lack of nationwide guidelines and indigenous protocols, poor adherence to protocols, inadequate training, poor governance, poor supervision, poor coordination, poor monitoring, lack of resources, a heavy work burden, dread of punishment, blame, deprived information on evidenced-based practice, hierarchical variances among staff and devaluing the benefits of guidelines (Lazzerini, Ciuch, Rusconi, & Covi, 2018).

In Ghana, a total of 1,033 maternal deaths were recorded in 2015, of which 92.4% was associated to pregnancy. Out of which, 867 audited, revealed that, hypertensive disorders contributed to 35% of the deaths (Ghana Health Service, 2016). Hypertensive disorders are the second cause of maternal deaths in Ghana (Ghana Health Service, 2016). Also, the majority of these deaths (61%) were recorded in Ghana health service facilities, 15% from Christian health facilities, and 24% from the teaching hospitals in 2015 (Ghana Health Service, 2016). There was a general increase in maternal deaths from 926 in 2015 to 955 in 2016 respectively, with the Greater Accra region recording the highest number (197) of maternal deaths in 2016 (Ghana Health Service, 2017).

Furthermore, a study in Korle-Bu revealed a prevalence of 21.4 % in HDP, with pre-eclampsia and eclampsia contributing 38.0% of the cases (Adu-Bonsaffoh, Ntumy, Obed, & Seffah, 2017). Although interventions such as care guidelines and comprehensive obstetric care management, and the improvement in capacity and access to trained personnel were

introduced to reduce maternal morbidity and mortality (Browne, Van Nievelt, Srofenyoh, Grobbee, & Klipstein-Grobusch, 2015; Ghana Health Service, 2016), adverse outcomes are still on the rise in Ghana. In Nadowli Hospital, Ghana, obstacles identified that impeded maternal care were inadequate medical equipment, essential medicines, infrastructural challenges, high informal costs of essential medicines, shortage of skilled staff, and generally limited capacities to provide care (Sumankuuro, Crockett, & Wang, 2018).

Results from a criteria-based audit, in a referral hospital in Accra, on care quality for expectant mothers with pre-eclampsia/eclampsia, observed good adherence for planned delivery and magnesium sulphate treatment, however, insufficient adherence to several other protocols were identified, pointing towards seizing targeted opportunities to improve strategies (Browne et al., 2015). Also, a key barrier to protocol adherence identified in Ghana is the limitation for in-service training opportunities and the inadequacy of protocols in the units (Alhassan et al., 2019). Additionally, a unified approach to systems strengthening is needed to improve the outcomes of high-risk pregnancies in Ghana and other low-resource countries (Ramaswamy et al., 2015).

It appears the problem of staff shortage in connection to midwives, lead to the introduction of the direct midwifery programme. This escalation has resulted in a radical change in the ages of midwives, leading to the question of quality of care at the workplace (Asamani et al., 2019). The age gap may have created lapses in the care provision since young midwives leave their post to pursue higher educational programmes at the expense of the service because limited opportunities exist for continuous professional development (Alhassan et al., 2019). Consequently, it is essential to address context-specific challenges to guideline compliance (Braddick et al., 2016) and employing strategies directed at health

professionals to improve obstetric care to reduce maternal mortality in LMICs (Imamura et al., 2016). Hence, the need to investigate midwives' adherence to protocols when attending cases with pre-eclampsia/eclampsia using the Decomposed Theory of Planned Behaviour as an organizing framework.

1.2 Problem Statement

Evidence-based practice (EBP) is accepted as the golden standard for ensuring high quality, safe, and optimal clinical outcomes (Farokhzadian, Khajouei, & Ahmadian, 2015). Additionally, it is the recommended approach specified to critically appraise and used as the best existing evidence for clinical decision-making in patient care (Smyth, 2000). Clinical guidelines and protocols were established to provide evidenced-based practice, ensure uniformity and provide quality patient care, however, it is not to replace clinical judgement (American College of Obstetricians and Gynecologists, 2015; Incze & Ross, 2019; Whelton et al., 2018).

Furthermore, the introduction of clinical guidelines and protocols has led to the standardization of nursing and midwifery practice and also autonomy among nurses and midwives (American College of Obstetricians and Gynecologists, 2015; Ferreira, Silveira, Silva, Souza, & Ruiz, 2016). To achieve better health outcomes for women, and their infants, midwifery, and midwives play a crucial role in attaining the national and international targets of reproductive health, maternal and newborn care (Amoakoh-Coleman et al., 2016; ten Hoope-Bender et al., 2014). The successful adoption and implementation of EBP depends on factors such as knowledge, attitude, and the perception of existing barriers (Azmoude, Farkhondeh, Ahour, & Kabirian, 2017; Eizenberg, 2011; Farokhzadian et al., 2015; Stokke,

Olsen, Espehaug, & Nortvedt, 2014). For instance, unfavourable attitude, difficulty in quality judgement, and results applicability have been identified as challenges among nurses (Farokhzadian et al., 2015). Health personnel compliance with guidelines and complete-provider adherence to care guidelines influence delivery and its outcomes (Amoakoh-Coleman et al., 2016).

However, protocols used for monitoring are the least followed (Browne et al., 2015). Auditing the quality of care for pre-eclampsia and eclampsia allows for monitoring and evaluation, which results in care quality improvement and decreases maternal morbidity and mortality (Browne et al., 2015). Thus, to contribute to better adherence, there is the need to increase awareness, train staff on protocols, and clear task assignment to staff (Browne et al., 2015). Additionally, findings suggest that midwives especially demonstrate a high familiarity with guidelines, nonetheless, they exhibit low adherence practices (Molenaar et al., 2018).

Most studies have been focused on the understanding the view of nurses and physicians (Diermayr, Schachner, Eidenberger, Lohkamp, & Salbach, 2015; Sanjari, Baradaran, Aalaa, & Mehrdad, 2015; Weng et al., 2015), with few focused on midwives, as is the case in Africa. Similarly, in Ghana, it appears that limited studies exist on midwives' adherence to protocol in managing patients with pre-eclampsia/eclampsia. Thus, there is the need to examine midwives' adherence to protocols in the management of pre-eclampsia and eclampsia. The study was guided by the constructs of the Decomposed Theory of Planned Behaviour (DTPB) by Taylor and Todd (1995) which focuses on factors that impact information usage and provides an understanding of behaviour. The DTPB is depicted in figure 2.1.

1.3 Study Purpose

The purpose of the study was to examine adherence to protocols by midwives during the management of pre-eclampsia and eclampsia in some selected hospitals within the Accra Metropolis.

1.3.1 Specific objectives

The specific objectives were derived from the constructs of the DTPB. These specific objectives are to;

1. Describe the behaviour of midwives during the management of pre-eclampsia and eclampsia
2. Establish the relationships between attitude, subjective norms, perceived behavioural control and behavioural intention of midwives in adhering to protocols
3. Determine the predictors of midwife's behaviour with regards to protocol adherence.
4. Establish the mediating effect of behavioural intention in the relationship between subjective norms, and protocol adherence by midwives (behaviour).

1.4 Hypothesis

- **H1**: There will be a positive significant relationship between attitude, subjective norms, perceived behavioural control, intention of midwives and the behaviour of midwives to adhere to protocols in the management of pre-eclampsia/eclampsia
- **H2**: Midwives' attitude, subjective norms, perceived behavioural control and intention would predict adherence to protocols in the management of pre-eclampsia/eclampsia.

- **H3**: There will be a mediating effect of intention in the relationship between subjective norms and adherence to protocols by midwives in the management of pre-eclampsia/eclampsia

1.5 Significance of the study

Pre-eclampsia and eclampsia are among the hypertensive disorders in pregnancy and a major contributor to maternal and perinatal morbidity and mortality. Adherence to protocols in the management of conditions has proven to positively impact the adverse outcomes of hypertensive disorders. Nonetheless, evidence in Ghana shows high maternal morbidity and mortality despite having adopted and implemented protocols for pre-eclampsia/eclampsia management. Hence, the need to investigate midwives' adherence practices to protocols for pre-eclampsia/ eclampsia management.

The factors contributing to poor protocol adherence by midwives would be identified in the study which can be used to improve the level of adherence among trained midwives. Understanding this can also help policymakers, and healthcare managers put in efforts to reduce barriers to adherence at the workplace and prepare midwives adequately, so they adhere to protocols to reduce maternal and perinatal morbidity and mortality. It can also help modify some aspects of the protocols to suit our Ghanaian context. Other researchers can also use this study as a source of future reference in research.

1.6 Operational definition of terms

- **Adherence**: the degree or extent to which one can follow the approved steps specified

- **Guideline**: a statement of policy or procedure by which to determine a course of Action in the diagnosis, management, and treatment of specific conditions in specific areas of healthcare
- **Protocol**: a detailed plan for the management of a medical condition or problem
- **Evidence-based practice**: it the conscious use of best research findings by health workers in clinical practice.

CHAPTER TWO

2.0 THEORETICAL FRAMEWORK AND LITERATURE REVIEW

This chapter starts with the description of the model selection and then the description of the Decomposed Theory of Planned Behaviour which guides the study. The chapter also reviews literature related to factors influencing adherence by healthcare workers.

2.1 Selection of theoretical model

Determining the appropriate theory to use to investigate the research question is a component of the literature review (Creswell, 2014). During the search for a behavioural theory to guide the study, two other theories seeking to explain human behaviour were identified. The Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1977) and the Theory of Planned Behaviour (TPB) (Ajzen, 1985).

The Theory of Reasoned Action explains that behaviour is formed because of one's intention which is in turn formed as a function of a person's attitude and subjective norms, thus explaining only behaviour under intentional control (Fishbein & Ajzen, 1977). The Theory of Planned Behaviour (TPB), on the other hand, improves on the weakness of the Theory of Reasoned Action because it considers the perceived intention. Thus explaining both intentional and non-intentional control of the behaviour (Ajzen, 1985). Although the TPB is popularly used to explain behaviour among health workers by researchers, it was criticized for not having specific belief sets that are relevant to behaviour for the acceptance of information. Therefore, the Theory of Reasoned Action and the Theory of Planned Behaviour were both not chosen for these reasons.

The Decomposed Theory of Planned Behaviour (DTPB) by Taylor and Todd (1995) focuses on identifying the several factors that influence the three constructs of behavioural intention: attitude; subjective norms; and perceived behavioural control. These factors are further disintegrated into user-friendliness/complexity, compatibility, perceived usefulness/relative advantage, peers and superiors, resource and technological facilitating conditions, and self-efficacy (Taylor & Todd, 1995). Also, the DTPB model has been used in studies and shows a good chance at predicting professionals' acceptance of information (Hung, Ku, & Chien, 2012; Tao & Fan, 2017).

2.2 Decomposed Theory of Planned Behaviour (DTPB)

Taylor and Todd (1995) developed the Decomposed Theory of Planned Behaviour (DTPB). The theory stems from two theories, the Theory of Planned Behaviour (TPB) (Ajzen, 1985) and the Technological Acceptance Model (TAM) (Davis, 1989). TAM is focused on identifying the determining factors of intention (attitude, social impact, facilitating conditions), and information usage (Davis, 1993). TAM operates on the assumption that users use evidence based on their perceived user-friendliness and practicality. The more useful the protocol is professed to be, the more positive ones' attitude and intention towards the use of the protocol. Correspondingly, the usage of the evidence increases. The model can be utilized practically because developers have to an extent some control over ease of use and the usefulness of the tools and provide the direction in which efforts can be focused on by the manager. Evidence shows that TAM predicts both usage intention and self-reported usage. The TPB, on the other hand, believes attitude, subjective norms, and perceived behavioural control are direct determining factors of intent which

affects behaviour, and thus predicts user intention, yet it doesn't provide a complete explanation of intention as TAM (Davis, 1989, 1993).

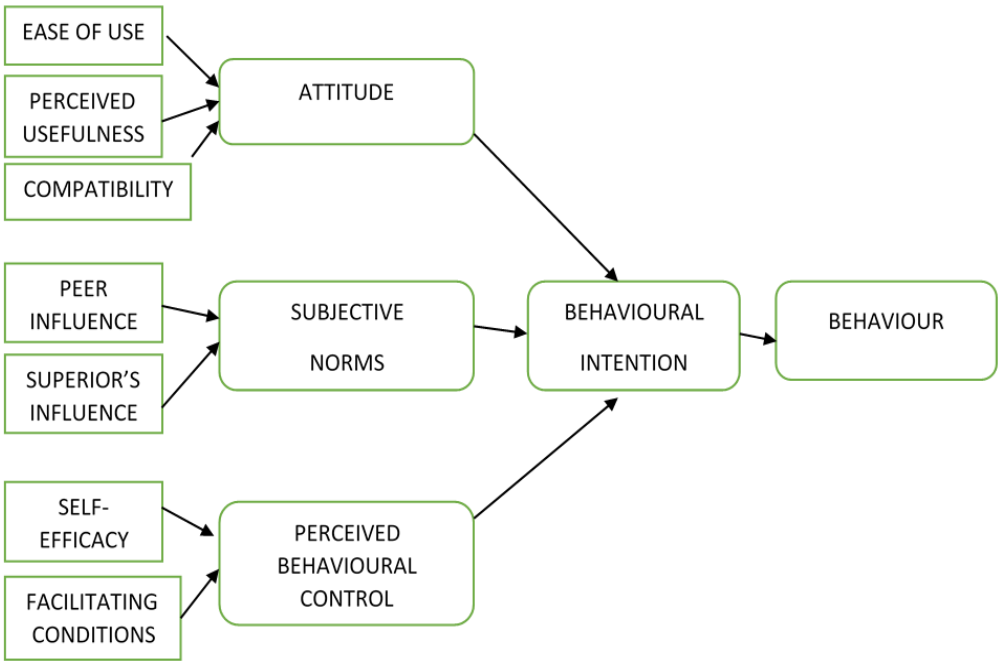
The construct of behavioural intention in DTPB has three main constructs, these are attitude, subjective norms, and perceived behavioural control. By disintegrating them into unique belief dimensions, DTPB fully examines the dimensions of mindset, social influence, and perceived behavioural regulation. It describes unique relevant beliefs that affect use, impact of presumed capacity and the power of significant others that are not present in TAM but have essential behavioural determinants, thus providing a more complete understanding of use (Davis, 1989, 1993).

By breaking them into fractions, relationships become clearer, readily understood, and provides believe sets that are applicable across various settings. This knowledge is important because it points to specific influencing factors that may affect usage and acceptance of inventions, which can be manipulated through the design and implementation strategies. Although the introduction of the numerous factors makes it more complex, it provides a more complete understanding of usage (Taylor & Todd, 1995).

Attitude is decomposed into complexity, compatibility, and relative advantage. Relative advantage is defined as perceived usefulness, meaning the degree to which an invention (protocol) provides benefits that surpass that of its precursor and impacts on performance. Ease of use is the extent to which the invention is perceived to be difficult to operate. While compatibility is the extent to which the invention fits with the adopter's existing morals, past practices, and present needs. Subjective norm is disintegrated into groups such as peers and superiors (Taylor & Todd, 1995).

Control belief structure/ perceived behavioural control has been fragmented into self-efficacy and facilitating conditions (resource and technological). Self-efficacy as associated with the assumed capability, facilitating conditions such as time, money, and other issues that constrain usage. Usage barriers may impede intention formation and use; however, the existence of this conditions that promote use may not inherently inspire use (Taylor & Todd, 1995). In ensuring the effective distribution of resources in an organization, one needs to understand usage. The DTPB was preferred because it examines the determinants of usage and adoption of information by users (midwives).

Figure 2.1: The Decomposed Theory of Planned Behaviour



Source: Taken and Modified from Taylor & Todd, 1995

2.3 Application of the Decomposed Theory of Planned Behaviour

According to the DTPB, three features determine midwives' behaviour towards adhering to protocols. Midwives with a positive attitude towards protocols would form the intention to adhere to protocols when performing their duties. While midwives with a negative attitude towards protocols will not form the intention to adhere to protocols during practice. The opinion of peers and superiors will either positively or negatively influence midwives' intention to use protocols, and subsequently their behaviour, hence ensuring they adhere to the use of protocols. Perceived behavioural control can facilitate or inhibit midwives from either using or not using protocols. Based on these, this study will help

understand and explain how complexity, compatibility, relative advantage, self-efficacy, superior and peer influence, facilitating conditions, and intentions affect midwives' adherence to protocol in managing patients diagnosed with pre-eclampsia and eclampsia.

2.4 Literature Review

The review of literature on health workers attitude (ease of use, compatibility, perceived usefulness), subjective norms (peer and superior), perceived behavioural control (self-efficacy, and facilitating conditions) and behavioural intention towards adherence to guidelines were retrieved from online databases such as ScienceDirect, Medline, PubMed, Scopus, CINAHL complete and search engines such as EBSCOhost and GoogleScholar. The scope of literature was mainly reviewed from 2015 to 2020, although a few extended beyond 2015. Key search terms like 'adherence', 'compliance', 'attitude', 'perceptions', 'intention', 'behaviour', 'barriers', "challenges', 'self-efficacy', 'protocol', 'guideline', 'factors' and 'facilitating conditions' were used to retrieve journal articles published in English.

2.5 Role of protocols in clinical practice

Protocols help in the implementation of scientific evidence for patient care as recommended by experts (Cone, 2007). However, primary care providers do not follow recommendations consistently, despite knowing their influential abilities (Haas et al., 2016). There appears to be a gap between research evidence and clinical practice, despite the existence and availability of guidelines and protocols. The professional, patient, environment and strategies used for implementation are factors identified to influence the application of protocols (Cheng, Broome, Feng, & Hu, 2017).

Research suggests that to improve adherence practices, the complexities in protocols' characteristics and social influences should be addressed (Ebben et al., 2015). Additionally, to improve the performance of midwives and nurses in accepting evidence-based practice, they need to recognize the importance and take responsibility for improving their performance (Kim, Yoo, Nho, & Ju, 2019). Nevertheless, poor communication, lack of education, and the lack of adequate resources such as human, medical and infrastructural resources, are common barriers identified to hinder the implementation of protocols (Quinn & Gephart, 2016). However, it seems that by supervising the implementation of care protocols, the knowledge of nurses, midwives and their assistants would increase significantly to help them adhere to protocols.

Gardner (2015) in a concept analysis defined adherence as a multidimensional and difficult concept which greatly influences behaviour and practice. Also, the analysis identified autonomy, self-determination, self-efficacy, and communication as essential elements that impact adherence. It appears the term adherence and compliance are often used synonymously and interchangeably within the healthcare setting. However, they have different social connotations. The nature of adherence practices towards protocols by health workers will either impact positively or negatively on patient care (Gardner, 2015). Implying that, poor adherence practices may lead to ineffective treatment and threaten patient safety. Therefore, finding out the reasons behind non-adherent behaviours by healthcare providers, especially midwives, is extremely necessary to improve maternal morbidity and mortality.

Globally, maternal deaths resulting from hypertensive disorders are attracting a lot of attention from both national and international organizations. In Ghana, the two leading causes of direct maternal deaths are haemorrhage and hypertensive disorders respectively

(Ghana Health Service, 2016), however, it appears in the referral hospitals, hypertensive disorders are quickly overtaking cases of haemorrhage. Leading to the question of why? A great collaboration has been established between high parity, pre-eclampsia, previous Caesarean section delivery, previous abruptio placentae, chronic hypertension, inconsistency in attending antenatal care, and the development of abruptio placenta (Macheku et al., 2015) and between disseminated intravascular coagulation (DIC) and abruptio placenta (Pantovic et al., 2015), both consequently leading to haemorrhage. Suggesting that hypertensive disorders of pregnancy may contribute to cases of haemorrhage resulting in maternal mortalities.

Standardized protocols for maternal care are designed based on empirical results to help reduce the burden of maternal mortality (Simpson, 2018). Hence, adherence to the recommended protocol by midwives is critical for the management of pre-eclampsia and eclampsia. However, although health workers have been reported to be familiar with guidelines, adherence to the guidelines is low, especially on the part of midwives (Molenaar et al., 2018).

2.6 Attitude towards adherence to protocols

Attitude towards protocol has been proven to predict intention to follow guidelines. For instance, a quantitative study on the perception, attitude, and satisfaction towards clinical practice guidelines (CPGs), that involved nurses and doctors (n=260), at a University hospital, revealed that participants had great perception, satisfaction, and positive attitude towards clinical practice guidelines, these in turn positively influenced the acceptance and implementation of the CPGs (Amer et al., 2018).

Also, a cross-sectional descriptive study, comprising of midwives (n=76), from health centres in Iran, were surveyed to measure the attitude of midwives and implementation barriers impeding evidence-based practice (Azmoude, Aradmehr, & Dehghani, 2018). The data was collected using a validated questionnaire. In the study, most of the respondents demonstrated a positive attitude toward Evidence-Based Practice (EBP). The study recommended that to promote the use of EBP, there was the need to formulate a comprehensive organizational strategy such as the provision of adequate human and material resources, ensuring the familiarity with Cochrane collaboration, support for increasing professional authority by managers, and efficiency of time (Azmoude et al., 2018).

Correspondingly, Veeramah (2016) in an online, cross-sectional survey, consisting of 386 nurses and midwives, reported that 172 respondents completed the questionnaires. The quantitative study found out that a positive attitude towards EBP was expressed by most respondents and that EBP must become a vital aspect of everyday practice. With a substantial number of respondents stating they had consistent access to scientific findings, workplace internet, and availability of standard guidelines pertinent to their specialty. Nevertheless, the respondents also stated that the perceived two topmost barriers were the absence of time to seek information and the inability to make time during working periods. Suggesting that research information should be made readily accessible in a simplified form and efforts must be made to help midwives and nurses access, appraise and utilize scientific information to help guide practice (Veeramah, 2016).

Accordingly, Barzkar, Baradaran, and Koohpayehzadeh (2018), in a systematic review, assessed the attitude, knowledge, and practice towards evidence-based medicine (EBM) and implementation barriers by physicians. It was determined that physicians generally had a

positive attitude towards EBM. They also believed that the implementation of EBM helped improve patient care. Nonetheless, self-reported knowledge, awareness of concepts of EBM, and the key databases were poor. Additionally, patient overload, time constricts, inadequate knowledge and skills were the major barriers to EBM, rather than the absence of facilities and resources. Although this pattern differed amongst the studies reviewed. Furthermore, most of the physicians referred to textbooks and their colleagues for answers to clinical queries. The study finally concluded that though the proficiencies of many physicians in EBM and understanding EBM is poor, the majority had a positive attitude toward the consequence of EBM. Hence, appropriate policies needs to be implemented to reduce the workload of physicians and also providing them with pre-appraised evidence to help overcome barriers (Barzkar et al., 2018).

Similarly, in a cross-sectional study conducted to assess healthcare professionals' awareness and attitude towards the use of evidence-based medicine, involving various categories of health workers including nurses, physicians, pharmacists, and laboratory staff (n=115) from the Adama Hospital Medical College, Ethiopia. The study utilized a structured questionnaire for data collection. Respondents revealed that 72% had awareness in EBM, 65% used EBM in practice and 35% were trained on EBM. Again, most had a positive attitude concerning the use of EBM, while 78% were interested in increasing usage in daily practice. Another, 84% believed EBM enhanced care quality. However, patient overload, limited resources, and poor understanding of research terms were the major perceived barriers. Finally, the study concluded that healthcare workers' awareness level and attitude about using EBM was good, and although applying the use of EBM in patient therapy was poor. They further recommended a balance in healthcare professional and patient ratio, the

need to promptly increase access and implementation of scientific recommendations (Abera, Vijaya, Dhanaraju, & Gunasekaran, 2016).

Furthermore, in a study that explored the perception of midwives on their professional role in Tanzania, employed a qualitative approach, comprising of sixteen midwives. A focus group interview was conducted. The results showed that the focus of midwives was saving the lives of expectant mothers and their babies. Handing over and physical examination were the key elements involved in lifesaving. Revealing that although midwives were faced with challenges such as knowledge deficit , poor working conditions, and the low social status of mothers, the handing over and physical examination process plays an essential role in the management of pregnant women (Jones, Michael, Butt, & Hauck, 2016).

A study that aimed at establishing the relationship between skills, chosen job characteristics, values, and evidence-based practice usage amongst nurses, employed a quantitative, cross-sectional, non-experimental explorative design. A sample size of 780 nurses from 20 hospitals in Slovenia were recruited. Nurse Professional Values Scale- R, Implementation Scale, Nurse Competence Scale, and Evidence-Based Practice Beliefs were the four standardized instruments used for data collection. The study identified that implementation of EBP and beliefs were not influenced by value for justice, caring, trust, and competencies. Furthermore, nurses agreed that EBP was beneficial to clinical practice, however, they lacked the needed knowledge for implementation. On the other hand, they attributed to a lesser extent an importance to values and competencies associated with activism and the development of professionalism. Also, the study identified that the implementation of scientific evidence in nursing practice was low. Hence, stressing the need to improve the skills and knowledge of professional values, competencies, and

professionalism related to nursing development (Skela-Savič, Hvalič-Touzery, & Pesjak, 2017).

Furthermore, in a study predicting midwives' intent on providing planned home birth services to women with low-risk pregnancies revealed that midwives' direct attitude ($p < .001$), and prior planned home birth practice experience ($p = .008$) were the major determinants of intention to provide the service. While, knowledge, attitude (indirect), subjective norm, norm (indirect), and perceived control (direct and indirect), did not significantly contribute to midwives' intention. The study applied a cross-sectional quantitative method using a survey instrument. A stratified random sample of 226 midwives in Sokoto, Nigeria were recruited. Using SPSS 23 and significance set at 0.05, descriptive statistics and multiple linear regression analyses were used to analyse data (Muhammed, Khuan, Shariff-Ghazali, Said, & Hassan, 2019).

Also, a descriptive cross-sectional study determined the contribution of attitude, subjective norms, and perceived control to behavioural intentions of health students regarding drug protection and the predictors of collaborative practice by health students. The study made used of an electronic Medication Safety questionnaire based on the Theory of Planned Behaviour. A sample size of 65 consisting of undergraduate pharmacy, nursing, and medical students were conveniently selected from a semi-metropolitan college in Australia. Findings showed that attitude ($\beta = 0.614$, $p = 0.001$) and perceived behaviour control ($\beta = 0.312$, $p = 0.05$) had a positive and significant relationship with behavioural intention, whiles subjective norms, although significant, was related negatively to behavioural intention ($\beta = -0.434$, $p = 0.001$). All the variables significantly predicted intention and explained 48% of the variance in behavioural intention. However, attitude accounted for 32% of the variance,

proving to be the most significant predictor. Also, subjective norm increased the variance in behavioural intentions by 9% (Lapkin, Levett-Jones, & Gilligan, 2015).

Findings from these studies generally suggest a positive attitude toward the usage of empirical evidence by health workers in clinical practice and that with the knowledge, skill, access, material resources, and time, health workers will embrace the use of scientific evidence, guidelines, and protocols to improve patient care. The studies also suggest attitude as a predictor of behavioural intention.

2.7 Subjective norms that affect adherence (superior and peer factors)

Health professionals consult their colleagues frequently for various reasons, especially in the event of an adverse event. Therefore, the support and influence of colleagues are crucial in professional practice. The subsequent review of the literature highlights the important role that superiors and peers assume to promote protocol adherence within the healthcare setting.

Jansson and Forsberg (2016), discovered that the use of scientific knowledge is approached differently by both nurses and their managers. Nurses commonly depend on clinical experience and learning from each other. While managers are often responsible for the structure of the work of the nurse and midwife. The study utilized a qualitative method to explore how managers and nurses perceived evidence-based results obtained to inform the appropriate nursing interventions. The study adopted an explorative and retrospective design and a total of fifteen 15 participants, comprising of a care-developer, two operation managers, four ward managers, and eight nurses were interviewed. The study concluded by accentuating that, nurses use scientific evidence supported by managers, thus, when

managers fail to promote the usage of research, nurses neglect to search for scientific evidence (Jansson & Forsberg, 2016). Emphasizing the major role and influence that nurse managers have on practicing nurses and midwives in adopting EBP.

There are various reasons why subordinates follow superior and peer instructions, these were elaborated in a quantitative study that involved 100 Polish employees. The participants filled out the Interpersonal Power Inventory. The findings of the cluster analysis proved that 46% of the respondents obeyed because of all kinds of power bases, 34% for respect, and 20% for official reasons. The study concluded that although subordinates differed in style of obedience, their reasons to surrender to the directives from seniors can be attributed to power, respect, and authority (Wójcik, Merecz-Kot, & Andysz, 2015). Acknowledging that managers influenced the way organizations functioned, including the official and non-official functioning of subordinates.

In Taiwan, a nationwide cross-sectional survey was conducted using a questionnaire. The study consisted of registered nurses from regional hospitals. The study used a multivariate logistic regression analysis to conclude that EBP awareness was high among advanced nurses than new nurses ($p < 0.001$; 90.7% vs. 78.0%). Additionally, advanced nurses held positive attitude and beliefs regarding EBP, and had more skills and knowledge on EBP than new nurses. They also frequently accessed evidence online and implemented EBP principles. Self-learning was the commonest motivation for advanced nurses to utilize online databases whilst promotions for positions were common for new nurses. The results of the analyses suggested that advanced nurses had more awareness, advanced knowledge, skills, and regularly applied EBP than new nurses. Thus, concluding that advanced nurses had better awareness, belief, attitude, knowledge, skills, and behaviour of scientific evidence

than beginning nurses. Stressing the usefulness of the clinical ladder system to enhance the implementation of research evidence (Weng et al., 2015).

Furthermore, a qualitative study was undertaken to express how nursing leaders perceived the interaction through which their seniors and peers provided support. It also to identify their vulnerabilities and strengths at work during situations of shortage of human and other resources, using the self-determination theory. Nine nursing leaders from both home care and nursing home facilities were interviewed. The results revealed that nursing leaders were highly independent in their roles. Furthermore, positioned as superiors, they acted with strength and power, nonetheless, they felt deserted and lacked the backing from their superiors, the health directors. The study further revealed that as a result of the lack of support for autonomy and control structures in the relationship between nurse leaders and their superiors, nurse leaders, turned to depend on their relationship with juniors and peers, to satisfy their need for competence, kinship, and, to an extent, autonomy. Nonetheless, it cannot be replaced with the lack of assistance from their superiors. The study concluded that increasing the interaction with peers and juniors, providing horizontal support, and increasing focus on connecting the upward link between health directors and the nursing leaders was necessary. Emphasizing the need to reduce excessive regulatory structures and a lack of support for autonomy by superiors' because it can lead to a reduction in the motivation and well-being of subordinates (Nilsen, Olafsen, Steinsvåg, Halvari, & Grov, 2016).

Similarly, a quantitative study was conducted in Finland, to determine how factors associated with a sense of community were linked to organizational commitment and service quality amongst front and middle level managers at the workplace. A questionnaire

specifically created for the study was sent to 241 low and middle level managers in social and health care service. A response rate of 56% was received. Data analyses included both descriptive and inferential statistics. The study demonstrated that commitment from low and middle managers was connected to the feeling of mutual trust, sense of belonging, gratitude, and open communication. Correspondingly, the quality of service was connected to job meaning, direct flow of information, and appreciation received from top management (Lampinen, Suutala, & Konu, 2017).

An integrative review of 28 articles from PubMed, CINAHL, and the Cochrane Library from 2006 to 2016, was used in exploring the role of nursing leaders in influencing EBP. The review identified that leadership role, knowledge, and approach to confronting barriers or facilitators of implementation were the main contributors to utilization. Concluding that nursing leadership has a role to provide a supportive environment that helps in implementing scientific evidence. Therefore, nursing leaders need to have the knowledge and awareness necessary to tackle impediments of implementation and appreciate their position in assisting and creating the best environment (Bianchi et al., 2018).

Also, a study explored the causes of poor maternity guideline compliance. A team of five reviewers assessed the quality of 10 purposively selected national women's health guidelines. The appraisal of guidelines research and evaluation instrument standards were used. A self-reported questionnaire was distributed to solicit respondent views and barriers associated with the utilization of guideline. The findings showed that all the guidelines obtained the minimum requirement for editorial independence, meaning the guidelines evaluated were not of high quality. Although respondents believed and had a positive attitude that guidelines helped improve care quality, they felt with peer and senior assistance could

help improve adherence to guidelines. However, the most important barrier identified was the absence of accessibility to guidelines (Trollope, Leung, Wise, Farquhar, & Sadler, 2018).

In the Netherlands, a study aimed at identifying factors that influenced nurses' adherence to a national protocol in ambulance care was conducted. The researchers developed a questionnaire to collect data. These consist of questions on self-reporting adherence and influencing factors. A total of 452 ambulance nurses from emergency medical services in four different geographic locations were invited to participate, a response rate of 55% was achieved. The findings reported that nurses' adherence to the protocol was 83.4%, suggesting high adherence to the protocol. Twenty-three influencing factors were linked to the organisation, professional, protocol characteristics, and social norms were detected after bivariate correlation analysis. Protocol characteristics and social influences explained 21% of the variance in adherence ($R2 = 0.208$) after multilevel regression analysis. This implied that the characteristics of protocols and societal expectations needed to be addressed to improve adherence (Ebben et al., 2015).

In a study focused on exploring the influencing factors of the clinical decision-making by independent practicing midwives by Daemers, van Limbeek, Wijnen, Nieuwenhuijze, and de Vries (2017), five themes were identified. These were the pregnant woman, knowledge source, midwife, teamwork among maternal care experts, and the care organisation. They further discovered that decisions made by midwives were not shaped by instinct, expertise, and individual situations only, but rather by attitude about body process, client-centredness, collective decision-making, and teamwork. And further stressed that a midwife's clinical decision-making is dominated by the collaboration among care professionals and protocols developed locally. Thus, collaborative efforts are challenged

when various care professionals have divergent practice styles and care philosophies. The study concluded by stating that the clinical decision-making process by midwives is complex and varied than the evidence suggests. The study took on a qualitative approach. Eleven primary care midwives were purposively sampled. In-depth interviews were conducted. A think-aloud method was employed to solicit information on the clinical decision-making process. Thematic analysis was used on the transcripts to identify the themes.

On the other hand, in a study describing how unit nurse leaders' actions affected best practice guidelines (BPG) programme sustainability on admission units, a qualitative descriptive case study method was applied. In-depth interviews, observations, and document reviews were conducted. It was revealed that units with an official leadership team used a unified set of events and tactics, leading to higher levels of BPG sustainability. Maintaining priorities and reinforcing expectations were two key strategies identified. Also, the coordinated use of actions (e.g., integrating, appraising, deliberating) was important to promote the maintenance of BPG practices amongst workers. Additionally, the process of leadership in fostering education and interchange contributes to the sustainability of practices by promoting settings characterized by culpability and partnership. The study concluded that leaders needed to tactically coordinate numerous overlapping and synergistic efforts to attain lasting sustainability best practices (Fleiszer, Semenic, Ritchie, Richer, & Denis, 2016). Finally, the results from a systematic review revealed that most physicians relied on the responses from colleagues and textbooks to resolve clinical questions (Barzkar et al., 2018), just as how nurses and midwives consulted their peers in the event of a challenge.

Koyio, Kikwilu, Mulder, and Frencken (2013) conducted a cross-sectional survey in Nairobi, assessing attitude, subjective norms, and intentions of healthcare providers in performing a routine assessment for oral candidiasis during outpatient consultations. A 47-item questionnaire based on the TPB was employed. A sample of 216 primary healthcare providers practicing in clinics, dispensaries, and health centres in Nairobi. One hundred and ninety-five (90%) respondents completed the questionnaire. Perceived behavioural control was removed from subsequent analyses because it had low construct validity. The results showed that irrespective of socio-demographic characteristics, the provider's attitude, subjective norms, and the intent to perform the examination were highly positive, with mean scores of 6.30, 6.06, and 5.6, respectively. And attitude (p = 0.0026) and subjective norms (p < 0.0001) were both predictors of intention, however, subjective norms were the highest predictor. There was a strong relationship between indirect attitude and subjective norms and their individual items (r = 0.63-0.79, p < 0.05 and r = 0.78-0.87, p < 0.05) and a moderate relationship with their direct items (r = 0.44, p < 0.0001 and r = 0.52, p < 0.0001). The results suggest that primary healthcare providers are prepared to integrate patients' oral health care into their daily routine. It also highlights the benefits of detecting oral complications and that routine oral examination gives patients' fulfilment, which enhances the provider's morale in performing assessments. Finally, support from policymakers, supervisors, specialists, and co-workers is vital for inspiring health providers to perform routine oral examinations (Koyio et al., 2013).

The reviewed literature depicted the influence of both superior and peers had amongst health workers on the adoption and implementation of research evidence. Thus, the support and encouragement from health authorities and colleagues suggests an influence over

adherence. Nevertheless, few studies used midwives as respondents, and few emphasized the influence both peer and superior had on adherence practices. Subjective norms was also identified to be a predictor of behavioural intention.

2.8 Perceived behavioural factors that affect adherence

Taylor and Todd (1995) theorize that self-efficacy and facilitating conditions can either promote or impede usage. In many instances treatment for pre-eclampsia/eclampsia is appropriately initiated (O'Brien et al., 2018), nevertheless, protocol adherence is poor. Generally, health workers face numerous challenges during their practice. Identifying these challenges should be of great importance to health institutions and managers, to address and enable nurses and midwives adhere to protocols. The subsequent review of the literature is aimed at identifying perceived challenges and barriers to adherence to scientific evidence.

Saunders, Stevens, and Vehviläinen-Julkunen (2016) conducted a study in Finland to determine the readiness of nurses to practice evidence-based care at university hospitals. A cross-sectional descriptive design with a convenient sample of 943 working nurses was employed. The Stevens' Inventory on Evidence-Based Practice Readiness was appropriately translated into Finish and data collected electronically. Both descriptive and inferential statistics were used for analysis. Findings revealed low levels of knowledge and low to moderate levels of self-efficacy on EBP among nurses. The relationship between nurses' self-efficacy and actual knowledge was positive and statistically significant. With some significant statistical differences among socio-demographic variables, self-efficacy, perceived, and actual knowledge. The study concluded that nurses were unprepared to practice evidence-based care. Although the concept of EBP was familiar, nurses lacked self-

efficacy and knowledge needed for incorporating the appraised evidence into nursing care (Saunders et al., 2016).

Also, a cross-sectional study was conducted to investigate self-efficacy and its predicting factors in the clinical environment. A stratified random sample of 264 nurses was selected. Data was collected using the General Self-efficacy Scale. One-way analysis of variance and multiple regression analysis was used for data analysis. The results showed the mean for self-efficacy was 29.78 ± 5.82 and that of nurses with a diploma, bachelor's, and master's degrees were (32.22 ± 6.21), (29.33 ± 5.68), and (32.00 ± 6.00), respectively. Furthermore, regarding the self-efficacy among bachelor and diploma holders, a significant difference was found (p = 0.01). Similarly, a significant relationship was found between willingness to work and self-efficacy (F = 3.31, p = 0.01) and interest in nursing (F = 2.43, p = 0.04). Also, nurses with work experience greater than 16 years reported better self-efficacy. Overall, years of experience (β =0.25, p = 0.009) and interest in the nursing field (β = −0.15, p = 0.02) predicted self-efficacy (Soudagar, Rambod, & Beheshtipour, 2015).

Also, a quantitative study was conducted on nurses' attitudes with regards to EBP, self-efficacy, training needs, facilitating factors, and barriers to EBP implementation in Iran. The study employed a cross-sectional design and a sample of 182 nurses from four teaching hospitals. The study used a questionnaire comprising of two sections to collect data. The sections covered socio-demographic information and staff's attitude, self-efficacy skills, facilitating factors, barriers, and training needs for EBP implementation. The findings showed that the majority (87.4%) of the nurses were not trained on EBP and 60% were unfamiliar with the concept. Nurses' attitude was unfavourable towards EBP (2.57 ± 0.99), with poor self-efficacy skills (2.93 ± 1.06). However, mentoring by nurses with adequate

experience in EBP (3.65 ± 1.17) was the most important supporting factor, while difficulty in judging the quality of research papers and reports was the main barrier (2.46 ± 0.95). With the request for training in EBP being moderate (3.62 ± 1.12). The researchers recommended that nursing needed to move towards using EBP for improvement and emphasized on the need to prepare nurses with the knowledge and skills crucial for EBP. Also, supervisors needed to design a plan for integrating EBP into the clinical care environment (Farokhzadian et al., 2015).

In Sydney, Australia, a cross-sectional survey was conducted in a local health district to investigate how midwives and nurses acquire, utilize, and incorporate evidence into their daily practice. An online questionnaire was sent to participants and 204 responses were received. Data collected were analysed using descriptive statistics and Pearson's Chi-square tests. The findings identified that clinical practice guidelines for the majority (76.96%) were the main source of evidence. The majority (73.04%) of respondents also explored databases and utilized evidence connected to general clinical practice. In answering questions on the ability to change practice based on the availability of evidence, most respondents (67.65%) were confident that they could do it. There was a statistical difference between frequency for evidence search among leadership positions and other practitioner groups (x2¼17.069; df¼8; P¼0.029). The study identified the need for; time, support, educational opportunities, and challenges to evidence access as the four barriers to maintaining EBP. The study concluded that leadership is critical in providing support for the generation of knowledge, translation, and the execution of scientific evidence in the medical setting (Fry & Attawet, 2018).

Also, to assess the support of organizations towards the implementation of research evidence, a cross-sectional study was conducted to explore the perceptions of nurses. The study used a self-report survey that was completed by 234 nurses. Both descriptive and inferential statistics were used for the analysis of data. The respondents indicated that EBP implementation was complex and that due to the lack of organizational support they struggled with challenges faced with using research evidence. The study findings revealed that health authorities needed to provide sources of information, leadership in nursing, and organizational structure to facilitate the implementation of EBP. Finally, the study concluded that to help support research utilization, organizations should plan to establish libraries, journal clubs, mentoring programs, and also encourage the involvement of nurses in decision-making at the unit and local associations (Nguyen & Wilson, 2016).

In Uganda, a study demonstrated that low adherence to protocols can be attributed to health-system barriers such as understaffing, insufficient bed space, lack of medical logistics, poor access to guidelines, lack of awareness of guideline, and prioritizing experience over evidence. The study was mixed method which applied descriptive observation and interviews. The observational study measured adherence based on key modules defined by 2012 WHO guidelines on active management of the third stage of labour. Interviews were conducted with obstetric healthcare workers involved in preventing and managing postpartum haemorrhage. Participants were a nurse-midwife, nine midwives, and a doctor (Braddick et al., 2016).

A cross-sectional online survey was conducted in Austria describing the current EBP state of engagement and identifying the associated factors of engagement amongst physical therapists. An existing instrument based on the theory of planned behaviour was used for

data collection. Regression analysis was used for identifying factors related to EBP engagement. The response rate of 17.5%, yielding a sample size of 588. The results showed that 10% of respondents agreed to the regular use of guidelines and standardized appraisal instruments in medical practice. While 49.9% failed to use electronic databases to search for literature, 41.9% read research articles two to five times a month. Unavailability of time, lack of scientific skills, and inadequate organizational support were the most cited barriers to EBP engagement. The correlates of EBP engagement were awareness of research, attitude, behavioural control, research involvement, and level of education (degree). The study concluded that physical therapists engaged in low levels of EBP and programmes to promote EBP were needed (Diermayr et al., 2015).

Another study conducted to determine the fitness for use of an implementation science tool designed to help clinicians assess their institution for change readiness, applied a qualitative design. The study was set in two states in Australian and utilized focus group interviews for the collection of data. Ten midwifery change leaders who had led EBP change projects, 12 months prior, made the sample. Three themes emerged from the data. The study conveyed that, although poor access to the internet was a challenge, the language of the tool was inappropriate. However, the tool was seen as valuable for assisting with change implementation in midwifery practice (Bayes, Fenwick, & Jennings, 2016).

Similarly, a study comprising of 76 midwives in public and urban health facilities in Iran, were surveyed to measure the attitude of midwives and difficulties hindering the implementation of EBP (Azmoude et al., 2018). A validated questionnaire was used for data collection. The midwives in the study demonstrated a positive attitude toward Evidence-Based Practice (EBP). The study identified the top five barriers to implementing EBP as

time restrictions, insufficient facilities, scattered literature, absence of cooperation from doctors, and inadequate authority (Azmoude et al., 2018).

A convenience sample of 297 practicing midwives were selected to take part in a descriptive cross-sectional study in Queensland, Australia. A questionnaire identifying the factors that influence the use of normal birth guidelines was used. The results demonstrated that most of the participants reported they lacked sufficient knowledge, clinical skills, and the ability to use the guideline in practice. Various concerns on barriers were identified from the study such as time constraints, lack of access to computers and internet at the workspace, lack of access to current evidence, and the numerous checklists unrelated to care that needed to be completed, were reported by more than 80% of the respondents. Additionally, midwives were also concerned about authorities preventing them from using guidelines (76.2%), as well as 74.2% had inadequate collegial support. Other areas of concern reported by midwives in this study included being reprimanded for poor outcomes (76.9%), being investigated (74%), lose registration (62%), and being prosecuted (66.1%). Midwives were also worried about achieving the expectations of the expectant mothers (74.5%), poor maternal (72%), and neonatal (62%) outcomes. Other concerns reported (74.5%) pertained to financial constraints (Toohill, Sidebotham, Gamble, Fenwick, & Creedy, 2017).

The various studies outline various barriers to guideline compliance by health workers, with most reporting poor self-efficacy, lack of knowledge, poor access, lack of time, technological and material resources constraints, lack of administrative, superior and peer support, and the stress on identifying facilitators and barriers to address them to improve adherence and consequently promote patient care. However, it also implies that different settings have different challenges and hence need different approaches to solving issues to

ensure adherence to scientific guidelines. The review also demonstrated that the provision of internet access and language of the scientific evidence for implementation is very important among midwives. Therefore, the need to identify perceived behavioural control factors in this study.

2.9 Intention to adhere to the protocols

Taylor and Todd (1995), stated behaviour as a direct determinant of behavioural intention. The subsequent review of the literature identified that the intentions of nurses are typically influenced by their supposed ability to utilize guidelines during practice, while that of doctors are often influenced by their insights of the helpfulness, significance of the guideline, and peer influence (Appleby, Roskell, & Daly, 2016). Furthermore, the difficulty, support for diagnosis and therapy, protocol relation with patient outcomes, and the expectation by co-workers to make use of protocols are other factors identified to influence the decision to use protocols by health workers (Ebben et al., 2015).

For instance, in a study aimed at understanding the determinants of the intention to adhere to recommendations associated with the use of filter needles by nurses, a cross-sectional study was conducted at a university health facility in Quebec by Gagnon, Cassista, Payne-Gagnon, and Martel (2015). A questionnaire was distributed to nurses (364) from eight divisions in the centre. The completed and returned questionnaires were 242 (66.5%). The results were that the attitude of nurses about the behaviour and perceived behavioural control predicted their intention to utilize filter needles as recommended. With 50.3% of the variance in intention being explained by the ease of use, enjoyment, and reason. The study further revealed that nurses' attitude and perceived behavioural control predicted their

intention to use the recommended filtration needles. This suggests that nurses will comply if recommendations are comfortable, practical, and pleasurable. As a result, protocols for nurses should be developed to suit this criterion. It further implies that efforts to implement EBP by nurses should stress on improving attitude and the provision of resources (Gagnon et al., 2015).

Additionally, the study findings by Farokhzadian et al. (2015), suggests that nurses' and midwives' intentions to use recommendations are associated with self-efficacy. Also, self-efficacy proves to have a positive and strong association with the intent to provide services by nurses and midwives (Jonas et al., 2016). Implying that to improve the quality of care in the provision of healthcare service, the self-efficacy of midwives needs to be strengthened.

Additionally, to integrate scientific evidence into the daily practice of nurses and midwives, two different strategies were explored using a classical grounded theory methodology. Over 90 hours of observation and four focus group interviews involving nurses in two separate units were used for data collection. The approach, position, and levels of EBP were the dimensions identified. Five groupings gave the relationships between the dimensions; an explicit practice carried out at the system level parallel to daily work, fused into daily work at the system level, merged into daily work at the individual level, joined into daily work at the system level, and merged into daily work at the individual level (Renolen, Hjälmhult, Høye, Danbolt, & Kirkevold, 2019). Indicating that evidence-based practice integration was complex and multidimensional, thus careful planning is needed to help incorporate EBP into daily work.

Furthermore, the results of a qualitative study involving 38 nursing students in two South Korean colleges, by conducting six focus group interviews to examine their clinical

experience concerning compliance with standard precautions, revealed that nurses intended to comply with standard precautions. Also, the factors that significantly hindered or enhanced their clinical experience involving the use of standard precautionary measures were attitude, subjective norms, perceived behavioural control and intention (Kyung Mi & Hyunjin, 2015).

Also, Smit, de Vries, and Hoving (2013) in a study finding the determinants of nurse's intent to enforce a new-found intervention to stop smoking, found that attitude and innovation characteristics were positively associated with the implementation of the new smoking cessation intervention. Perceived patient support was a significant factor only when innovation attributes or attitudes were included, recruitment success, on the other hand, exhibited a significant positive relationship with intention. This implies that to raise the execution rates of new interventions, health workers need to be convinced of the benefits of the interventions and a positive attitude needs to be created regarding the intervention. Additionally, practicing nurses must assist in recruiting patients who smoke and improve perceived support for patients. The study employed a cross-sectional descriptive approach involving general practicing nurses who had contributed to the effectiveness trial intervention. Ninety-one participants were invited, however, 56 nurses participated in the study. The electronic questionnaire covered demographics, features of the patient population, personality, characteristics of innovation, self-efficacy, perceived social effects, and the determination for the future implementation of the intervention (Smit et al., 2013). Yet again, the results stressed the need to target information that encourages and develops a positive attitude in midwives.

In South Africa, a study aimed at understanding nurses' and midwives' intentions on delivering maternal and child healthcare and family planning services to adolescents employed a cross-sectional survey designed. The survey was completed with a total of 190 nurses and midwives. The components included in the survey tool, were socio-demographics, maternal and child healthcare (MCH) knowledge and family planning (FP) services, attitude about family planning services, subjective norms concerning maternal and child healthcare and family planning services, self-efficacy with maternal and child healthcare and family planning services, and intent to provide maternal and child healthcare and family planning services to adolescents. Pearson's correlation analysis was conducted to determine the link between attitude, knowledge, self-efficacy, subjective norms, and intention for providing MCH and FP services. And to predict the intent to provide the services to adolescents, a 2-step linear regression analysis was performed. The results revealed that, self-efficacy in providing FP services ($\beta = 0.30$, $p < 0.01$) was related to stronger intentions in delivering FP services. Self-efficacy in performing MCH services ($\beta = 0.55$, $p < 0.01$) and years of experience ($\beta = 0.14$, $p < 0.05$) were related with stronger intentions in delivering the services. The study proved self-efficacy to be a strong and positive predictor of intention in delivering both services, with a moderate relationship with attitude and norms (Jonas et al., 2016). Indicating the need for enhancing and strengthening self-efficacy to improve quality care services rendered by nurses and midwives.

Furthermore, a quantitative study conducted with a sample of 405 regional Australian senior midwives and nurses, established the associations of self-reported skill level and behaviour concerning EBP. The Developing Evidence-Based Practice questionnaire covering demographics, job satisfaction, and psychological burnout indexes were used to

conduct the study. Both hard copies and online surveys were distributed to 405 nurses and midwives with a response rate of 42% (n=169). Stepwise multiple regression was performed to derive the predictors of EBP skill level and behaviour. The findings revealed that the best predictors of EBP skill level were higher levels of education, lesser emotional fatigue, and greater personal job satisfaction. Also, the best predictors of change were found to be greater personal job satisfaction, and higher individual achievement. Finally, the best predictors of retrieving and studying evidence were working full time, higher job satisfaction (Fairbrother, Cashin, Rafferty, Symes, & Graham, 2016).

According to Fishbein and Ajzen (1977) and Taylor and Todd (1995), behavioural intention plays an important part in the association between attitude, subjective norms, perceived behavioural control, and the subsequent behaviour. This relationship has been proven in several studies. For instance, in a quantitative study examining the mediating effect of behavioural intention in the relationship between attitude, subjective norm, perceived behavioural control, and knowledge sharing behaviour amongst doctors and nurses. Structural equation models were used to test for the mediating effect. Findings revealed that associations between the variables were positive and significant. With behavioural intention fully mediating the relationship between attitude, subjective norm, perceived behavioural control, and sharing of knowledge. This implies that behavioural intention entirely explains the level of knowledge sharing behaviour (Mafabi, Nasiima, Muhimbise, Kasekende, & Nakiyonga, 2017).

Also, in Malaysia, a convenient sample of 250 respondents were selected to participate in a quantitative survey. The study was aimed at understanding the antecedents of knowledge sharing behaviour amongst non-academic staff of different higher learning institutions. The

target population were non-academic staff from universities in the Klang Valley region. The researchers received 220 completed responses. Confirmatory factor analysis and structural equation modeling were applied. It was determined that attitude and subjective norms significantly and positively influenced knowledge sharing behaviour. Findings also revealed that behavioural intention played a significant part in strengthening the association between subjective norms and knowledge sharing behaviour amongst the workers of the institutions (Rahman, Osmangani, Daud, & AbdelFattah, 2016).

Furthermore, Morales et al. (2018) examined sexual behaviour and its antecedents using the theory of planned behaviour (TPB) in a quantitative study. The study considered gender-based differences amongst adolescents in Colombia. The study recruited 1100 adolescents between the ages of 14 and 19 years from Bogotá and Barranquilla in Colombia. A self-report was used to assess the demographic variables, knowledge on sexually transmitted infections HIV included, attitude related to HIV/AIDS including the use of condoms, normative beliefs, perceived behavioural control, behavioural intention, and sexual behaviour. SPSS version 25 was used to run the analysis. PROCESS v3 macro was used to estimate the mediating effect of intention between precursors and the use of condoms. The findings were that participants had an increased risk of contracting sexually transmitted infections and unplanned pregnancies which was associated with the inconsistent use of condoms. They exhibited low to medium levels of knowledge on sexual health, low normative beliefs concerning condom use by peers, and perceived difficulty in using condoms. Intention was also found to be a mediating variable between precursors and the use of condoms.

The findings further revealed that adolescents used condoms 71% of the times they had sex, with only 22% using them consistently, and boys being less consistent in using condoms than girls. Sexual risk characteristics differed significantly by gender. The results also showed that adolescents had a positive attitude on use condoms, the perception that their friends used condoms and thinking themselves capable of using condoms correctly was related to the increase of condoms use through the intention of condom use. Consequently, concluding that, the intention of condom use mediates between attitude, subjective norms, and perceived behavioural control among Colombian adolescents, except for knowledge on sexually transmitted infections, HIV included (Morales et al., 2018).

2.10 Summary of Literature Review

The review of the literature revealed that protocols are essential to healthcare and are developed to improve health outcomes. However, challenges exist with the acceptance and implementation of these protocols by healthcare workers. Although, health workers generally have a positive attitude towards protocols they exhibit poor application of protocols during practice. Furthermore, the relationship of workers within the health organization plays a significant role in how protocols are utilized. Additionally, the characteristics of a protocol can also affect its utilization, hence the need to make it simple, easy to access, and understand. Also, an evaluation of the setting is needed to design protocols to be context specific. Barriers identified that restrict the use of protocols include time, access, lack of technological knowledge and facilities, poor organizational support, and inadequacy of human resources.

Hence, to influence the decision of professionals to use protocols, there is the need for continuous professional training for professionals to gain clinical skills which helps strengthen their confidence, making them more willing to accept change and implement it. Additionally, attitude, subjective norms, perceived behavioural control have been proven to be predictors of behavioural intention, while intention has been shown to have a mediating effect. Although these studies have outlined the facilitators and barriers to evidence-based practice utilization by health workers, few were conducted on midwives and protocol adherence in the management of hypertensive disorders.

Moreover, no study has been conducted in Ghana on midwives' adherence to protocols in the management of pre-eclampsia and eclampsia. Studies in Ghana on adherence to protocols by health workers had to do with first antenatal care guidelines. However, to improve maternal morbidity and mortality from pre-eclampsia and eclampsia there is the need to assess midwives' adherence practices towards protocols because they are the major implementors. This study is to fill out the gap in the literature by assessing midwives' adherence to protocols in the management of pre-eclampsia and eclampsia in Ghana.

CHAPTER THREE

3.0 METHODOLOGY

This chapter consists of the methods used to address the research objectives. It describes the research design, setting, target population, method of sampling, sample size calculation, tool for data collection, and recruitment procedures. Additionally, a presentation of how data obtained was analysed as well as the data management strategy is presented in this chapter. It also includes validity, reliability, and ethical considerations.

3.1 Research design

The study employed a quantitative approach, originating from the positivist view that truth can be quantified and objectively measured (Asner-Self, 2009; Creswell, 2014). This approach provides a numeric description of the attitudes of a population that can be generalized based on a sample from a target population (Creswell, 2014). A cross-sectional design was used because this design allows for data to be collected at a point in time or a short period without later following the participants for information (Levin, 2006; Polit & Beck, 2012).It is appropriate for describing the status of the relationship among concepts at a fixed period (Levin, 2006).

The design was appropriate for the study because it easily identified attributes of a target population using a small sample of the population at a relatively lower cost as compared to other designs (Fowler, Floyd, & Cosenza, 2009). The design also facilitated the examination of the factors (attitude, subjective norms, perceived behavioural control, and intention) influencing midwives' adherence to protocols.

3.2 Research Setting

The Greater Accra Region was one of the sixteen administrative regions of Ghana. The region had six health administrative districts: Accra Metropolis, Tema Municipality, Ga West, Ga East, Dangme East, and Dangme West. The region was the smallest in Ghana but had the highest number of health workers in the country across all professional categories (Ghana Health Service, 2015). In the year 2015, the region had 1,468 doctors, 6, 524 nurses, 973 midwives, and 204 pharmacists (Ghana Health Service, 2016). Although the distribution showed that the Greater Accra region had the highest proportion of midwives in Ghana, the region has consistently recorded the highest maternal deaths in the country over three years (Ghana Health Service, 2016). Midwives and maternal deaths formed the critical group for the research. These factors made the region an ideal study area for the study.

Healthcare provision in the metropolis was organized at three levels; primary, secondary, and tertiary (Ghana Health Service, 2015). The healthcare facilities classified as primary were those located in the district and sub-district level, these provided essential healthcare. Facilities with some specialist professionals provided healthcare based in a hospital and catered to clients referred from the primary healthcare facilities and classified as secondary healthcare. The referral centres were largely tertiary hospitals, where healthcare was provided by specialists and consultants with advanced care equipment. The various health facilities selected for the study fell into any of these categories because midwives were in all categories.

The study setting was the Accra metropolis because the researcher had no links to this district, it formed part of the Greater Accra Region, and had the highest population density.

The Accra metropolitan health directorate had already been divided into sub-metros by the Accra regional health directorate. Namely, Ablekuma North, Ablekuma Central, Ablekuma West, Ayawaso North, Ayawaso West, Ayawaso Central, Okaikoi North, and Korle Klottey The names of the Ghana Health facilities within these sub-metros were written and kept in a bowl, and eight hospitals were selected at random to serve as the study sites. Target Population

The study population refers to the people who meet the specific traits for the study (Fowler et al., 2009) or group with attributes of interest by the researcher (Polit & Beck, 2012). It is also the population that the findings of the study would be referred to by the researcher (Fowler et al., 2009). The study population were midwives working in the Maternity, Labour wards, and Antenatal Care units who attended to the needs of pregnant women in the selected Ghana health facilities located within the metropolis. The work of midwives in Ghana involves taking care of pregnant women, these include managing women who develop pregnancy-related conditions from conception to 6 weeks after delivery and particularly because the protocol for pre-eclampsia/eclampsia was used most specifically by this group of nurses.

3.3 Inclusion criteria

All midwives who were licensed with at least one year of work experience and in good standing with the NMC, care for women from the time of conception to six weeks after delivery and were working in the selected health facilities were recruited.

3.4 Exclusion criteria

Midwives who were not clinically practicing, on annual, casual, or maternity leave and off-duty were excluded from the study.

3.5 Sample size determination

This was determined using the Yamane (1973) formula for calculation of sample size from the list of midwives in public hospitals within the Accra metropolis. From this data, the sample size was calculated using the Yamane (1973) sample size formula: $n = \frac{N}{1+N(e^2)}$.

Here *n* was the sample size required, N is the total population of midwives in the metropolis and e is the error of tolerance (0.05). To address the potential issue of non-responses to the questionnaire, 10% of the sample size was added.

N = 457, e = 0.05, e^2 = 0.0025

457/ [1+ 457(0.0025)]

457/2.1425

213.302

213.3

To address the potential issue of non-responses 10% of the sample size was

10% = 21.33

213.3 +21.33 = 234.63

The total sample size of 235 was used

3.6 Sampling Technique

Sampling is the process of selecting cases that represent the population of interest in other to make inferences about the population (Polit & Beck, 2012). The sampling frame consisted of all midwives (457) working in public health facilities that provide maternity

healthcare and delivery services within the Accra metropolis. The names of the various hospitals located in Accra metropolis were put in a bowl, vigorously shaken and eight health institutions were randomly selected. This was done to get an adequate representation (more than half) of the total number of government hospitals in the metropolis. Additionally, working with 8 hospitals will help achieve my objectives within the limited time frame of the study. The number of respondents from each hospital was selected using proportionate sampling, where the percentage was based on the number of midwives located in that hospital (Creswell, 2014). The required sample size of 235 was allocated using a simple proportionate sampling technique. This ensured that health facilities with larger numbers of midwives got the largest sample. The 235 midwives recruited were from Greater Accra Reginal Hospital 100, Achimota Hospital 30, Maamobi Polyclinic 30, Kaneshie Polyclinic 25, Mamprobi Polyclinic 25, Ussher Polyclinic 10, Adabraka Polyclinic 10, Nima Government Clinic 5.

At the facility, a list of all midwives was collected from the health administration unit of each facility. Numbers were assigned to each staff and a simple random sampling was done to choose whether midwives with even or odd numbers should be included in the study. Even numbers were chosen. All midwives assigned with even numbers were selected and contacted on days they were on duty, whereby the midwife was not available the next person on the list was contacted. Where the respondent agreed to participate, the study, its purpose, and what is expected from them was explained. And then questionnaires were administered for self-reporting. For such respondents, arrangements were made to retrieve completed questionnaires after fifteen minutes.

3.7 Data Collection Procedure

Ethical clearance was sought from both the Institutional Review Board (IRB) of the Noguchi Memorial Institute for Medical Research (NMIMR) at the University of Ghana (protocol number 030/19-20) and the Ghana Health Service ethical committee (GHS-ERC034/11/19).

A letter of introduction was collected from the School of Nursing and Midwifery (SONM) and submitted to the Regional Health Directorate of Ghana Health Service and then the Metropolitan health directorate. Permission was also obtained from the facility heads in the selected health institutions to get access to the list of midwives in the institution. Also, permission was sought from the Head nurses' office and various unit heads. A brief of the study and the objectives were explained to the midwives. After which the selected midwives were asked whether they would like to participate in the study. Those available and who agreed to participate were further briefed on how to complete the questionnaire. All those selected from the list but refused to participate or not available were replaced with the next available name on the list. Each respondent was allowed time to read and to ask questions for clarification. They were then free to sign the consent form before the questionnaire was administered. The questionnaire was administered personally by the researcher. Respondents took about 10 to 15 minutes to complete the questionnaire. All completed questionnaires were collected and checked immediately after to ensure they were filled correctly.

3.8 Tool for data collection: The planned behaviour questionnaire

A questionnaire was used to gather data for this study. Using an already validated scale in research is important because its validity has already been established. The questionnaire

for the study (appendix 1) was developed by Ajzen for the Theory of Planned Behaviour and later modified by Taylor and Todd (1995) to include information acceptance.

The Planned Behaviour Questionnaire has been used in previous research and has demonstrated good psychometric properties (Ma, Kuo, & Alexander, 2016). The questionnaire is made up of thirty-three items on a 7-point Likert scale that seeks to measure each of the constructs of interest. Ranging from 1 = Strongly disagree, 2 = Disagree, 3 = Moderately disagree, 4 = Neither, 5= Moderately disagree, 6 = Agree, 7 = Strongly agree. Midwives were asked to tick the extent to which they agreed with each statement. The questionnaire was in two sections; Section A was about socio-demographic data: gender, age, educational qualification, years of practice, and midwifery rank. Section B was based on the constructs of the Decomposed Theory of Planned Behaviour. A measure of 3.49 and below meant weak behaviour outcomes and 3.50 and above meant strong behaviour outcomes. This was a seven-point scale and any value below half of the mean score implies low scores and any value above the mean score indicates high scores.

The Cronbach's alpha computed for this study was 0.79. The Cronbach's alpha computed yielded 0.93 for the attitude subscale which was made up of thirteen items. With a mean score ranged from 1.00 to 7.00. Subjective norms subscale had six items that assessed the social influence of peer and superiors on midwives at their workplace. Cronbach's alpha calculated for subjective norms in this study was 0.90. The mean score ranged from 1.00 to 7.00. In measuring Perceived behavioural control nine items were used to assess self-efficacy and facilitating conditions that affect midwives at their workplace. Cronbach's alpha of 0.80 was computed for perceived behavioural control in this study. The mean score ranged from 1.78 to 7.00. Behavioural intention had three items to assess

midwives' intention to adhere to protocols at their workplace. The Cronbach's alpha for the behavioural intention scale was 0.82 in this study. Behaviour was measured using two items with a Cronbach's alpha of 0.41 in this study. The mean score ranged from 1.00 to 7.00 for both the behavioural intention and behaviour constructs.

3.9 Pre-testing of the questionnaire

Pre-testing was done using 10 midwives at the Ashaiman Polyclinic. This helped identify and address inappropriate items in the questionnaire before the main study. It also helped estimate the time needed for respondents to answer the questionnaire. The questionnaire yielded a Cronbach's alpha coefficient of 0.70.

3.10 Data Management

A data file was created in the Statistical Package for Social Sciences (SPSS) software and individual questionnaires were uniquely numbered to aid in tracking. After data was collected it was entered into the SPSS software using the variable name, type, and decimals. Verification of data was done before analysis to ensure that the data conforms and is consistent with that of the data file. The data were also checked for completeness, consistency, and accuracy of responses. The completed questionnaire was kept in a locked cabinet and accessible to the researcher, supervisor, and the school of nursing and midwifery only. Information obtained from respondents were kept by the researcher in confidence and only the researcher and her supervisors had access to the responses. Completed questionnaires will be kept and only destroyed after five (5) years. If the data collected will be used for future studies, the Institutional Review Board will be notified.

3.11 Data Analysis

Statistical package for social sciences (SPSS) version 23.0 was used to analyse data. The objectives and hypotheses of the research were the basis for data analysis. Data cleaning was done using standard descriptive statistics using the SPSS software after data entry. The frequencies of the variables were run to check for missing or error in data entry. There was no missing data in the 235 questionnaires collected. After which checking for assumptions was conducted. The observations for skewness and kurtosis of the data indicates the data were approximately normally distributed as presented in Table 3.1.

Table 0.1: Results of skewness and kurtosis of the study variables

	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
Variable	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ATT	1.69	7.00	5.92	.89	-1.07	.159	1.80	.32
SN	1.00	7.00	5.17	1.47	-.92	.159	.29	.32
PBC	1.78	7.00	5.13	1.02	-.23	.159	.05	.32
BI	1.00	7.00	5.72	1.25	-1.24	.159	2.05	.32
BE	1.00	7.00	4.79	1.52	-.58	.159	.08	.32

Note: ATT= Attitude, SN= Subjective Norm, PBC= Perceived Behavioural control, BI= Behavioural Intention, and BE= Behaviour.

Both descriptive statistics and inferential statistics were used. Descriptive statistics such as frequencies, percentages, and standard deviation were used to summarize data. Furthermore, a decision was made to dichotomise the responses into agree and others to get a binary response variable. This enabled us to run binary logistic regression to identify the significant independent associated factors to the behaviour of midwives in adhering to protocols.

Inferential statistical analysis used were Pearson's correlation analysis and multiple regression analysis (sequential multiple and linear regression analysis). Pearson correlation coefficient was used to determine the relationship and the strength of the relationship between the study variables, which answered the first hypothesis.

Multiple regression analysis was used to determine the effect of the study variable and to analyse hypotheses two and three. Sequential multiple regression was used to determine the predictors of the behaviour and determine how much influence each independent variable had on the prediction. The order of entry was based on the theory underpinning the study, which identified different domains for the outcome variable. Linear regression was used to determine the mediating effect of behavioural intention. The level of significance was set at $p < 0.05$.

3.12 Quality Assurance

The instrument was previously tested and found to be valid and reliable in other studies (Hsieh, 2015; Ma et al., 2016). Content validity was ensured by pretesting the questionnaire in a similar hospital setting at the Ashaiman Polyclinic. The instrument was examined by the supervisors for face and content validity. To ensure that the findings were true representations of the target population the objective, design, and data were analysed as indicated in the proposal. To ensure validity and reliability, a Cronbach's alpha coefficient was used to test the tool for reliability. The tool was previously used with reported Cronbach's alpha of above 0.7 (Hsieh, 2015; Ma et al., 2016). Pre-testing was done using 10 respondents to check reliability.

3.13 Variables

The independent variables were **attitude, subjective norms**, **perceived behavioural control,** and **behavioural intention**. The dependent variable was **adherence to protocol (actual behaviour).**

3.14 Ethical Consideration

The ethical approval was sought from the institutional review board of the Noguchi Memorial Institute for medical research, certificate number: NMIMR-IRB CPN 030/19-20, and Ghana Health Service ethical committee, certificate number: GHS-ERC034/11/19. All recommendations made were implemented following a step-by-step review plan. Additionally, permission was sought from the regional health directorate, metropolitan health directorate, the various hospital management, head of nurses, and the various unit heads before data collection.

The researcher also obtained consent from the respondents and explained the objectives of the study to the respondents. The respondents signed the consent form to indicate they understood the information about the study and were participating voluntarily before the questionnaire was administered to them. The respondents were made aware that they could opt out after consenting to the study at any time if they so wished. The researcher explained to the respondents that their refusal to participate would not have any negative impact on their profession. Also, the confidentiality and anonymity of the respondents were maintained by ensuring that no details of personal information such as names, location, and relations of the respondents were included in the questionnaire. To protect the data from a third party, it was kept safely under lock and key and only made accessible to the researcher, supervisors,

and the school of nursing and midwifery. The data will be kept safe for five years for an audit trail. After the said period, the soft copy of the data will be deleted from my computer and the hard copy of the data burnt to avoid access by a third party.

The respondents were assured that the information gathered on the study will not be disclosed to any third party without their consent. Furthermore, the respondents were assured that their identity will not be disclosed during the presentation of the study findings at conferences or during the publication of the study. The respondents could suggest a place of convenience before the questionnaire was administered to them. This was to ensure that the respondents felt free to answer the questions without fear of intimidation from others and the information gathered was of quality. A brief of the study's purpose and objectives was explained to the midwives. After which they were asked whether they would like to respond to the questionnaires and those who agreed to respond were further briefed on how to complete the questionnaire. The respondents signed the consent form before the questionnaire was administered.

Additionally, the researcher explained to the respondents that no physical harm would be caused. Furthermore, the questions asked did not invoke any emotional or psychological discomfort. The respondents were made aware that they would not benefit directly in the study but indirectly from policymakers as the information gathered would help make policies that would help during practice, reduce maternal mortality and help achieve the SDG targeted for 2030. Also, the respondents were informed that the duration of answering the questionnaire was expected to last from ten to fifteen minutes. The questionnaires were personally administered by the researcher and it took about 10 to 15 minutes for each participant to complete. The completed questionnaires were immediately collected after

filling. All respondents were given pens and notepads after confirming that the questionnaires were completely and correctly filled.

3.14 Expected Outcomes of the Study

The study outcome was expected to make recommendations to improve the maternity care quality in the management of pre-eclampsia and eclampsia and offer policy recommendations to policymakers and health managers. Also, the study outcome would help midwives within the Accra metro establish a positive behaviour towards protocol adherence during health care delivery. Furthermore, the study findings were also expected to contribute to scientific literature and reveal areas for future research.

3.15 Summary of research methodology

A cross-sectional approach was used for this quantitative study. A total of 235 midwives working in public hospitals within the Accra metropolis in the Greater Accra Region were recruited for the study. An already existing validated questionnaire was used. The questionnaire was divided into two sections, the demographic (section A) and according to the constructs of the theory (section B). SPSS (version 23.0) was used for data analysis. The analysis was done using descriptive and inferential procedures. A confidence level of 95% and a p-value < 0.05 to confirm the significant relationship in the study. Pearson r correlation was used to determine the relationship between the variables, multiple regression and mediation was also done to establish the predictor and the mediator variables at a significant level of 0.01.

CHAPTER FOUR

4.0 RESULTS

The results are presented in this chapter. The presentation of the results is according to the study objectives and constructs of the model. The demographic characteristics of the respondents are presented first, followed by other findings.

4.1 Demographic Characteristics of Respondents

A total of 235 midwives were sampled with a total response rate of 100%. One of the respondents failed to fill the demographic details. Most of the respondents 99.1% were females (n= 233) while 0.4% (n=1) was male. The mean age of respondents was 33.40 ± 6.98. The majority of the respondents (59%, n=138) were within the age group of 30 to 39 years. The results indicate that most of the respondents (88.0%, n=206) have less than 10 years' work experience in the unit, while 3% (n=7) have been working for more than 20 years.

In terms of educational qualification, the majority (59.6%, n=140) held a diploma in midwifery, the least 0.9% (n=2) being Masters' holders. The majority of the respondents were made up of two ranks, senior staff midwife (33.6%, n=79) and staff midwife (33.2%, n=78). The remaining ranks, midwifery officer, senior midwifery officer, principal midwifery officer, and others formed less than 35% of the respondents. Table 4.1 presents the details of the demographic data.

Table 0.1: Demographics characteristics of respondents

Variable	Category	Frequency (n)	Percentage (%)
Age groups	20-29	62	26.5
	30-39	**138**	**59**
	40-49	25	10.7
	50 and above	9	3.8
Mean Age =33.40 ± 6.98 years			
Years of practice in groups	1-9	**206**	**88**
	10-19	21	9
	20 and above	7	3
Gender	Male	1	0.4
	Female	**233**	**99.1**
Educational level	Certificate	36	15.3
	Diploma	**140**	**59.6**
	Advanced Nursing Diploma	23	9.8
	Undergraduate	32	13.6
	Degree	2	0.9
	Master's Degree	1	0.4
	Others		
Rank	Staff Midwife	**78**	**33.2**
	Senior Staff Midwife	**79**	**33.6**
	Midwifery Officer	35	14.9
	Senior Midwifery Officer	22	9.4
	Principal Midwifery Officer	12	5.1
	Others	8	3.4
Total		**234**	**100**
(No response = 1)			

Source: Fieldwork, 2020

4.2 Attitude of midwives towards protocol adherence

The attitude was measured on several indicators with an emphasis on the usefulness of protocols, ease of use, and compatibility to daily practice. The total mean score for attitude was 5.92 ± 0.89, indicating that the respondents displayed a positive attitude towards the use of protocols. The total mean score for attitudes is presented in table 4.2.

To assess respondents' attitude towards protocol adherence, several statements related to attitude towards protocol usage were provided. Generally, 86.4% (n = 203) of the respondents agreed with all the statements on the list, demonstrating an encouraging attitude towards protocol adherence. Nearly 97% of the respondents agreed that adhering to protocols is a good idea, with most 95.7% (n=225) stating that using protocols is beneficial. A similar percentage of 95.7% (n=225) agreed that following protocol in midwifery practice is a wise idea.

Additionally, most respondents (95.3%, n = 224) agreed that protocols help improve patient outcomes. Although nearly 95% of the midwives agreed that they liked the idea of following protocols during practice, less than 76% agreed with the statement following protocols is fun. The individual responses are presented in Table 4.3 below.

Table 0.1: Attitude of midwives towards protocol adherence

Variable	**Responses**	**Frequency (n)**	**Percentage (%)**
Attitude	**Agree**	**203**	**86.4**
	Others	32	13.6
	Total	**235**	**100**
Average Mean Score = 5.92 ± 0.89			

Source: Fieldwork, 2020

Table 0.2: Detailed item response for Attitude by midwives

Variable	Response	Frequency (n)	Percentage (%)
Using protocols is beneficial to me	Agree	**225**	**95.7**
	Neutral	1	0.4
	Disagree	9	3.8
The advantages of using protocols outweigh the disadvantages	Agree	**219**	**93.2**
	Neutral	4	1.7
	Disagree	12	5.1
Using protocols will improve patients' outcomes in health	Agree	**224**	**95.3**
	Neutral	3	1.3
	Disagree	8	3.4
The instructions for using protocols is easy to follow	Agree	**213**	**90.6**
	Neutral	6	2.6
	Disagree	16	6.8
It is easy to learn how to use protocols during practice	Agree	**221**	**94.0**
	Neutral	8	3.4
	Disagree	6	2.6
It is easy to follow protocols during practice	Agree	**210**	**89.4**
	Neutral	9	3.8
	Disagree	16	6.8
Adhering to protocols fits into my work style	Agree	**219**	**93.2**
	Neutral	4	1.7
	Disagree	12	5.1

Source: Fieldwork, 2020

Table 4.3: Detailed item response for Attitude by midwives (Cont.)

Variable	Response	Frequency (n)	Percentage (%)
I think that using protocols fits well with the way I like to work	Agree	**217**	**92.3**
	Neutral	6	2.6
	Disagree	12	5.1
Adhering to protocols is compatible with all aspects of my work	Agree	**207**	**88.1**
	Neutral	13	5.5
	Disagree	15	6.4
Adhering to protocols is a good idea	Agree	**226**	**96.2**
	Neutral	5	2.1
	Disagree	4	1.7
I think following protocols in midwifery practice is a wise idea	Agree	**225**	**95.7**
	Neutral	6	2.6
	Disagree	4	1.7
I like the idea of following protocols during practice	Agree	**223**	**94.9**
	Neutral	4	1.7
	Disagree	8	3.4
Following protocols in practice is fun	Agree	**178**	**75.7**
	Neutral	13	5.5
	Disagree	44	18.7
Total		**235**	**100**

Source: Fieldwork, 2020

4.3 Subjective norms of midwives' adherence to protocol

Subjective norms measure the impact of social influence, specifically peer and superior's influence on midwives at the workplace. The mean score for subjective norms was 5.17 ± 1.47, indicating that most midwives agreed that social influence impacts adherence to protocols at the workplace. In general, most respondents 65.1% (n=153) agreed with the statements. Findings are shown in Table 4.4.

When asked about superior and peer expectations on the use of protocols at work, the majority of the respondents 85.5% (n=201) agreed that their superiors expected them to use protocols during practice, while 79.6% (n=187) agreed that their colleagues also expected them to. However, the statements, "People who are important to me would think that I should follow protocols" and "I will use protocols because my superior expects me to", both yielded a similar response of 71.9% (n=169). Detailed responses are shown in Table 4.5.

Table 0.1: Subjective norm of midwives' adherence to protocols

Variable	Responses	Frequency (n)	Percentage (%)
Subjective Norms	**Agree**	**153**	**65.1**
	Others	82	34.9
	Total	**235**	**100**
Average Mean Score = 5.17 ± 1.47			

Source: Fieldwork, 2020

Table 0.2: Details of Subjective Norms of midwives' adherence to protocols

Variable	Responses	Frequency (n)	Percentage (%)
People who are important to me would think that I should follow protocols during practice	Agree	**169**	**71.9**
	Neutral	13	5.5
	Disagree	53	22.6
My friends would think that I should use protocols during practice	Agree	**175**	**74.5**
	Neutral	16	6.8
	Disagree	44	18.7
My colleagues would think that I should use protocols during practice	Agree	**187**	**79.6**
	Neutral	10	4.3
	Disagree	38	16.2
People who influence my behaviour would think that I should adhere to protocols during practice	Agree	**181**	**77**
	Neutral	13	5.5
	Disagree	41	17.4
My superior would think that I should use protocols during practice	Agree	**201**	**85.5**
	Neutral	11	14.7
	Disagree	23	9.8
I will use protocols because my superior expects me to	Agree	**169**	**71.9**
	Neutral	8	3.4
	Disagree	58	24.7
Total		**235**	**100**

Source: Fieldwork, 2020

4.4 Perceived behavioural control of midwives' adherence to protocol

Perceived behavioural control measures self-efficacy and facilitating conditions that influence adherence to protocols by midwives. The mean score was 5.13 ± 1.02, suggesting that self-efficacy and facilitating conditions do influence protocol adherence. The summary is presented in Table 4.6.

In total, nearly 60% of the respondents agreed to the influence of self-efficacy and resource facilitating conditions on adherence to protocols. Nevertheless, most respondents 95.3% (n=224) agreed to be able to adhere to protocols during practice, while 91.9% (n=216) follow protocols comfortably. Also, 90.6% (n=213) have the knowledge necessary to adhere to protocols. On the other hand, 75.7% (n=178) stated they have the necessary resources needed to adhere to protocols. However, a little above 50% stated they have the equipment and internet facilities available for use in their hospitals, while less than 50% were familiar with the databases available. The detailed response for perceived behavioural control is presented in Table 4.7.

Table 0.1: Perceived Behavioural Control of midwives' adherence to protocols

Variable	**Responses**	**Frequency (n)**	**Percentage (%)**
Perceived Behavioural Control	**Agree**	**135**	**57.4**
	Others	100	42.6
	Total	**235**	**100**
Average Mean Score = 5.13 ± 1.02			

Source: Fieldwork, 2020

Table 0.2: Details of perceived behavioural control of midwives' adherence to protocols

Variable	Responses	Frequency (n)	Percentage (%)
I would be able to adhere to protocols during practice	Agree	**224**	**95.3**
	Neutral	4	1.7
	Disagree	7	3
I have the knowledge necessary to adhere to protocols during practice	Agree	**213**	**90.6**
	Neutral	8	3.4
	Disagree	14	6
I have the resources necessary to adhere to protocols during practice	Agree	**178**	**75.7**
	Neutral	17	7.2
	Disagree	40	17
I could easily adhere to protocols if I wanted to	Agree	**185**	**78.7**
	Neutral	14	6
	Disagree	36	15.3
I could follow protocols if there was no one around to tell me what to do as I go	Agree	**207**	**88.1**
	Neutral	8	3.4
	Disagree	20	8.5
I would feel comfortable in following protocols	Agree	**216**	**91.9**
	Neutral	6	2.6
	Disagree	13	5.5
The equipment (computers, printers, etc.) and the internet used for online search is available in my hospital for use	Agree	**118**	**50.2**
	Neutral	7	3
	Disagree	110	46.8
The databases for searching for research evidence is compatible with other databases I am familiar with	Agree	**117**	**49.8**
	Neutral	12	5.1
	Disagree	106	45.1
I could use online databases to search for current evidence-based practice to care for patients	Agree	**154**	**65.5**
	Neutral	18	7.7
	Disagree	63	26.8
Total		**235**	**100**

Source: Fieldwork, 2020

4.5 Behavioural Intention to adhere to the protocol in the management of pre-eclampsia/eclampsia.

Behavioural intention measures the determination of midwives to adhere to protocols. The mean score for behavioural intention was 5.72 ± 1.25, demonstrating a good behavioural intention regarding the use of protocols. The majority of the midwives (85.1%, n=200) agreed to the intention to adhere to protocols as presented in Table 4.8.

Most midwives (90.6%, n=213) plan to adhere to protocols. Also, 89.8% (n=211) intend to adhere to protocols, while a little above 80% predicted they will adhere to protocols. The detailed responses are presented in Table 4.9.

Table 0.1: Behavioural Intention of midwives' adherence to protocols

Variable	Responses	Frequency (n)	Percentage (%)
Behavioural Intention	**Agree**	**200**	**85.1**
	Others	35	14.9
	Total	**235**	**100**
Average mean score = 5.72 ± 1.25			

Source: Fieldwork, 2020

Table 0.2: Detailed behaviour intentions of midwives' adherence to protocols

Variable	Responses	Frequency (n)	Percentage (%)
I intend to adhere to protocols during practice	Agree	**211**	**89.8**
	Neutral	12	5.1
	Disagree	12	5.1
I predict I would adhere to protocols during practice	Agree	**191**	**81.3**
	Neutral	10	4.3
	Disagree	34	14.5
I plan to adhere to protocols during practice	Agree	**213**	**90.6**
	Neutral	7	3
	Disagree	15	6.4
Total		**235**	**100**

Source: Fieldwork, 2020

4.6 Behaviour of midwives towards protocol adherence

Behaviour measures the extent to which midwives use protocols with regards to its usage frequency and amount. The mean score for behaviour was 4.79 ± 1.52, indicating a respectable use of protocols in the management of cases. However, just above 50% of midwives agreed to use protocols regularly. See Table 4.10 for the summary.

Although the majority, (86.4%, n=203) of the respondents, agreed to use protocols often, about 50% stated that they use protocols depending on the number of cases. See Table 4.11 for the detailed summary of usage.

Table 0.1: Behaviour of midwives toward protocol adherence

Variable	Responses	Frequency (n)	Percentage (%)
Behaviour	**Agree**	**130**	**55.3**
	Others	105	44.7
	Total	**235**	**100**
Average mean score = 4.79 ± 1.52			

Source: Fieldwork, 2020

Table 0.2: Detailed behaviour of midwives toward protocol adherence

Variable	Responses	Frequency (n)	Percentage (%)
I use the protocols depending on the number of cases	Agree	**116**	**49.4**
	Neutral	13	5.5
	Disagree	106	45.1
I often use the protocol	Agree	**203**	**86.4**
	Neutral	8	3.4
	Disagree	24	10.2
Total		**235**	**100**

Source: Fieldwork, 2020

4.7 Relationship between attitude, subjective norm, perceived behavioural control, behavioural intention, and the behaviour of midwives (protocol adherence) in the management of pre-eclampsia/eclampsia.

H_1: There will be a positive significant relationship between attitude, subjective norms, perceived behavioural control, the intention of midwives and the behaviour of midwives to adhere to protocols in the management of pre-eclampsia/eclampsia

The relationship between attitude, subjective norm, perceived behavioural control, behavioural intention, and the behaviour of midwives to adhere to protocol in the management of pre-eclampsia/eclampsia, was computed using Pearson product-moment correlation coefficient. Details of these correlations are presented in Table 4.12.

A statistically significant weak, but a positive relationship was obtained for attitude and behaviour (protocol adherence), r(233)=.239, *p*=.000, suggesting that as midwives' attitude towards protocols increases, there will be a corresponding increase in midwives' adherence to protocol. The more positive the attitude of midwives towards protocol, the more midwives will adhere to protocols in the management of pre-eclampsia and eclampsia.

The results also show that there is a statistically significant moderate positive relationship between subjective norms and midwives' adherence to protocol, *r* (233) = .403, *p*=.000. This suggests that an increase in subjective norms will lead to an increase in midwives' adherence to protocol.

The results further suggest that there is a statistically significant weak, but positive relationship between perceived behavioural control and midwives' adherence to protocol, *r* (233) =. 299, *p*=.000), suggesting that an increase in perceived behavioural control will lead to an increase in midwives' adherence to protocol.

Likewise, the results demonstrate that there is a statistically significant moderate but positive relationship between behavioural intention and behaviour, *r* (233) = .423, *p*= .000. This suggests that when the intention to adhere to protocol increases, there will be an increase in midwives' adherence to protocol.

Table 0.1: Relationship between attitude, subjective norm, perceived behavioural control, intention, and behaviour

Measures	n	Behaviour	*p-value*
Attitude	235	.239**	.000
Subjective Norms	235	.403**	.000
Perceived Behavioural Control	235	.299**	.000
Behavioural Intention	235	.423**	.000

Note: *$p < 0.01$ (1-tailed).

4.8 Predictors of Midwives' Adherence to Protocol

To address objective number three, a sequential multiple regression analysis was used to determine whether demographic characteristics, attitude, subjective norms, perceived behavioural control, and behavioural intention account for the variance in midwives' adherence to protocol.

The demographic characteristics of midwives (age, gender, education, years of practice, and rank) were used to build a model, the results of the test showed that the demographic variables together were not significant predictors of behaviour (R^2= .036, F (3.846) =1.679, *p*= .141), although they explained 3.6% of the variance in midwives' adherence to protocol. Nevertheless, among the demographic variables examined, the age of the midwife was the only significant predictor with a *p*-value of 0.034. Hence, age was the only demographic variable necessary for building the beginning model for prediction. Details of the regression analysis are indicated in Table 4.13.

Table 0.1: Demographic predictors of midwives' behaviour

Model Variables	Unstandardized coefficient		Standardized coefficient		
	B	**Std. error**	**Beta**	**t**	**Sig.**
(Constant)	2.010	3.083		.652	.515
Age	.042	.020	.193	2.130	**.034**
Years of practice	-.022	.030	-.065	-0.722	.471
Gender	.849	1.524	.036	.557	.578
Educational qualification	-.130	.112	-.082	-1.158	.248
Rank	.029	.083	.027	.343	.732
MODEL SUMMARY: R2= .036, F (3.846) =1.679, *p* =.034					

Subsequently, in the first model, age was used as the predictor of behaviour. The results of the test (R^2 = .026, F (14.319) = 6.274, *p* = .013) showed that age explained 2.6% of the variance in midwives' adherence to protocol and that age was a significant predictor of midwives' adherence to protocol.

The attitude variable was added to the age variable in the second model. The results of the test (R^2 = 0.080, F (21.687) = 10.011, *p* = 0.000) showed that age and attitude, together, explained 8% of the variance in midwives' adherence to protocol. Both age and attitude are significant predictors of midwives' adherence to protocol. Subjective norm was added to age and attitude to build the third model. The results of the test (R^2 = .179, F (32.578) = 16.799, *p* = .000) shows that age, attitude, and subjective norm, together explained 17.6% of the variance in midwives' adherence to protocol. However, subjective norms were the only significant predictor of midwives' protocol adherence, age and attitude were not significant.

In the fourth model, perceived behavioural control was added. The test results (R^2 = .205, F (28.075) =14.900, *p* = .000) shows that age, attitude, subjective norms, and perceived behavioural control together explained 20.5% of the variance in midwives' protocol

adherence. Amongst the four variables analyzed in this model, age, subjective norms, and perceived behavioural control were the significant predictors of midwives' protocol adherence (behaviour). When the three variables were compared, subjective norm appeared to be a stronger predictor of midwives' protocol adherence (behaviour) than age and perceived behavioural control.

Behavioural intention was added in the fifth model. The results of the test (R^2 = .234, F (25.511) = 13.974, p = .001) was significant and showed that age, attitude, subjective norm, perceived behavioural control and behavioural intention, collectively explained 23.4% of the variance in midwives' protocol adherence. Amongst which behavioural intention and subjective norm were the significant predictors of midwives' behaviour. Comparing these two variables subjective norm was the strongest predictor of midwives' adherence than behavioural intention. The highest contributor to the model was the subjective norms variable. Indicating that peer and superior influence are essential in adhering to protocols by midwives. Therefore, the predictors of midwives' behaviour are subjective norms and behavioural intention to adhere to protocols in the management of pre-eclampsia and eclampsia. Details of the regression analysis are indicated in Table 4.14.

Table 0.2: Predictors of midwives' adherence to protocols

Model	Variables	Unstandardized coefficient		Standardized coefficient		
		B	**Std. error**	**Beta**	**t**	**Sig.**
1.	(Constant)	3.603	.484		7.451	.000
	Age	.035	.014	.162	2.505	**.013**
MODEL SUMMARY: R2 = 0.026, F (14.319) = 6.274, p = 0.013						
2.	(Constant)	1.341	.777		1.727	.085
	Age	.033	.014	.151	2.396	**.017**
	Attitude	.396	.108	.231	3.662	**.000**
MODEL SUMMARY: R2 = 0.080, F (21.687) = 10.011, *p* = 0.000						
3.	(Constant)	1.260	.735		1.714	.088
	Age	.023	.013	.107	1.776	.077
	Attitude	.144	.113	.084	1.281	.202
	Subjective Norms	.366	.069	.352	5.294	**.000**
MODEL SUMMARY: R2 = 0.180, F (32.578) = 16.799, *p* = 0.000						
4.	(Constant)	.643	.758		.848	.397
	Age	.027	.013	.124	2.070	.040
	Attitude	.013	.121	.007	.104	.917
	Subjective Norms	.328	.070	.316	4.716	**.000**
	Perceived Behavioural Control	.288	.103	.191	2.780	**.006**
MODEL SUMMARY: R2 = .207, F (28.075) = 14.900, *p* = .000						
5.	(Constant)	.712	.746		.954	.341
	Age	.022	.013	.101	1.704	.089
	Attitude	-.077	.123	-.045	-.636	.531
	Subjective Norms	.242	.075	.232	3.237	**.001**
	Perceived Behavioural Control	.169	.110	.110	1.545	.124
	Behavioural Intention	.293	.101	.240	2.891	**.004**
MODEL SUMMARY: R2 = .235, F (25.511) =13.974, *p* = 0.001						

4.9 Mediating Effect of Behavioural Intention in the Relationship between Subjective norms and Behaviour

H_2: There will be a significant mediating effect of intention on subjective norms and adherence to protocols by midwives in the management of pre-eclampsia/eclampsia

The relationship between subjective norms and protocol adherence as mediated by behavioural intention was determined using the Baron and Kenny (1986) method which involves four steps. As Figure 4.1 illustrates, the standardized regression coefficient between subjective norm and behaviour was statistically significant (p = .000), as was the standardized regression coefficient between behavioural intention and behaviour (p = .000). Similarly, the relationship between intention and behaviour was statistically significant (p=.000).

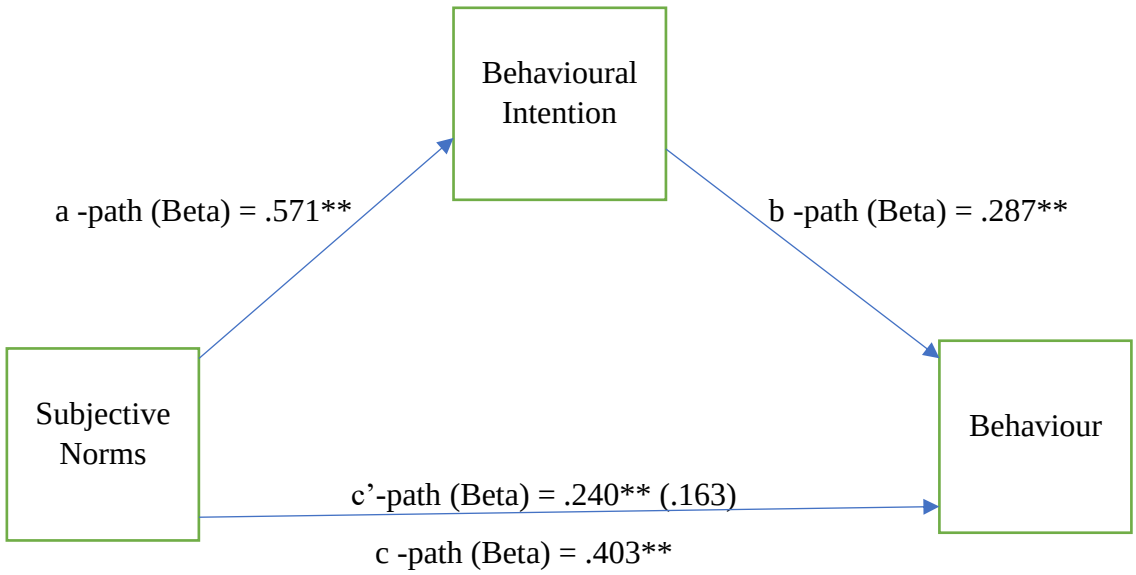
In the final step, controlling for the effect of intention, the results showed that the relationship between subjective norms and behaviour was significant (R^2= .218, F (59.276) = 32.337, p < .05). The standardized indirect effect was (.403) - (.240) = .163, suggesting that intention partially mediates between subjective norms and midwives' adherence to protocol. Indicating also that behavioural intention (p < .05) is a significant mediator of the relationship between subjective norms and midwives' adherence to protocol. Details of the mediating effect is shown in Table 4.15.

Table 0.1: Model Summary of the Mediating Effect of Behavioural Intention

Model	Unstandardized coefficient			Standardized coefficient		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.627	.334		7.861	.000
	SN	.418	.062	**.403**	6.727	**.000**
Model summary: R^2= .163, F (88.446) = 45.225, p < .05						
2	(Constant)	3.222	.245		13.153	.000
	SN	.484	.046	**.571**	10.617	**.000**
Model summary: R^2= .326, F (118.366) = 112.726, p < .05						
3	(Constant)	1.497	.427		3.503	**.001**
	SN	.248	.073	**.240**	3.388	**.001**
	BI	.351	.087	**.287**	4.053	**.000**
Model summary: R^2= .218, F (59.276) = 32.337, p < .05						

Dependent Variable: Behaviour. Subjective Norms (SN), Behavioural Intention (BI)

Figure 4.1: Mediating model of behavioural intention in the relationship between Subjective Norms and behaviour



Note: *p < 0.01

4.10 Summary of results

The study had a total number of 235 respondents, majority of the respondents were female (n= 233, 99.1%). The mean age of respondents was 33.40 ± 6.98 and a majority held a diploma in midwifery (59.6%, n=140). Most of the respondents (88.0%, n=206) had less than 10 years' work experience in the unit. Senior staff midwife (33.6%, n=79) and staff midwife (33.2%, n=78) were the two top ranks.

The results showed high mean scores for the various constructs, attitude (5.92 ± 0.89), subjective norms (5.17 ± 1.47), perceived behavioural control (5.13 ± 1.02), behavioural intention (5.72 ± 1.25), behaviour (4.79 ± 1.52). The results suggest that midwives generally agree that attitude, subjective norms, perceived behavioural control, and behavioural intention influenced their decision to adhere to protocols in the management of pre-eclampsia and eclampsia. Hence, demonstrating a favourable behaviour regarding the use of protocols in managing cases with pre-eclampsia and eclampsia.

There was a positive significant relationship between attitude, subjective norms, perceived behavioural control, behavioural intention, and behaviour. Implying that as midwives' attitude, subjective norms, perceived behavioural control, behavioural intention increase, midwives' behaviour towards protocol adherence will also increase, supporting the hypothesis.

Additionally, the results also showed that age, attitude, subjective norms, perceived behavioural control, and behavioural intention predicts behaviour. However, subjective norms and behavioural intention were the two most significant predictors. With subjective norms being the highest contributor. The results further suggest that behavioural intention

partially significantly mediates the relationship between subjective norms and midwives' adherence to protocol. Thus, supporting the hypothesis.

CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS

This chapter discusses the findings of the study. The demographic characteristics of the respondents are discussed first, followed by other significant findings.

5.1 Demographic Characteristics of Midwives

The current study reports more female respondents (99.1%) than male, this is consistent with that from earlier studies conducted on nurses and midwives (Cheng et al., 2017; Eskandari, Abdullah, Zainal, & Wong, 2017; Holland, Tham, & Gill, 2018; Jonas et al., 2016; Weng et al., 2015). Traditionally, nursing has for ages been regarded as a female profession. Although there appears to be a gradual increase in the male gender, women still dominate the profession, especially, in the field of midwifery. Comparably, in 2013, a national survey of registered nurses revealed that men represented only 7% of the United States nursing workforce (Budden, Zhong, Moulton, & Cimiotti, 2013).

The mean age of 33.40 ± 6.98 years is similar to that of respondents in other studies (Azmoude et al., 2018; Weng et al., 2015), suggesting a relatively young and energetic labour force as compared to that of other studies (Jonas et al., 2016; Saunders et al., 2016; Skela-Savič et al., 2017). Evidently, with the introduction of the direct midwifery programme in Ghana, most midwives enter the workforce at an early age, this may account for the young workforce. Although, the direct midwifery programme may have solved the issue of staff shortage and provided the service with the high influx of young midwives who

are energetic, others have raised concern with the provision of quality of care (Asamani et al., 2019).

The results show that most respondents have been working for less than 10 years, again consistent with that of other studies (Farokhzadian et al., 2015; Nguyen & Wilson, 2016). According to Ameh, Ekechi, and Tukur (2012), it is easier to improve the knowledge and skill of health professionals who have recently completed training and have been at work for a shorter period than those who have been at work for more than 10 years. Consequently, investing in training on accessing and implementation of research evidence may greatly influence adherence to protocols. Additionally, after practicing for more than two years in a unit, one can gain confidence, hence contributing to the positive behaviour exhibited by the midwives in this study.

Furthermore, it is not surprising to see that many of the respondents hold a diploma in midwifery, simply because of the direct midwifery programme which awards a diploma after completion, comparable with that of other studies (Jonas et al., 2016; Nguyen & Wilson, 2016). Also, there are very few degree-awarding midwifery programmes in Ghana. On the other hand, countries, where an emphasis is placed on bachelor's degree as the start of the nursing profession, reports that the majority of nurses and midwives are degree holders (Azmoude et al., 2018; Farokhzadian et al., 2015; Saunders et al., 2016; Veeramah, 2016). This suggests that with the introduction of more degree programmes in midwifery and a probable change in the start of the educational level in the nursing programme in Ghana, a lot more midwives may hold a bachelor's degree.

5.2 Attitude towards protocol adherence

An overwhelming majority of midwives expressed a very positive attitude towards protocol adherence, more importantly, a substantial number felt that protocols were beneficial to daily practice (89.4%). Consistent with the findings by Azmoude et al. (2018) among midwives and Veeramah (2016) among both nurses and midwives. Furthermore, this result is also supported by findings of other studies that reported that most health care workers had a positive attitude towards scientific evidence (Abera et al., 2016; Amer et al., 2018; Barzkar et al., 2018). On the other hand, the attitude of nurses toward evidence-based practice was found to be negative in another study (Farokhzadian et al., 2015). The desirable responses of the respondents can, to some extent, be explained by the current training on protocol adherence and its beneficial consequences. Also, the perceived autonomy given to midwives and the ability to make an informed choice during patient care may also influence the positive attitude towards adherence.

The most encouraging finding was that nearly every respondent agreed that adhering to protocols was a good idea (96.2%) and beneficial to them (95.7%). This was further reinforced by the fact that many respondents stated that they always or frequently used protocols to inform their practice, in agreement with previous research (Jonas et al., 2016). This is quite significant, given that it has been demonstrated that staff having a positive attitude towards research evidence did not necessarily result in the use of the evidence to inform practice (Barzkar et al., 2018; Saunders, Gallagher-Ford, Kvist, & Vehviläinen-Julkunen, 2019). The achievement of a positive attitude and the ability to apply knowledge in practice are necessary for providing the highest standard of midwifery care. The findings

from this study may imply that most respondents are providing the best standard of care for their patients to the best of their knowledge and skill.

Also, a positive but rather weak relationship was found between attitude towards protocol adherence and the use of protocols indicating that, although midwives understand and believe in the benefits of adhering to protocols during practice, there was still the need to engage them in activities that will further enhance their need to adhere to protocols during pre-eclampsia and eclampsia management.

5.3 Subjective norms of midwives' adherence to protocol

Subjective norm items provided a measure of how midwives felt about the opinion of their managers, peers, and co-workers concerning protocol adherence during practice. The present study found that adhering to protocols by midwives was positively affected by peer and superior influence (5.17 ± 1.47). This finding is supported by that of previous studies among midwives which demonstrated that both superior and peer opinion and their support greatly encouraged behaviour (Barzkar et al., 2018; Ebben et al., 2015; Jansson & Forsberg, 2016; Trollope et al., 2018). This result suggests that midwives appear to place value on the contribution and perceptions of others regarding protocol adherence. This component was particularly important to consider in the study because the impact of protocol adherence affects the various health professional groups.

The study also reported that 79.6% of midwives indicated that they adhered to protocols because their peers expect them to, as indicated in a previous study (Ebben et al., 2015). This finding can be attributed to the fact that midwives want to belong, trust, feel appreciated, and

to communicate freely with their colleagues as suggested by Lampinen et al. (2017) or the fact that a colleague would expect the right precautions are adhered to during handing over.

A great majority of the respondents in this study (85.5%, n=201) stated that they used protocols because their superiors expected them to do so. This finding is supported by other studies (Jansson & Forsberg, 2016; Weng et al., 2015; Wójcik et al., 2015). The results of the present study highlight the major role nurse managers and leaders play in promoting the adoption and implementation of evidence-based protocols as reported in other studies (Bianchi et al., 2018; Fleiszer et al., 2016; Jansson & Forsberg, 2016; Nilsen et al., 2016). The findings also place an emphasis on the power, authority, and respect senior nurses and managers have over junior midwives and the magnitude of superior influence in the clinical system in Ghana. This power and admiration commanded by nurse managers and senior nurses need to be harnessed and used to propel the course of guideline adherence.

Nevertheless, most nurse managers and senior nurses in Ghana are usually caught up in other engagements such as meetings and chasing for resources and are probably overburdened. Thus, are not able to supervise and ensure that their subordinates adhere to the use of protocols. Another aspect that can be attributed to the lack of managers stressing on the use of protocols in practice can be attributed to the fact that some nurse managers are not open to research and hence lack the critical skill needed to access, appraise and implement scientific evidence. The study suggests that all health workers, administrators, managers, and clinical staff are essential in the implementation and adherence of protocols. Therefore, efforts must be put in place to ensure and encourage senior staff and colleagues to supervise and provide support when implementing protocols and guidelines in the management of cases to improve maternal outcomes.

5.4 Perceived behavioural control of midwives' adherence to protocol

The results suggest that midwives in this study displayed a good sense of self-efficacy and have access to facilitating conditions that influenced protocol adherence by midwives (5.13 ± 1.02). In contrast, previous studies have indicated that nurses lacked the knowledge and skills required (Farokhzadian et al., 2015; Saunders et al., 2016; Toohill et al., 2017). However, these previous studies where on EBP which is much broader in scope and needing more information than that of adherence to protocols and hence may account for the difference.

Self-efficacy is the belief in one's capabilities to perform a recommended behaviour (Bandura, 1977). Self-efficacy and knowledge have been proven to be positively significantly correlated with confidence in adopting scientific evidence (Saunders et al., 2016). Thus, it is encouraging to find a large majority of respondents reporting a good level of self-efficacy and knowledge needed to adhere to protocols. Although, experience may also account for their confidence in adhering to protocols.

In the present study a large majority of respondents (95.3%) claimed to be able to adhere to protocols during practice, and 91.9% following protocols comfortably, this finding was consistent with that of Fry and Attawet (2018). With midwives perceiving themselves as capable in adhering to protocols, the quality of their service can be expected to be adequate. Highlighting the significance of confidence (self-efficacy) in the management of pre-eclampsia and eclampsia. A reassuring percentage (90.6%, n= 213) reported that they had the necessary knowledge needed to adhere to protocols which contradicts what is reported in other findings (Barzkar et al., 2018; Saunders et al., 2016), that nurses and midwives

lacked the needed knowledge for evidence-based practice. This finding may be explained by previous experience or training on the use of protocols. And perhaps the extensive nature of the knowledge needed for EBP may account for the difference in findings.

About 76% of the midwives in this study stated that they had access to the necessary resources needed to implement the directions stipulated in the protocol, this finding was consistent with the study by Veeramah (2016). Again, it was heartening to know that some health facilities have put in efforts to ensure the availability of these resources, in contrast some studies have reported the lack of resources such as essential drugs, shortage of skilled staff and generally limited capacities to provide care especially in low resourced countries (Braddick et al., 2016; Lazzerini et al., 2018; Sumankuuro et al., 2018).

It was quite notable that, after about 70% of respondents said that they had access to the necessary resources, similar to that reported by Fry and Attawet (2018). Just a little above 50% stated they have the equipment and internet facilities available for use in their hospitals, and less than 50% were familiar with the available databases, consistent with findings from the study by Diermayr et al. (2015). Although it was not ascertained from the 50%, as to whether they made use of the opportunities provided, one can infer from the data, that midwives in this study, may not be utilising the available databases provided because the percentage of those who claimed to be familiar with the databases is less than those with access. This can be attributed to the lack of knowledge, time, peer and superior support, or even fear of blame as suggested by other studies (Azmoude et al., 2018; Braddick et al., 2016; Nguyen & Wilson, 2016; Toohill et al., 2017).

Consequently, it can be concluded that there is the need to provide midwives with the necessary equipment such as computers, internet, the development of educational

programmes to train midwives in the clinical field on how to access scientific databases and critically appraise current evidence. This will help support, facilitate and enable the implementation and adherence of evidence-based protocols.

5.5 Intention to adhere to the protocols

The study investigated the behavioural intention of midwives towards protocol adherence. Protocol adherence can be influenced by behavioural intention of midwives. The mean score for behavioural intention was high (5.72 ± 1.25), demonstrating a good behavioural intention regarding the use of protocols. Thus, it is likely that with more training, support, and monitoring protocol adherence will increase in the future.

The study found that most of the midwives, more than 80%, intended, planned, and predicted they would adhere to protocols, which means they have a higher intention of using protocols. This could be because of having a positive attitude, support and/ or having the confidence, knowledge, and facilities available to facilitate the use of the protocols. This finding is in line with previous studies where health workers had the intention to use filter needles according to guidelines, intention to comply with standard precaution in the clinical area, and also implement new smoking cessation policy (Gagnon et al., 2015; Kyung Mi & Hyunjin, 2015; Smit et al., 2013).

5.6 The relationships between attitude, subjective norms, perceived behavioural control, and the intention of midwives to adhere to protocols

The result of the present study indicated that attitude and perceived behavioural control had a weak positive correlation with midwives' adherence to protocol, while subjective

norms and behavioural intention had a moderate positive correlation with midwives' adherence to protocol. Attitude may be positive or negative. The result showed a statistically significant weak, but positive correlation (r =.239, *p*=.000) between attitude and midwives' protocol adherence. This finding is comparable with that of previous results (Jonas et al., 2016; Koyio et al., 2013; Mafabi et al., 2017; Rahman et al., 2016; Smit et al., 2013). Suggesting that when the attitude of midwives increases, adherence to protocols also increases leading to better health outcomes for women with pre-eclampsia and eclampsia.

Subjective norms had a statistically significant moderate but positive correlation (r= .403, *p*=.000) with midwives' adherence to protocol. This result is consistent with previous studies (Jonas et al., 2016; Koyio et al., 2013; Mafabi et al., 2017; Rahman et al., 2016). The positive correlation coefficient suggests that when midwives are supported by both peers and superiors, the act of adherence will increase. The more positive the peer and superior influence, the more positive the behaviour. This implies that the influence from peers and superiors is crucial for quality health outcomes for pregnant women with pre-eclampsia and eclampsia (Bianchi et al., 2018; Cheng et al., 2017; Jansson & Forsberg, 2016; Nilsen et al., 2016; Trollope et al., 2018). Conclusively, midwives tend to do better when they have the support of their peers and superiors at work. Hence, it can be said that midwives work to maximum capacity and feel comfortable consulting colleagues when they feel supported by their co-workers.

Self-efficacy and facilitating conditions are important in enabling midwives provide holistic care to patients. From the findings of this study, the relationship between perceived behavioural control and behaviour is weak, positive, and statistically significant (r= .29, *p*=.000). This suggests that as self-efficacy and facilitating conditions increase there will be

an increase in adherence to protocol. Hence, the more perceived behavioural control increases, the more positive the behaviour will be (Farokhzadian et al., 2015; Jonas et al., 2016). It can thus be stated that an increase in self-efficacy and facilitating conditions will lead to an increase in adherence and performance. Therefore, efforts should be put in place to help build upon the confidence of the midwife and the provision of resources needed to provide care.

A statistically significant relationship is shown between intention and behaviour (r=.423, *p*=.000) in this present study. Also, the results show a moderate positive correlation. The positive correlation coefficient suggests that when the intention to adhere to protocol increases, there will be an equal increase in behaviour (Rahman et al., 2016; Smit et al., 2013). Midwives who have the intention to perform a behaviour will adhere to protocols and explains why the intention to adhere to protocols was positive (Jonas et al., 2016; Mafabi et al., 2017).

5.7 Predictors of midwives' behaviour

This study examined the predictors of midwives' intentions to adhere to protocols in the management of pre-eclampsia and eclampsia. A hierarchical regression analysis was performed to identify the predictors of midwives' behaviour, the results revealed that the demographics characteristics put together were not significant predictors of midwives' adherence. However, among the demographic variables examined, age, proved to be a significant predictor of midwives' adherence to protocol, contrary to what is reported in other studies where years of practice (Jonas et al., 2016; Soudagar et al., 2015) and educational level (Fairbrother et al., 2016) were identified as significant predictors of behaviour amongst

nurses and midwives. This finding may suggest generational issues in the adoption and assimilation of scientific evidence in Ghana.

The results identified behavioural intention and subjective norm as the two significant predictors of midwives' behaviour, with subjective norms emerging as the highest predictor, similar to the findings reported by Koyio et al. (2013) and Farokhzadian et al. (2015). Contrary to this, other studies reported attitude, self-efficacy, and perceived behavioural control as the most significant predictors of behaviour (Bouchard-Mercier, Desroches, Robitaille, & Vohl, 2016; Gagnon et al., 2015; Muhammed et al., 2019). Ensuring a sense of belonging, mutual trust, easing fear, and appreciation in the event of an adverse event may be among the reasons why midwives turn to seek the support of their peers and superiors. The contrary findings in this study may also reflect the current state of nurses and midwives in Ghana as reported by Azaare and Gross (2011), as a state of lack of confidence, encouragement, satisfaction, and trust in their superiors and in this case lack of collegial support.

This present study, therefore, highlights the significance of peer and superior support in the healthcare system, particularly towards the adoption of guidelines. Proving that individuals tend to perform behaviours that are encouraged and accepted within their circle of influence. If the midwives perceive themselves as having the needed support and encouragement from their colleagues and managers, they will adhere to protocols. Inferring that if midwives are adequately encouraged to adhere to protocols, they most likely would feel protected and supported and thus increase their adherence to protocols. This, in turn, will have a positive effect on the management of pre-eclampsia and eclampsia and may potentially decrease the burden of maternal mortality from pre-eclampsia and eclampsia.

Adhering to all the recommendations made in the protocol is very important in reducing the mortalities associated with hypertensive disorders in pregnancies.

5.8 Mediating effect of intention on attitude, subjective norms, perceived behavioural control, and behaviour

Also, the mediating effect of behavioural intention in the relationship between subjective norms and midwives' adherence to protocol was assessed in the study. The results revealed behavioural intention as a significant mediator (p <0.05) between subjective norms and midwives' adherence to protocol (Mafabi et al., 2017; Morales et al., 2018; Rahman et al., 2016).

The results further demonstrated that intention partially mediates the relationship between subjective norms and midwives' adherence to protocol. This result agrees with the study by Rahman et al. (2016), contrary to the finding that behavioural intention completely contributes to one's attitude, subjective norms, and behavioural control in shaping the level of knowledge sharing among doctors and nurses by Mafabi et al. (2017). Inferring that although behavioural intention plays a significant part in strengthening the association between subjective norms and adherence behaviour among midwives, it was solely not responsible for the existing relationship. This can be attributed to the fact that the clinical decision-making process by the midwife is complex and made up of several factors (Daemers et al., 2017) and also by the fact that the term adherence itself is complex concept (Gardner, 2015).

According to the DTPB model, the relationship among subjective norms, to behavioural intention, and subsequently to behaviour may be well correlated. However, owing to some

situational constraints, behavioural outcomes may not always be because of behavioural intention and that people's behaviour may depend on other control factors such as perceived usefulness, complexity, compatibility, self-efficacy, and facilitating conditions.

5.9 Summary of the discussion

In summary, the results of the study were consistent with the constructs of the DTPB. These findings demonstrate that merging all the factors of the DTPB leads to the performance of the behaviour. Also, attitude, subjective norms, perceived behavioural control, and behavioural intention correlated positively with behaviour. Furthermore, behaviour intention and subjective norms were identified as predictors of midwives' adherence to protocols. Thus, to increase adherence to protocols in the management of pre-eclampsia and eclampsia among midwives in the Accra metropolis, efforts must be focused on these factors (subjective norms, and behavioural intention). Nevertheless, special attention should be given to subjective norms (peer and superior influence) because this group of midwives highly respect and value the opinion, support, motivation, and supervision of both their superiors and peers.

CHAPTER SIX

6.0 SUMMARY, IMPLICATIONS, LIMITATIONS, CONCLUSION, AND RECOMMENDATIONS

This chapter summarizes the whole analysis and presents the implications of the findings, the study's limitations, the conclusion, and recommendations based on the result.

6.1 Summary of the Study

The role of midwives in implementing protocols designed to improve the maternal health outcomes for women diagnosed with pre-eclampsia and eclampsia is crucial. These protocols were developed to ensure evidence for practice and improve the quality of health care for patients. However, adherence to protocols has been poor (Browne, Van Nievelt, Srofenyoh, Grobbee, & Klipstein-Grobusch, 2015; Lazzerini, Ciuch, Rusconi, & Covi, 2018). Various factors have been attributed to low adherence to protocols. However, none has focused on midwives' adherence behaviour. The purpose of this study was to examine midwives' adherence to protocols in the management of pre-eclampsia/ eclampsia in the Accra metropolis using the decomposed theory of planned behaviour as the organising framework.

A quantitative cross-sectional design was employed to test the hypotheses of the study. The survey approach was used to administer questionnaires to 235 midwives, which had a response rate of 100%. A structured standardised questionnaire comprising of 33 items was used to collect data from eight different hospitals within the Accra Metropolis. The questionnaire was divided into two (2) sections: the demographic characteristics, and the

constructs of the decomposed theory (attitude, subjective norms, perceived behavioural control, behavioural intention, and behaviour). Descriptive and inferential statistics were employed for data analysis using SPSS version 23. The findings of the study were consistent with the constructs of the theoretical model of the decomposed theory of planned behaviour (DTPB).

Descriptive statistics were used to determine the mean, frequency, percentages, and standard deviations of the demographics and the responses to the constructs. The study revealed the mean age to be 33.40 ± 6.98 years, the majority were female (n= 233, 99.1%) and a diploma in midwifery was the major educational qualification for most of the respondents (59.6%, n=140). Also, most of the respondents (88.0%, n=206) had worked for less than 10 years in their units. The two top ranks were senior staff midwife (33.6%, n=79) and staff midwife (33.2%, n=78). Furthermore, the various constructs showed high mean scores, attitude (5.92 ± 0.89), subjective norms (5.17 ± 1.47), perceived behavioural control (5.13 ± 1.02), behavioural intention (5.72 ± 1.25), behaviour (4.79 ± 1.52). Consequently, the behaviour of midwives towards protocol adherence in managing pregnant women diagnosed with pre-eclampsia and eclampsia can be described as encouraging which address objective number one. It further implies that midwives agree that attitude, subjective norms, perceived behavioural control and behavioural intention influence their adherence to protocols in the management of pre-eclampsia and eclampsia.

Inferential statistics were used to determine the mediating effect, predictors and the relationship between attitude, subjective norms, perceived behavioural control, behavioural intention, and behaviour. In analysing the relationship between the variables (attitude, subjective norms, perceived behavioural control, and behavioural intention), Pearson

product-moment correlation was used. Multiple Regression analysis was done to establish the predictor variables and the mediating effect. The tests were carried out with a significance level of 0.05%.

Findings indicated that the relationship was positive and significant for all the constructs. However, the strength of the relationship between attitude (r =.239, *p* =.000) and perceived behavioural control (r =.299, *p* =.000), was weak with behaviour, while that of subjective norms (r =.403, *p* =.000) and behavioural intention (r =.423, *p* =.000) were moderately strong. Suggesting that as any of these constructs (attitude, subjective norms, perceived behavioural control, behavioural intention) increase, there would be an increase in the behaviour (protocol adherence), supporting the first hypothesis. Thus, improving the attitude of midwives towards protocols, encouraging peer and superior support, providing technological resources, and also training midwives on how to search databases and appraise scientific evidence to improve the self-efficacy of midwives, would improve upon the adherence behaviour of midwives.

For the predictors, the overall regression model was significant, R2 = .234, F (25.511) = 13.974, *p* = .001. This result supported the second hypothesis. The test further revealed that age, attitude, subjective norms, perceived behavioural control, and behavioural intention, collectively, explained 23.4% of the variance in midwives' behaviour (adherence to protocol). However, the two most significant predictors were subjective norms and behavioural intention, with subjective norms emerging as the highest contributor. Furthermore, the Baron and Kenny method was used in determining that behavioural intention significantly mediated the relationship between subjective norms and midwives'

adherence to protocols, R2= .218, F (59.276) = 32.337, $p < .05$. Also supporting the third hypothesis.

The study results proved to be consistent with the constructs of the Decomposed Theory of Planned Behaviour (DTPB). Concluding that amongst the group sampled, the opinion of their peers and supervisors was of uttermost importance and hence to increase adherence to protocols amongst midwives in Accra, efforts should be channelled towards the involvement of co-workers and superiors. Although subjective norms acted as the highest contributor, the responses from the statistics show that some of the respondents have challenges with access to equipment and searching databases, implying some challenges with self-efficacy and the availability of some facilitating resources (perceived behavioural control). Therefore, creating an avenue to improve on the attitude, self-efficacy, providing the necessary resources, and an atmosphere where co-workers and superiors support, train, and transfer knowledge on adherence to protocols and guidelines from scientific knowledge is crucial to its success.

6.2 Contribution to Nursing Knowledge

Determining midwives' adherence to protocols is important since this knowledge will help identify the strengths and challenges faced by midwives and ways to improve upon adherence to protocols. Earlier studies conducted have either determined the behaviour towards evidence-based practice from other health workers such as physicians and nurses, with a few studies conducted on midwives themselves. However, there is the need to understand that the stress and the burden of caring for two or more lives at a time, may offer distinct complexities with this group of healthcare workers, thus the present study has

provided to a great extent, an objective view of midwives on their behaviour towards protocols adherence. The ability of all nurses and midwives, seniors, and juniors, to motivate, encourage and supervise the adherence of protocol for the management of cases may help reduce maternal morbidity and mortalities from pre-eclampsia/eclampsia. The study has provided evidence that the improvement of attitude, self-efficacy, provision of social support, and facilitating conditions at the workplace for midwives would promote adherence to protocols. The study also provides prospects for further empirical studies.

6.3 Implications of the findings

These findings have implications for nursing and midwifery practice, midwifery education, and nursing research.

6.3.1 Implications for Nursing/Midwifery Practice and Management

The study has established that attitude, subjective norms, perceived behavioural control, and behavioural intention, are all important factors to consider in the aim to promote protocol adherence to reduce adverse outcomes from pre-eclampsia/eclampsia amongst expectant mothers. The accessibility of support, choice of leadership, availability of resources, and the method of adaptation of scientific evidence can influence protocol adherence by midwives. Therefore, the study serves to remind midwives, nursing/midwifery leaders and managers of their unique and influential position in supporting and sustaining the use of protocols.

Thus, where challenges exist, managers need to assess, support, and help develop the capabilities and competencies of their subordinates by organizing educational programmes, and creating contact with researchers. For this reason, nursing/midwifery leaders and

managers need to recognize the importance, take responsibility for improving, and training midwives to improve upon their performance in adhering to protocols. Finally, nurse/midwifery managers need to lobby for the provision of basic resources needed to access information.

6.3.2 Implications for Midwifery Education

The study has shown that peer and superior support is important. Hence courses such as collaborative practice and effective collegial communication courses should be restructured early into the curriculum of nursing and midwifery colleges. There is also a need to modify the educational curricula to include evidence-based practice at the diploma levels as well as post-basic levels, to enable upcoming nurses and midwives to get the needed knowledge to access, appraise, implement and evaluate scientific findings.

Additionally, continuous education may play an important part in changing undesirable attitudes and behaviour in nurses and midwives and may as well support the process of applying knowledge into practice. Furthermore, managers, nurses, and midwives need to be academically prepared, supported, and supplied with the resources required for practice.

6.3.3 Implications for Nursing Research

The study found that midwives' attitude, subjective norms, perceived behavioural control and intention towards protocol adherence in the management of pre-eclampsia/eclampsia were positive. The significant predictors of protocol adherence were subjective norms and behavioural intention. Inferring that peer and superior support and intention were important to midwives' when protocol adherence is expected, hence creating

avenues that promote behavioural intention, and the help of colleagues and superiors would improve adherence to protocols. Nevertheless, the study did not obtain in-depth knowledge of why peer and superior support was important owing to the quantitative nature of the study.

Therefore, a qualitative study can be considered to obtain in-depth knowledge about peer and superior influence concerning midwives' adherence to protocols, giving that subjective norms emerged as a significant predictor of midwives' adherence to protocols in the present study. An additional implication to midwifery research is the use of two experimental groups (diploma and degree midwives), to find the group that frequently access scientific evidence and adhere to protocols to better understand at what stage of training is evidence-based practice is needed. Furthermore, future studies can also consider situational factors that promote adherence to protocols and the perspective of the patient.

6.4 Limitation of the Study

This study has limitations that merit consideration. Although the study reported a response rate of 100%, making it fair to assume that the respondents represented the views of the midwives at the various study sites, we cannot however compare, these findings with that of the entire country, because it took place in only one of the sixteen (16) regions in Ghana. Therefore, replicating similar research in other regions of the country would provide a broader view.

Furthermore, the use of a self-report questionnaire may have resulted in inflated scores, consequently, it may not have given a true reflection of what is happening in the various hospitals. Future studies should therefore use tools and methods such as triangulation (observation and interview) to help obtain more explanatory findings.

Despite these limitations, findings indicated that adherence to protocols by midwives in the management of pre-eclampsia and eclampsia is influenced by their attitude, perceived behavioural control, and their behavioural intention and that to a large extent subjective norms (peer and superior influence), which is the most important factor for the adoption and preservation of scientific knowledge and information by midwives. It also infers that regardless of the limitations, this study can be replicated in other settings.

6.5 Conclusion

In conclusion, the study met the outlined objectives and confirmed the hypotheses. The study also established significant statistical relationships between attitude, subjective norms, perceived behavioural control, behavioural intention, and the behaviour of midwives. Although there may be some overestimation because of the self-reporting nature of the study, the application of the Decomposed Theory of Planned Behaviour was useful in determining the influencing factors of midwives' adherence to protocols in the management of pre-eclampsia and eclampsia.

Thus, as indicated by the Decomposed Theory of Planned Behaviour, continual support and training from experienced peers, mentors, or managers can improve the midwives' abilities and help to encourage midwives to adhere to protocols during the management of pre-eclampsia and eclampsia.

6.6 Recommendations

Based on the findings of the study, the following recommendations are made for the Ministry of Health (MOH), Ghana Health Service (GHS), Nursing and Midwifery Council of Ghana (NMC), and the health facilities in the Accra Metropolis.

6.6.1 To the Ministry of Health (MOH)

The MOH should;

- Develop policies that would ensure the creation and sustenance of research units in health institutions.
- Liaise with research institutions in the country to introduce specialization programmes on understanding research, research implementation, and evaluation, evidence-based, and mentorship with clinical care workers to breach the gap between research and clinical practice.
- Liaise with Nursing and Midwifery training institutions in the country to introduce specialization programmes on mentorship, collaborative, evidence-based, mentorship, and supportive practice into their curriculum.

6.6.2 To the Ghana Health Service (GHS)

The GHS should;

- Develop structured training programmes for midwives on adopting and sustaining the use of scientific evidence.
- Involve midwives in the development of protocols.

- Develop evaluation strategies for patient care to help in the sustenance of protocol usage.
- Give opportunities to nurses and midwives to upgrade themselves through formal training to enable them to improve their competencies in research, leadership, mentorship, and supportive practice.
- Promote and reward exceptional midwives based on their contributions, performances, and competencies in research.

6.6.3 To the Nursing and Midwifery Council of Ghana (NMC)

The NMC should;

- Include evidence-based practice into the curriculum of nurses and midwifery training institutions
- Include participation in research as a criterion for PIN renewal for senior nurses and midwives
- Organize regular workshops on evidence-based practice and protocol adherence for midwives

6.6.4 To the Health Facility Management

The Facilities should;

- Motivate matrons, supervisors, and co-workers to provide support to colleagues to promote adherence
- Nurse leaders and managers should lobby for resources needed for protocol adherence.

- Nurse managers should avail themselves for training and supervision in acquiring technological, research, and managerial skills before assuming leadership positions in healthcare institutions.
- Establish an Information Communication Technology (ICT) centre in the various facilities to train staff on data sourcing
- Collaborate with the in-service training coordinators to educate and ensure regular training for midwives by providing information on how to implement protocols to facilitate usage and compliance at the unit.

REFERENCES

Abalos, E., Cuesta, C., Grosso, A. L., Chou, D., & Say, L. (2013). Global and regional estimates of preeclampsia and eclampsia: a systematic review. *European Journal of Obstetrics & Gynecology and Reproductive Biology, 170*(1), 1-7. doi:10.1016/j.ejogrb.2013.05.005

Abera, T., Vijaya, M. N. S. V. V. R. M., Dhanaraju, M. D., & Gunasekaran, T. (2016). Assessment of awareness and attitude of healthcare professionals towards the use of evidence-based medicine in the regional referral hospital. *Journal of Pharmaceutical Health Services Research, 7*(3), 199-204. Retrieved from https://onlinelibrary.wiley.com/doi/full/10.1111/jphs.12141

Adu-Bonsaffoh, K., Ntumy, M., Y, Obed, S., A, & Seffah, J., D. (2017). Prevalence of Hypertensive disorders in Pregnancy at Korle-Bu Teaching Hospital in Ghana. *Journal of Gynecology and Neonatal Biology, 3*(1), 8-13.doi:10.15436/2380-5595.17.1243

Adu-Bonsaffoh, K., Obed, S. A., & Seffah, J. D. (2014). Maternal outcomes of hypertensive disorders in pregnancy at Korle Bu Teaching Hospital, Ghana. *International Journal of Gynecology and Obstetrics, 127*(3), 238-242. doi:10.1016/j.ijgo.2014.06.010

Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In *Action control* (pp. 11-39): Springer. Retrieved from https://link.springer.com/chapter/10.1007/978-3-642-69746-3_2

Alhassan, R. K., Tsikata, R., Tizaawaw, R. N., Tannor, P. A., Quaw, P. P., Awortwi, C. A. A., . . . Milipaak, J. (2019). Adherence to standard nursing protocols on nasogastric tube feeding in a secondary referral hospital in Ghana: comparing self-ratings by professional and auxiliary nurses. *BMC health services research, 19*(1), 119. doi:10.1186/s12913-019-3931-6

Ameh, C., Ekechi, C., & Tukur, J. (2012). Monitoring Severe Pre-Eclampsia and Eclampsia Treatment in Resource Poor Countries: Skilled Birth Attendant Perception of a New Treatment and Monitoring Chart (LIVKAN Chart) (10927875). Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=hch&AN=77383829&site=ehost-live

Amer, Y. S., Al Nemri, A., Osman, M. E., Saeed, E., Assiri, A. M., & Mohamed, S. (2018). Perception, attitude, and satisfaction of paediatric physicians and nurses towards clinical practice guidelines at a university teaching hospital. *Journal of Evaluation in Clinical Practice 25*(4), 543-549. doi:10.1111/jep.12923

American College of Obstetricians and Gynecologists. (2015). Clinical guidelines and standardization of practice to improve outcomes. Committee opinion no. 629. *Obstet Gynecol, 125*(4), 1027-1029. doi:10.1097/01.AOG.0000462932.18418.7a

Amoakoh-Coleman, M., Klipstein-Grobusch, K., Agyepong, I. A., Kayode, G. A., Grobbee, D. E., & Ansah, E. K. (2016). Provider adherence to first antenatal care guidelines and risk of pregnancy complications in public sector facilities: a Ghanaian cohort study. *BMC pregnancy and childbirth, 16*(1), 369. Retreived from https://link.springer.com/article/10.1186/s12884-016-1167-6

Ananth, C. V., Keyes, K. M., & Wapner, R. J. J. B. (2013). Pre-eclampsia rates in the United States, 1980-2010: age-period-cohort analysis. *347*, f6564. Retrieved from https://www.bmj.com/content/347/bmj.f6564

Appleby, B., Roskell, C., & Daly, W. (2015). What are health professionals' intentions toward using research and products of research in clinical practice? A systematic review and narrative synthesis. Nursing Open, 3(3), 125-139. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=mnh&AN=27708823&site=ehost-live

Asamani, J. A., Amertil, N. P., Ismaila, H., Francis, A. A., Chebere, M. M., & Nabyonga-Orem, J. (2019). Nurses and midwives demographic shift in Ghana - The policy implications of a looming crisis. *Human Resources For Health, 17*(1). doi:10.1186/s12960-019-0377-1

Asner-Self, K. K. (2009). Research on groups: writing your quantitative study so that JSGW will publish it; researchers, academics, and practitioners will use it; everyone will benefit; and good quality groups will proliferate. *Journal for Specialists in Group Work, 34*(3), 195-201. doi:10.1080/01933920903041480

Azaare, J., & Gross, J. (2011). The nature of leadership style in nursing management. *British Journal of Nursing, 20*(11), 672-680. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=ccm&AN=104656440&site=ehost-live

Azmoude, E., Aradmehr, M., & Dehghani, F. (2018). Midwives' Attitude and Barriers of Evidence Based Practice in Maternity Care. *The Malaysian journal of medical sciences: MJMS, 25*(3), 120. doi:10.21315/mjms2018.25.3.12

Azmoude, E., Farkhondeh, F., Ahour, M., & Kabirian, M. (2017). Knowledge, Practice and Self-Efficacy in Evidence-Based Practice among Midwives in East Iran. *Sultan Qaboos University Medical Journal, 17*(1), e66-e73. doi:10.18295/squmj.2016.17.01.012

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioural change. *Psychological review, 84*(2), 191-215. doi:10.1037/0033-295X.84.2.191

Barzkar, F., Baradaran, H. R., & Koohpayehzadeh, J. (2018). Knowledge, attitudes and practice of physicians toward evidence-based medicine: A systematic review. *Journal of evidence-based medicine, 11*(4), 246-251. doi:10.1111/jebm.12325

Bayes, S., Fenwick, J., & Jennings, D. (2016). Readiness for practice change: Evaluation of a tool for the Australian midwifery context. *Women and Birth, 29*(3), 240-244. doi:10.1016/j.wombi.2015.11.001

Bianchi, M., Bagnasco, A., Bressan, V., Barisone, M., Timmins, F., Rossi, S., . . . Sasso, L. (2018). A review of the role of nurse leadership in promoting and sustaining evidence-based practice. *Journal of Nursing Management, 26*(8), 918-932. doi: 10.1111/jonm.12638.

Bokslag, A., van Weissenbruch, M., Mol, B. W., & de Groot, C. J. M. (2016). Preeclampsia; short and long-term consequences for mother and neonate. *Early Human Development, 102*, 47-50. doi:10.1016/j.earlhumdev.2016.09.007

Bouchard-Mercier, A., Desroches, S., Robitaille, J., & Vohl, M.-C. (2016). Factors associated with the intention of registered dietitians to discuss nutrigenetics with their patients/clients. *Canadian Journal of Dietetic Practice and Research, 77*(4), 163-169. doi:10.1111/j.1365-277X.2008.00913.x

Braddick, L., Tuckey, V., Abbas, Z., Lissauer, D., Ismail, K., Manaseki-Holland, S., . . . Stokes, T. (2016). A mixed-methods study of barriers and facilitators to the implementation of postpartum hemorrhage guidelines in Uganda. *International Journal of Gynecology & Obstetrics, 132*(1), 89-93. doi:10.1186/s13012-016-0508-1

Browne, J. L., Van Nievelt, S. W., Srofenyoh, E. K., Grobbee, D. E., & Klipstein-Grobusch, K. (2015). Criteria-based audit of quality of care to women with severe pre-eclampsia and

eclampsia in a referral hospital in Accra, Ghana. *PLoS ONE, 10*(4), e0125749. doi:10.1371/journal.pone.0125749

Budden, J. S., Zhong, E. H., Moulton, P., & Cimiotti, J. P. (2013). Highlights of the national workforce survey of registered nurses. *Journal of Nursing Regulation, 4*(2), 5-14. doi:10.1016/S2155-8256(15)30151-4

Buhimschi, I. A., Makin, J., Rood, K. M., Bracken, H., Buhimschi, C. S., & Pattinson, R. (2019). 441: The burden of preeclampsia and potentially life threatening complications (PLTC) in high versus low- income countries. *American Journal of Obstetrics and Gynecology, 220*(1, Supplement), S297-S298. doi:10.1016/j.ajog.2018.11.462

Cheng, L., Broome, M. E., Feng, S., & Hu, Y. (2017). Factors influencing the implementation of evidence in Chinese nursing practice. *Journal of clinical nursing, 26*(23-24), 5103-5112. doi:10.1111/jocn.14053

Cone, D. C. (2007). Knowledge translation in the emergency medical services: a research agenda for advancing prehospital care. *Academic Emergency Medicine, 14*(11), 1052-1057. doi:10.1111/j.1553-2712.2007.tb02388.x

Creswell, J. W. (2014). Research design : qualitative, quantitative, and mixed methods approaches. In *Research design : qualitative, quantitative, and mixed methods approaches* (4th Edition ed., pp. 342). United States of America: Sage Publications.

Daemers, D. O. A., van Limbeek, E. B. M., Wijnen, H. A. A., Nieuwenhuijze, M. J., & de Vries, R. G. (2017). Factors influencing the clinical decision-making of midwives: a qualitative study. *BMC Pregnancy & Childbirth, 17*, 1-12. doi:10.1186/s12884-017-1511-5

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly, 13*(3), 319-340. doi:10.2307/249008

Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioural impacts. *International journal of man-machine studies, 38*(3), 475-487. doi:10.1006/imms.1993.1022

Dekker, G. A. (2014). Management of preeclampsia. *Pregnancy Hypertension, 4*(3), 246-247. doi:10.1016/j.preghy.2014.04.021

Diermayr, G., Schachner, H., Eidenberger, M., Lohkamp, M., & Salbach, N. M. (2015). Evidence-based practice in physical therapy in Austria: current state and factors associated with EBP engagement. *Journal of Evaluation in Clinical Practice, 21*(6), 1219-1234. Retrieved from https://www.deepdyve.com/lp/wiley/evidence-based-practice-in-physical-therapy-in-a-ustria-current-state-JpFFp02JWk

Ebben, R. H., Vloet, L. C., van Grunsven, P. M., Breeman, W., Goosselink, B., Lichtveld, R. A., . . . van Achterberg, T. (2015). Factors influencing ambulance nurses' adherence to a national protocol ambulance care: an implementation study in the Netherlands. *European Journal of Emergency Medicine, 22*(3), 199-205. doi:10.1097/mej.0000000000000133

Eizenberg, M. M. (2011). Implementation of evidence-based nursing practice: nurses' personal and professional factors? *Journal Of Advanced Nursing, 67*(1), 33-42. doi:10.1111/j.1365-2648.2010.05488.x

Eskandari, F., Abdullah, K. L., Zainal, N. Z., & Wong, L. P. (2017). Use of physical restraint: Nurses' knowledge, attitude, intention and practice and influencing factors. *Journal of Clinical Nursing (John Wiley & Sons, Inc.), 26*(23-24), 4479-4488. doi:10.1111/jocn.13778

Fairbrother, G., Cashin, A., Rafferty, R., Symes, A., & Graham, I. (2016). Evidence based clinical nursing practice in a regional Australian healthcare setting: Predictors of skills and behaviours. *Collegian, 23*(2), 191-199. doi:10.1016/j.colegn.2015.03.005

Farokhzadian, J., Khajouei, R., & Ahmadian, L. (2015). Evaluating factors associated with implementing evidence-based practice in nursing. *Journal of Evaluation in Clinical Practice, 21*(6), 1107-1113. doi: 10.1111/jep.12480

Ferreira, M. B. G., Silveira, C. F., Silva, S. R. d., Souza, D. J. d., & Ruiz, M. T. (2016). Nursing care for women with pre-eclampsia and/or eclampsia: integrative review. *Revista da Escola de Enfermagem da USP, 50*(2), 324-334. doi:10.1590/S0080-623420160000200020

Firoz, T., Sanghvi, H., Merialdi, M., & von Dadelszen, P. (2011). Pre-eclampsia in low and middle income countries. *Best Practice & Research. Clinical Obstetrics & Gynaecology, 25*(4), 537-548. doi:10.1016/j.bpobgyn.2011.04.002

Fishbein, M., & Ajzen, I. (1977). Belief, attitude, intention, and behaviour: An introduction to theory and research *Psychological Bulletin*, *84* (5) 888-918. Retrieved from https://www.thecre.com/tpsac/wpcontent/uploads/2011/02/Appendix2_AttitudevsAction_ByAjzenFishbein1977.pdf

Fleiszer, A. R., Semenic, S. E., Ritchie, J. A., Richer, M. C., & Denis, J. L. (2016). Nursing unit leaders' influence on the long-term sustainability of evidence-based practice improvements. *Journal of Nursing Management, 24*(3), 309-318. doi:10.1111/jonm.12320

Fowler, F. J. & Cosenza, C. (2009). Design and evaluation of survey questions. In L. Bickman & D. J. Rog *The SAGE handbook of applied social research methods* (pp. 375-412). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781483348858.n12

Fry, M., & Attawet, J. (2018). Nursing and midwifery use, perceptions and barriers to evidence-based practice: a cross-sectional survey. *International Journal Of Evidence-Based Healthcare, 16*(1), 47-54. doi:10.1097/XEB.0000000000000117

Gagnon, M.-P., Cassista, J., Payne-Gagnon, J., & Martel, B. (2015). Applying the theory of planned behaviour to understand nurse intention to follow recommendations related to a preventive clinical practice. *Journal of Research in Nursing, 20*(7), 582-593. doi:10.1177/1744987115611715

Gardner, C. L. (2015). Adherence: A Concept Analysis. *International Journal of Nursing Knowledge*, *26*(2), 96-101. doi:10.1111/2047-3095.12046

Ghana Health Service. (2015). *Facts and Figures*. Retrieved from https://www.ghanahealthservice.org/ghs-item-details.php?cid=2&scid=55&iid=134

Ghana Health Service. (2016). *Annual Report*. Retrieved from https://www.ghanahealthservice.org/ghs-item-details.php?cid=2&scid=52&iid=127

Ghana Health Service. (2017). *The Health Sector in Ghana. Facts and Figures*. Retrieved from https://www.ghanahealthservice.org/ghs-item-details.php?cid=5&scid=55&iid=128

Gülmezoglu, A., Langer, A., Piaggio, G., Lumbiganon, P., Villar, J., & Grimshaw, J. (2007). Cluster randomised trial of an active, multifaceted educational intervention based on the WHO Reproductive Health Library to improve obstetric practices. *BJOG: An International Journal of Obstetrics & Gynaecology, 114*(1), 16-23. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=ccm&AN=105818503&site=ehost-live

Gupta, M., Greene, N., & Kilpatrick, S. J. (2018). Timely treatment of severe maternal hypertension and reduction in severe maternal morbidity. *Pregnancy Hypertension, 14*, 55-58. doi:10.1016/j.preghy.2018.07.010

Haas, J. S., Sprague, B. L., Klabunde, C. N., Tosteson, A. N., Chen, J. S., Bitton, A., . . . MacLean, C. D. (2016). Provider attitudes and screening practices following changes in breast and cervical cancer screening guidelines. *Journal of general internal medicine, 31*(1), 52-59. doi:10.1007/s11606-015-3490-4.

Holland, P. J., Tham, T. L., & Gill, F. J. (2018). What nurses and midwives want: Findings from the national survey on workplace climate and well-being. *International journal of nursing practice, 24*(3), e12630. doi:10.1111/ijn.12630

Hsieh, P.-J. (2015). Physicians' acceptance of electronic medical records exchange: an extension of the decomposed TPB model with institutional trust and perceived risk. *International journal of medical informatics, 84*(1), 1-14. doi:10.1016/j.ijmedinf.2014.08.008

Hung, S.-Y., Ku, Y.-C., & Chien, J.-C. (2012). Understanding physicians' acceptance of the Medline system for practicing evidence-based medicine: a decomposed TPB model. *International journal of medical informatics, 81*(2), 130-142. doi:10.1016/j.ijmedinf.2011.09.009

Imamura, M., Kanguru, L., Penfold, S., Stokes, T., Camosso-Stefinovic, J., Shaw, B., & Hussein, J. (2016). A systematic review of implementation strategies to deliver guidelines on obstetric care practice in low-and middle-income countries. *International Journal of Gynecology and Obstetrics, 136*(1), 19-28. doi:10.1002/ijgo.12005

Incze, M., & Ross, J. S. (2019). On the Need for (Only) High-Quality Clinical Practice Guidelines. *JAMA internal medicine, 179*(4), 561. doi:10.1001/jamainternmed.2018.7471

Jaatinen, N., & Ekholm, E. (2016). Eclampsia in Finland; 2006 to 2010. *Acta Obstetricia et Gynecologica Scandinavica, 95*(7), 787-792. doi:10.1111/aogs.12882

Jansson, I., & Forsberg, A. (2016). How do nurses and ward managers perceive that evidence-based sources are obtained to inform relevant nursing interventions?--an exploratory study. *Journal of clinical nursing, 25*(5-6), 769-776. doi:10.1111/jocn.13095

Jonas, K., Reddy, P., van den Borne, B., Sewpaul, R., Nyembezi, A., Naidoo, P., & Crutzen, R. (2016). Predictors of nurses' and midwives' intentions to provide maternal and child healthcare services to adolescents in South Africa. *BMC health services research, 16*, 658-658. doi:10.1186/s12913-016-1901-9

Jones, B., Michael, R., Butt, J., & Hauck, Y. (2016). Tanzanian midwives' perception of their professional role and implications for continuing professional development education. *Nurse Education in Practice, 17*, 116-122. doi:https://doi.org/10.1016/j.nepr.2015.12.001

Kim, J.-K., Yoo, S.-H., Nho, J.-H., & Ju, J.-K. (2019). Performance and Influencing Factors of Evidence-Based Pressure Ulcer Care Among Acute Care Hospital Nurses. *Worldviews on Evidence-Based Nursing, 16*(1), 29-35. doi:10.1111/wvn.12348

Koyio, L. N., Kikwilu, E., Mulder, J., & Frencken, J. E. (2013). Attitudes, subjective norms, and intention to perform routine oral examination for oropharyngeal candidiasis as perceived by primary health-care providers in Nairobi Province. *Journal of public health dentistry, 73*(2), 127-134. doi:10.1111/j.1752-7325.2012.00353.x

Kyung Mi, K., & Hyunjin, O. (2015). Clinical Experiences as Related to Standard Precautions Compliance among Nursing Students: A Focus Group Interview Based on the Theory of

Planned Behaviour. *Asian Nursing Research, 9*(2), 109-114. doi:10.1016/j.anr.2015.01.002

Lampinen, M.-S., Suutala, E., & Konu, A. I. (2017). Sense of community, organizational commitment and quality of services. *Leadership In Health Services (Bradford, England), 30*(4), 378-393. doi:10.1108/LHS-06-2016-0025

Lapkin, S., Levett-Jones, T., & Gilligan, C. (2015). Using the Theory of Planned Behaviour to examine health professional students' behavioural intentions in relation to medication safety and collaborative practice. *Nurse Education Today, 35*(8), 935-940. doi:https://doi.org/10.1016/j.nedt.2015.03.018

Lazzerini, M., Ciuch, M., Rusconi, S., & Covi, B. (2018). Facilitators and barriers to the effective implementation of the individual maternal near-miss case reviews in low/middle-income countries: A systematic review of qualitative studies. *BMJ Open, 8*(6). doi:10.1136/bmjopen-2017-021281

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence Based Dentistry, 7*, 24. doi:10.1038/sj.ebd.6400375

Lo, J. O., Mission, J. F., & Caughey, A. B. (2013). Hypertensive disease of pregnancy and maternal mortality. *Current opinion in obstetrics & gynecology, 25*(2), 124-132. doi:10.1097/GCO.0b013e32835e0ef5

Ma, C.-C., Kuo, K.-M., & Alexander, J. W. (2016). A survey-based study of factors that motivate nurses to protect the privacy of electronic medical records. *BMC Medical Informatics And Decision Making, 16*, 13-13. doi:10.1186/s12911-016-0254-y

Macheku, G. S., Philemon, R. N., Oneko, O., Mlay, P. S., Masenga, G., Obure, J., & Mahande, M. J. (2015). Frequency, risk factors and feto-maternal outcomes of abruptio placentae in

Northern Tanzania: a registry-based retrospective cohort study. *BMC pregnancy and childbirth, 15*, 242-242. doi:10.1186/s12884-015-0678-x

Mafabi, S., Nasiima, S., Muhimbise, E. M., Kasekende, F., & Nakiyonga, C. (2017). The mediation role of intention in knowledge sharing behaviour. *VINE Journal of Information and Knowledge Management Systems*, 47 (2), 172-193. doi: 10.1108/VJIKMS-02-2016-0008

Molenaar, N. M., Brouwer, M. E., Duvekot, J. J., Burger, H., Knijff, E. M., Hoogendijk, W. J., . . . Lambregtse-van den Berg, M. P. (2018). Antidepressants during pregnancy: Guideline adherence and current practice amongst Dutch gynaecologists and midwives. *Midwifery, 61*, 29-35. doi:https://doi.org/10.1016/j.midw.2018.02.018

Morales, A., Vallejo-Medina, P., Abello-Luque, D., Saavedra-Roa, A., García-Roncallo, P., Gomez-Lugo, M., . . . Espada, J. P. (2018). Sexual risk among Colombian adolescents: knowledge, attitudes, normative beliefs, perceived control, intention, and sexual behaviour. *BMC Public Health, 18*(1), N.PAG-N.PAG. doi:10.1186/s12889-018-6311-y

Muhammed, A., Khuan, L., Shariff-Ghazali, S., Said, S. M., & Hassan, M. (2019). Predictors of midwives' intention to provide planned home birth services to low-risk women: A theory of planned behaviour approach. *Midwifery, 73*, 62-68. doi:10.1016/j.midw.2019.03.004

Nakimuli, A., Mbalinda, S. N., Nabirye, R. C., Kakaire, O., Nakubulwa, S., Osinde, M. O., . . . Kaye, D. K. (2015). Still births, neonatal deaths and neonatal near miss cases attributable to severe obstetric complications: a prospective cohort study in two referral hospitals in Uganda. *BMC Pediatrics, 15*, 44-44. doi:10.1186/s12887-015-0362-3

Nguyen, T. N. M., & Wilson, A. (2016). Hospital readiness for undertaking evidence-based practice: A survey. *Nursing & health sciences, 18*(4), 465-472. doi:10.1111/nhs.12293

Nilsen, E. R., Olafsen, A. H., Steinsvåg, A. G., Halvari, H., & Grov, E. K. (2016). Stuck between a rock and a hard place: the work situation for nurses as leaders in municipal health care. *Journal Of Multidisciplinary Healthcare, 9*, 153-161. doi:10.2147/JMDH.S100640

O'Brien, L., Duong, J., Winterton, T., Haring, A., & Kuhlmann, Z. (2018). Management of Hypertension on the Labor and Delivery Unit: Delivering Care in the Era of Protocols and Algorithms. *The Permanente journal, 22*, 17-170. doi:10.7812/TPP/17-170

Pantovic, S., Kadija, S., Dotlic, J., Stojnic, J., Jeremic, K., Sparic, R., & Stefanovic, A. (2015). Treatment of pregnant patient with disseminated intravascular coagulation (DIC) due to placental abruption--a case report. *Clinical And Experimental Obstetrics & Gynecology*, *42*(5), 692-695. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=mnh&AN=26524829&site=ehost-live

Paré, E., Parry, S., McElrath, T. F., Pucci, D., Newton, A., & Lim, K.-H. (2014). Clinical risk factors for preeclampsia in the 21st century. *Obstetrics And Gynecology, 124*(4), 763-770. doi:10.1097/AOG.0000000000000451

Polit, D. F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia, United States: Lippincott Williams & Wilkins.

Quinn, M., & Gephart, S. (2016). Evidence for Implementation Strategies to Provide Palliative Care in the Neonatal Intensive Care Unit. *Advances in neonatal care : official journal of the National Association of Neonatal Nurses, 16*(6), 430-438. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=mnh&AN=27775989&site=ehost-live

Rahman, M.S., Osmangani, A.M., Daud, N.M. and AbdelFattah, F.A.M. (2016), "Knowledge sharing behaviors among non academic staff of higher learning institutions: Attitude, subjective norms and behavioral intention embedded model", *Library Review*, *65*(1/2), 65-83. doi:10.1108/LR-02-2015-0017

Ramaswamy, R., Iracane, S., Srofenyoh, E., Bryce, F., Floyd, L., Kallam, B., . . . Owen, M. (2015). Transforming Maternal and Neonatal Outcomes in Tertiary Hospitals in Ghana: An Integrated Approach for Systems Change. *Journal of Obstetrics and Gynaecology Canada*, *37*(10), 905-914. doi:10.1016/S1701-2163(16)30029-9

Renolen, Å., Hjälmhult, E., Høye, S., Danbolt, L. J., & Kirkevold, M. (2019). Evidence-based practice integration in hospital wards-The complexities and challenges in achieving evidence-based practice in clinical nursing. *Nursing Open, 6*(3), 815-823. doi:10.1002/nop2.259

Saleem, S., McClure, E. M., Goudar, S. S., Patel, A., Esamai, F., Garces, A., . . . Goldenberg, R. L. (2014). A prospective study of maternal, fetal and neonatal deaths in low- and middle-income countries. *Bulletin of the World Health Organization, 92*(8), 605-612. doi:10.2471/BLT.13.127464

Sanjari, M., Baradaran, H. R., Aalaa, M., & Mehrdad, N. (2015). Barriers and facilitators of nursing research utilization in Iran: A systematic review. *Iranian journal of nursing and midwifery research, 20*(5), 529-539. doi:10.4103/1735-9066.164501

Saunders, H., Gallagher-Ford, L., Kvist, T., & Vehviläinen-Julkunen, K. (2019). Practicing Healthcare Professionals' Evidence-Based Practice Competencies: An Overview of Systematic Reviews. *Worldviews on Evidence-Based Nursing, 16*(3), 176-185. doi:10.1111/wvn.12363

Saunders, H., Stevens, K. R., & Vehviläinen-Julkunen, K. (2016). Nurses' readiness for evidence-based practice at Finnish university hospitals: a national survey. *Journal Of Advanced Nursing, 72*(8), 1863-1874. doi:10.1111/jan.12963

Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A.-B., Daniels, J., . . . Alkema, L. (2014). Global causes of maternal death: a WHO systematic analysis. *The Lancet Global Health, 2*(6), e323-e333. doi:https://doi.org/10.1016/S2214-109X(14)70227-X

Schaap, T. P., van den Akker, T., Zwart, J. J., van Roosmalen, J., & Bloemenkamp, K. W. M. (2019). A national surveillance approach to monitor incidence of eclampsia: The Netherlands Obstetric Surveillance System. *Acta Obstetricia et Gynecologica Scandinavica, 98*(3), 342-350. doi:10.1111/aogs.13493

Shields, L. E., Wiesner, S., Klein, C., Pelletreau, B., & Hedriana, H. L. (2017). Early standardized treatment of critical blood pressure elevations is associated with a reduction in eclampsia and severe maternal morbidity. *American Journal of Obstetrics and Gynecology, 216*(4), 415.e411-415.e415. doi:10.1016/j.ajog.2017.01.008

Shiozaki A., Saito S. (2018) Risk Factors for Preeclampsia. In: Saito S. (eds) *Preeclampsia. Comprehensive Gynecology and Obstetrics*. Springer, (pp. 3-25). Singapore. https://doi.org/10.1007/978-981-10-5891-2_1

Simpson, K. R. (2018). Standardized Clinical Protocols to Promote Maternal Safety. *MCN: The American Journal of Maternal Child Nursing, 43*(2), 65-65. doi:10.1097/NMC.0000000000000407

Skela-Savič, B., Hvalič-Touzery, S., & Pesjak, K. (2017). Professional values and competencies as explanatory factors for the use of evidence-based practice in nursing. *Journal Of Advanced Nursing, 73*(8), 1910-1923. doi:10.1111/jan.13280

Smit, E. S., de Vries, H., & Hoving, C. (2013). Determinants of practice nurses' intention to implement a new smoking cessation intervention: the importance of attitude and innovation characteristics. *Journal Of Advanced Nursing, 69*(12), 2665-2674. doi:10.1111/jan.12153

Smyth, R. L. (2000). Evidence-based medicine. *Paediatric Respiratory Reviews, 1*(3), 287-293. doi:https://doi.org/10.1053/prrv.2000.0061

Soudagar, S., Rambod, M., & Beheshtipour, N. (2015). Factors associated with nurses' self-efficacy in clinical setting in Iran, 2013. *Iranian journal of nursing and midwifery research, 20*(2), 226-231. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=mnh&AN=25878701&site=ehost-live

Spaan, J., van Balen, V. L., Peeters, L., & Spaanderman, M. (2015). [67-OR]: Prevalence of chronic kidney disease after preeclampsia using KDIGO 2012 criteria. *Pregnancy Hypertension, 5*(1), 35-36. doi:10.1016/j.preghy.2014.10.071

Stokke, K., Olsen, N. R., Espehaug, B., & Nortvedt, M. W. (2014). Evidence based practice beliefs and implementation among nurses: a cross-sectional study. *BMC Nursing, 13*(1), 8. doi:10.1186/1472-6955-13-8

Sumankuuro, J., Crockett, J., & Wang, S. (2018). Perceived barriers to maternal and newborn health services delivery: A qualitative study of health workers and community members in low and middle-income settings. *BMJ Open, 8*(11). doi:10.1136/bmjopen-2017-021223

Tao, C.-C., & Fan, C.-C. (2017). A modified decomposed theory of planned behaviour model to analyze user intention towards distance-based electronic toll collection services. *Promet-*

Traffic&Transportation, 29(1), 85-97. Retrieved from https://doi.org/10.7307/ptt.v29i1.2076

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information systems research, 6*(2), 144-176. Retrieved from https://www.jstor.org/stable/23011007

ten Hoope-Bender, P., de Bernis, L., Campbell, J., Downe, S., Fauveau, V., Fogstad, H., . . . Van Lerberghe, W. (2014). Improvement of maternal and newborn health through midwifery. *Lancet, 384*(9949), 1226-1235. doi:10.1016/s0140-6736(14)60930-2

Toohill, J., Sidebotham, M., Gamble, J., Fenwick, J., & Creedy, D. K. (2017). Factors influencing midwives' use of an evidenced based Normal Birth Guideline. *Women and Birth, 30*(5), 415-423. doi:10.1016/j.wombi.2017.03.008

Townsend, R., O'Brien, P., & Khalil, A. (2015). Diagnosis and management of preeclampsia: A clinical perspective on recent advances in the field. *British Journal of Midwifery, 23*(4), 252-258. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=ccm&AN=103786070&site=ehost-live

Trollope, H., Leung, J. P. Y., Wise, M., Farquhar, C., & Sadler, L. (2018). An evaluation of the objective quality and perceived usefulness of maternity clinical practice guidelines at a tertiary maternity unit. *Australian and New Zealand Journal of Obstetrics and Gynaecology, 58*(6), 660-666. Retrieved from https://doi.org/10.1111/ajo.12789

United Nations Development Programme (2019) *Report of the Secretary-General on SDG Progress 2019* (Special Edition) United Nations New York: Aurthor. Retrieved from

https://sustainabledevelopment.un.org/content/documents/24978Report_of_the_SG_on_SDG_Progress_2019.pdf

Veeramah, V. (2016). The use of evidenced-based information by nurses and midwives to inform practice. *Journal of clinical nursing, 25*(3-4), 340-350. doi:10.1111/jocn.13054

Wagnew, M., Dessalegn, M., Worku, A., & Nyagero, J. (2016). Trends of preeclampsia/eclampsia and maternal and neonatal outcomes among women delivering in addis ababa selected government hospitals, Ethiopia: a retrospective cross-sectional study. *The Pan African medical journal, 25*(Suppl 2), 12. doi:10.11604/pamj.supp.2016.25.2.9716

Weng, Y.-H., Chen, C., Kuo, K. N., Yang, C.-Y., Lo, H.-L., Chen, K.-H., & Chiu, Y.-W. (2015). Implementation of evidence-based practice in relation to a clinical nursing ladder system: a national survey in Taiwan. *Worldviews on Evidence-Based Nursing, 12*(1), 22-30. doi:10.1111/wvn.12076

Whelton, P. K., Carey, R. M., Aronow, W. S., Casey, D. E., Collins, K. J., Dennison Himmelfarb, C., . . . Wright, J. T. (2018). 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Journal of the American College of Cardiology, 71*(19), e127-e248. doi:https://doi.org/10.1016/j.jacc.2017.11.006

Witcher, P. M. (2018). Preeclampsia: Acute Complications and Management Priorities. *AACN Advanced Critical Care, 29*(3), 316-326. doi:10.4037/aacnacc2018710

Wójcik, A., Merecz-Kot, D., & Andysz, A. (2015). Why do employees follow their superiors' instructions? Identification of the reasons to comply with superiors' will in a group of Polish employees. *Medycyna Pracy, 66*(5), 605-614. doi:10.13075/mp.5893.00129

World Health Organization. (2011). *WHO recommendations for prevention and treatment of pre-eclampsia and eclampsia*. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/44703/9789241548335_eng.pdf?sequence=1

World Health Organization. (2015a). *Millennium Development Goals (MDGs).* Retrieved from https://www.who.int/topics/millennium_development_goals/en/

World Health Organization. (2015b). *Trends in maternal mortality 1990 to 2015*. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/194254/9789241565141_eng.pdf?sequence=1

Yamane, T. (1973). Statistics: An Introductory Analysis. *New York USA Harper and Row Inc*.

APPENDICES

Appendix A: Ethical Clearance Noguchi

NOGUCHI MEMORIAL INSTITUTE FOR MEDICAL RESEARCH
Established 1979A Constituent of the College of Health Sciences
University of Ghana

INSTITUTIONAL REVIEW BOARD

Phone: +233-302-916438 (Direct)
E-mail: nirb@noguchi.ug.edu.gh
Telex No: 2556 UGL GH

Post Office Box LG 581
Legon, Accra
Ghana

My Ref No: DF22
Your Ref. No:

6th November, 2019

ETHICAL CLEARANCE

FEDERALWIDE ASSURANCE FWA 00001824 **IRB 00001276**

NMIMR-IRB CPN 030/19-20 **IORG 0000908**

On 6th November 2019, the Noguchi Memorial Institute for Medical Research (NMIMR) Institutional Review Board (IRB) at a full board meeting reviewed and approved your protocol titled:

TITLE OF PROTOCOL : **Midwives' adherence to protocol for the management of preeclampsia / eclampsia in the Greater Accra Metropolis**

PRINCIPAL INVESTIGATOR : **Adam Al-Hassan Miriam, MPhil Cand.**

Please note that a final review report must be submitted to the Board at the completion of the study. Your research records may be audited at any time during or after the implementation.

Any modification of this research project must be submitted to the IRB for review and approval prior to implementation.

Please report all serious adverse events related to this study to NMIMR-IRB within seven days verbally and fourteen days in writing.

This certificate is valid till 5th November, 2020. You are to submit annual reports for continuing review.

Signature of Chair: .....
Mrs. Chris Dadzie
(NMIMR – IRB CHAIR)

Appendix B: Ethical Clearance Ghana Health Service ERC

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

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

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra.
GPS Address: GA-050-3303

Tel: +233-0302-960628
Fax + 233-0302-685424
Mob + 233-050-3539896
Email: ethics.research@ghsmail.org

MyRef. GHS/RDD/ERC/Admin/App/20/03
Your Ref. No.

5th January, 2020

Mariam Adam Al-Hassan
University of Ghana
School of Nursing and Midwifery
Legon, Accra

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

GHS-ERC Number	**GHS-ERC034/11/19**
Project Title	Midwives' Adherence to Protocol for the Management of Preeclampsia/Eclampsia in the Accra Metropolis
Approval Date	5th January, 2020
Expiry Date	4th January, 2021
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

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

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

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

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

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

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

Appendix C: Letter of introduction

UNIVERSITY OF GHANA
DEPARTMENT OF MATERNAL AND CHILD HEALTH
SCHOOL OF NURSING

Ref. No.: 10704030 November 29, 2019

The Head
Greater Accra Regional Directorate
Accra

Dear Sir/Madam,

LETTER OF INTRODUCTION

This is to introduce to you **Mariam Adam Al-hassan**, an MPhil second year student of the School of Nursing and Midwifery, University of Ghana.

The Institutional Review Board of Noguchi Memorial Institute has approved her study on the topic: **"Midwives' Adherence to Protocol for the Management of Preeclampsia/eclampsia in the Accra Metropolis".**

We shall be most grateful for any assistance to enable her collect data.

Counting on your usual co-operation

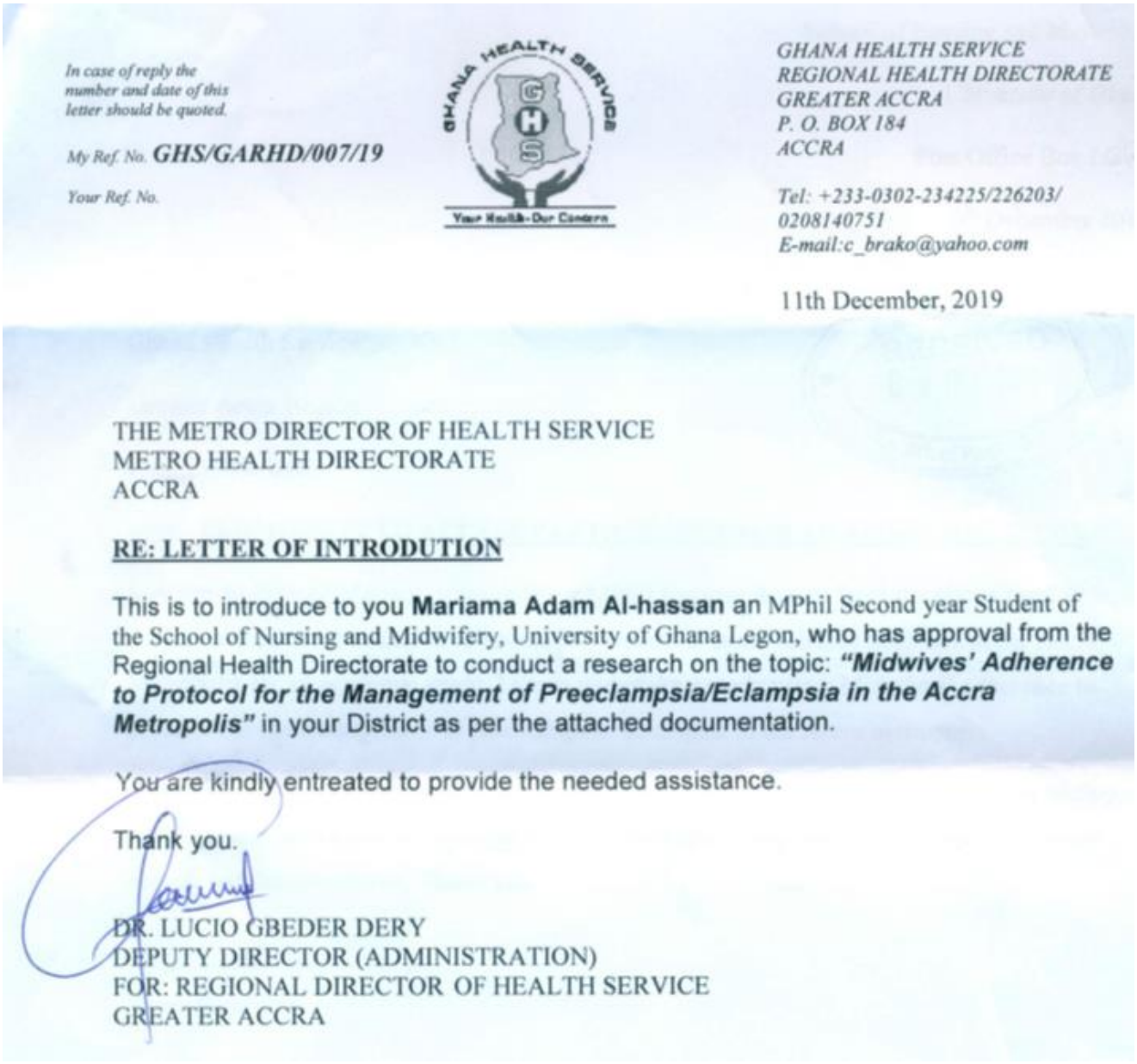
Thank you.

Yours faithfully,

Dr. Florence Naab
Head, Dept. of Maternal and Child Health

COLLEGE OF HEALTH SCIENCES
• P. O. Box LG 43, Legon, Accra, Ghana. • Telephone: +233 (0) 302 513 250 / 0289 531 213
• Email: mch.son@chs.ug.edu.gh • Website: www.nursing.ug.edu.gh

Appendix D: Letter of introduction from the Regional Health Directorate



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

My Ref. No. ***GHS/GARHD/007/19***

Your Ref. No.

GHANA HEALTH SERVICE
REGIONAL HEALTH DIRECTORATE
GREATER ACCRA
P. O. BOX 184
ACCRA

Tel: +233-0302-234225/226203/
0208140751
E-mail:c_brako@yahoo.com

11th December, 2019

THE METRO DIRECTOR OF HEALTH SERVICE
METRO HEALTH DIRECTORATE
ACCRA

RE: LETTER OF INTRODUTION

This is to introduce to you **Mariama Adam Al-hassan** an MPhil Second year Student of the School of Nursing and Midwifery, University of Ghana Legon, who has approval from the Regional Health Directorate to conduct a research on the topic: ***"Midwives' Adherence to Protocol for the Management of Preeclampsia/Eclampsia in the Accra Metropolis"*** in your District as per the attached documentation.

You are kindly entreated to provide the needed assistance.

Thank you.

DR. LUCIO GBEDER DERY
DEPUTY DIRECTOR (ADMINISTRATION)
FOR: REGIONAL DIRECTOR OF HEALTH SERVICE
GREATER ACCRA

Appendix E: Letter of Introduction to all Sub-Metro directors

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

My ref: AMHD/ADM./F.99

Your ref. No.

GHANA HEALTH SERVICE

Your Health - Our Concern

Metro Health Directorate
Ghana Health Service
Private Mail Bag TUPM 14
Tuc Post Office
Accra

TEL: (MAIN LINE) 0303960774

16th December, 2019

ALL SUB METRO DIRECTORS
ACCRA

Dear Sir / Madam,

INTRODUCTORY LETTER
MS. MARIAMA ADAM AL-HASSAN (STUDENT)

I wish to introduce to you the above named student from the school of Nursing and Midwifery, University of Ghana Legon who has been granted permission to conduct a survey on **"Midwives' Adherence to Protocol for the Management of Preeclampsia/Eclampsia in Accra Metropolis"**.

Please find attached copy of the letter from the School for your perusal.

I would be grateful if the necessary assistance could be given.

Thank you.

Yours faithfully,

Therson-Cofie

DR. ESI F. THERSON-COFIE
METRO DIRECTOR OF HEALTH SERVICES

Appendix F: NMIMR-IRB Consent form

NMIMR-IRB CONSENT FORM TEMPLATE

Title:

MIDWIVES' ADHERENCE TO PROTOCOL FOR THE MANAGEMENT OF PREECLAMPSIA/ECLAMPSIA IN THE ACCRA METROPOLIS

Principal Investigator: Adam Al-Hassan, Mariam Tel: 0206 – 140250, Email: madam_al-hassan001@st.ug.edu.gh

Address:

University of Ghana Main Campus, School of Nursing and Midwifery, Department of Maternal and Child Health, P.O. Box LG. 43, Legon, Accra, Ghana

General Information about Research

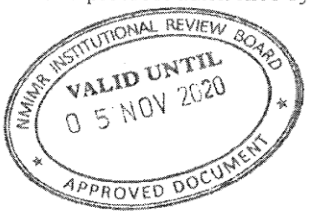
This is an investigation into the factors that influence your intention to follow protocols during midwifery practice. The objective of this study is to help understand and establish relationships between attitude, peer and superior's influence, self-confidence and the availability of resources that can affect your intention to follow approved guidelines in the management of preeclampsia and eclampsia during care practice. You are expected to use forty-five to one hour in completing a questionnaire. Kindly, read and tick the extent to which you agree or disagree to a statement from a range of 1 to 7. 1 being how strongly you disagree with the statement and 7 being how strongly you agree with the statement. The study is in partial fulfilment to the award of a Master of Philosophy in Nursing from the University of Ghana.

Possible Risks and Discomforts

The questions that will be asked will cause no physical, emotional or psychological harm to you. However, by participating in this study if you feel uncomfortable with any question it is within your right to decline to answer. You will be taken away from your normal work routine and spend some time in answering the questionnaire which may cause some form of discomfort to you.

Possible Benefits

There are no direct benefits from participating in this study, however the indirect benefits will be that the information gathered will help identify facilitators and barriers to protocol adherence by midwives and



recommendations made to policy makers and healthcare managers on how to improve protocols taking into consideration the views of midwives.

Confidentiality

By agreeing to participate in this study, the researcher will ensure that all personal information are excluded in the questionnaire. We do not expect you to write your name on the questionnaire, we will use numbers to enable use keep track of the number of questionnaires given out. We will protect all information about you to the best of our ability by restricting the number of people who will have assess to the raw data. You will not be named in any of our reports. Some staff of the University of Ghana, School of Nursing and Midwifery (Researcher, Supervisors, Research assistants, Lecturers, and Students) may sometimes look at your research records.

Compensation

You will be given a pen and a notepad when you finish filling out the questionnaire.

Voluntary Participation and Right to Leave the Research

Participating in this research is completely voluntary, you are not obligated to take part in the study and you can withdraw at any time if you so wish without any penalty. Your refusal to participate in the study will not have no negative effects.

Contacts for Additional Information

For further explanation or enquiries about the research, or in case you develop any injury as a result of you participating in this study you can contact:

Principal investigator:

Mariam Al-Hassan Adam, University of Ghana, School of Nursing and Midwifery, Department of Maternal and Child Health. Email: madam_al-hassan001@st.ug.edu.gh. Telephone: 0206-140250

First Supervisor:

Dr. Florence Naab, Senior Lecturer, Head of Department, University of Ghana Main Campus, School of Nursing and Midwifery, Department of Maternal and Child Health, P.O. Box LG. 43, Legon, Accra, Ghana. Telephone: 0263741717. Email: florencenaab@yahoo.com

Second Supervisor:

Rev. Dr. T. A. Ndanu, Senior Research Fellow, Department of Community and Preventive Dentistry, School of Medicine and Dentistry / College of Health Sciences, Box LG. 43, Legon, Accra, Ghana, Telephone: 0207580029

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: nirb@noguchi.ug.edu.gh

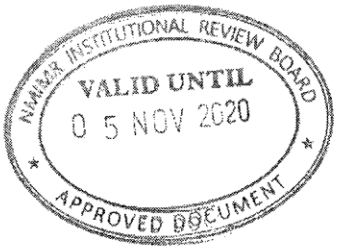
VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title *(MIDWIVES' ADHERENCE TO PROTOCOL FOR THE MANAGEMENT OF PREECLAMPSIA/ECLAMPSIA IN THE ACCRA METROPOLIS)* 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.

_____ _____

Date

Name and signature or mark of volunteer

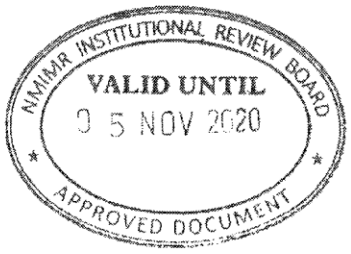


I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

_____

_____

Date Name Signature of Person Who Obtained Consent



Appendix G: Data Collection Instrument

THE PLANNED BEHAVIOUR QUESTIONNAIRE

SECTION ONE: SOCIO-DEMOGRAPHIC DATA

INSTRUCTION: Please fill in the space provided and indicate by ticking (√) in the box where applicable the appropriate answer for questions 1-4 below

1. How old are you? _____

2. How long have you been practicing in this unit? _____

3. What is your gender?

Male [ ]

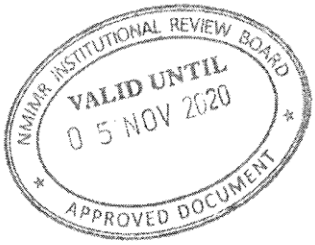
Female [ ]

4. What is your educational qualification? Certificate [ ] Diploma [ ] Advanced nursing diploma [ ] Undergraduate degree [ ] Masters' degree [ ] Post-graduate degree [ ]

Others specify_____

5. What is your midwifery rank? SM [ ] SSM [ ] MO [ ] SMO [ ] PMO [ ] DDNS [ ]

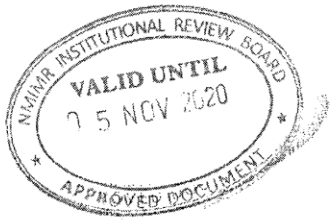
Others (specify) _____



SECTION TWO:

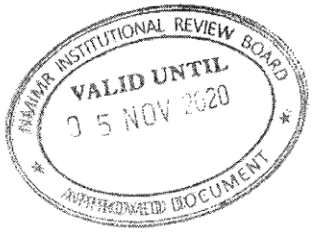
INSTRUCTION: The following statements are about your attitude, influence, confidence and facilitating conditions that affects your use of protocols in your current workplace. From statement, 1-31 indicate by ticking (√) on a 7-point Liked scale the extent to which you agree or disagree for each of the statement below, where 1= Strongly Disagree (SD), 2 = Moderately Disagree (MD), 3 = Disagree (D), 4 = Neither (N), 5 = Agree (A), 6 = Moderately Agree (MA), 7 = Strongly Agree (SA).

	Question	SD	MD	D	N	A	MA	SA
		1	2	3	4	5	6	7
Attitude (ATT)								
Perceived usefulness (PU)	1. Using protocols is beneficial to me							
	2. The advantages of using protocols outweigh the disadvantages							
	3. Using protocols will improve patients' outcomes in health							
Perceived ease of protection (PEOP)	4. The instructions for using protocols is easy to follow							
	5. It is easy to learn how to use protocols during practice							
	6. It is easy to follow protocols during practice							
Compatibility (COM)	7. Adhering to protocols fits into my work style							



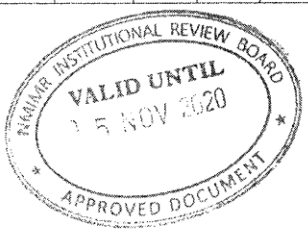
2

		SD	MD	D	N	A	MA	SA
	8. I think that using protocols fits well with the way I like to work							
	9. Adhering to protocols is compatible with all aspects of my work							
	10. Adhering to protocols is a good idea							
	11. I think following protocols in midwifery practice is a wise idea							
	12. I like the idea of following protocols during practice							
	13. Following protocols in practice is fun							
Subjective norm (SN)								
Peer influence (PI)	14. People who are important to me would think that I should follow protocols during practice							
	15. My friends would think that I should use protocols during practice							
	16. My colleagues would think that I should use protocols during practice							
	17. People who influence my behaviour would think that I should adhere to protocols during practice							
Superior influence	18. My superior would think that I should use protocols during practice							



3

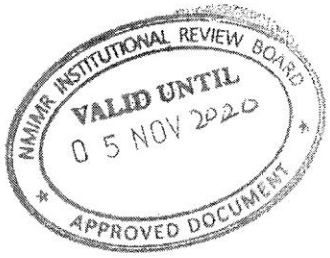
		SD	MD	D	N	A	MA	SA
	19. I will use protocols because my superior expects me to							
Perceived behavioural control (PBC)								
	20. I would be able to adhere to protocols during practice							
Self-efficacy (SE)	21. I have the knowledge necessary to adhere to protocols during practice							
	22. I have the resources necessary to adhere to protocols during practice							
	23. I could easily adhere to protocols if I wanted to							
	24. I could follow protocols if there was no one around to tell me what to do as I go							
	25. I would feel comfortable in following protocols							
Facilitating conditions (FC)	26. The equipment (computers, printers, etc.) and internet used for online search is available in my hospital for use							
	27. The databases for searching for research evidence is compatible with other databases I am familiar with							



4

	databases I am familiar with							
	28. I could use online databases to search for current evidence-based practice to care for patients							
Behavioural intention (BI)								
	29. I intend to adhere to protocols during practice							
	30. I predict I would adhere to protocols during practice							
	31. I plan to adhere to protocols during practice							
Behaviour (BE)								
	32. I use the protocols depending on the number of cases							
	33. I often use protocols							

THANK YOU FOR YOUR PARTICIPATION!



RESPONSE TO THESIS COMMENTS: MIDWIVES' ADHERENCE TO PROTOCOLS IN THE MANAGEMENT OF PRE-ECLAMPSIA/ ECLAMPSIA IN THE ACCRA METROPOLIS

	COMMENTS	STUDENT'S RESPONSE TO COMMENTS
1	Section on predictors of midwives' behaviour appears redundant	The section on predictors has been decomposed into the main constructs of the theory
2	Justification for focusing on Accra metropolis	The justification for focusing on Accra metropolis was provided in page 46 of thesis
3	Justification for randomly selecting 8 health facilities	This has been updated in page 49
4	How the participants were selected after the proportionate number for each facility was determined	This was explained in page 49 of the thesis under the topic sampling technique
5	Justification for designating certain values as above or below mean score	This was presented in page 51 of the thesis
6	No measure for adherence to protocol	The construct behaviour measured adherence to protocol
7	Results of statistical assumption checking	This has been provided in page 53
8	Specify how the response Neutral was treated	This has been provided in page 54

9	Justification for conducting sequential multiple linear regression and criteria for order of entry of variables	This has been updated in page 54
10	Recommendations are not emanating from the study	All recommendations made were based on the implications of the study findings stated in pages 95, 96 and 97 of the thesis

Mariam Al-Hassan Adam ..... 11/03/2021 .....
(10704030) Signature Date

Dr. Florence Naab ..... 11/03/2021 .....
(Principal Supervisor) Signature Date