SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA, LEGON

KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) OF MIDWIVES AND NURSES AT THE 37 MILITARY HOSPITAL TOWARDS THE MANAGEMENT OF PREGNANT WOMEN WITH HIV AND AIDS.

BY

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THIS DISSERTATION IS SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH, COLLEGE OF HEALTH SCIENCES, UNIVERSITY OF GHANA, LEGON, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PUBLIC HEALTH.

JULY, 2019

DECLARATION

I hereby declare that apart from referencing other people's work that I have duly acknowledged, this project is my original work, produced from a research I have undertaken under supervision and that no previous submission of either whole or part of this project has been made elsewhere for a degree.

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DEDICATION

This dissertation is dedicated to my husband Lieutenant Commander Kwadwo Forson-Adaboh, my mother Madam Olivia Nsiah and my daughter Nicole Pokua Forson-Adaboh.

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My foremost gratitude goes to the Almighty Father for his kindness and also the strength to complete the program. I also wish to express my sincerely gratitude to my supervisor, Dr. Frances Baaba da-Costa Vroom for her immense guidance and support and all staff of the School of Public Health.

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ABSTRACT

Background: Pregnant women living with HIV infection are at risk of transmitting the infection to their babies. Most of these transmission occurs during labour, delivery and during breast feeding. In 2018, over 500 deliveries were attended to by healthcare providers at the 37 Military Hospital, out of this number about 6% of these deliveries were to pregnant women living with HIV and AIDS. The Knowledge, attitude and practice of midwives and nurses are very essential in institutionalizing the prevention of mother-to-child transmission of HIV and AIDS. This study aims to assess the knowledge, attitude and practice of Healthcare providers at the 37 Military Hospital in the management of pregnant women with HIV and AIDS. **Methods**: A quantitative survey was carried out with 222 Midwives and Nurses at the 37 Military Hospital. Data collected from the respondents with the use of the questionnaire was entered into Epi-Data version 3.0 and analysed using Stata version 14. Chi-square analysis was used to establish statistical associations between the dependent variable and the independent variables. Logistic regression was used to determine factors associated with midwives and nurses practices towards management of pregnant women with HIV and AIDS. At a confidence interval of 95%, a p-value of <0.05 was considered statistically significant. **Results**: Overall, knowledge was found to be good among almost all (95%) of the respondents. Majority of the respondents (96%) had good attitude and good practice was found among (93%) of the respondents. It was revealed that there was no significant association between the demographic characteristics and the knowledge and attitudes of healthcare providers in the management of pregnant women with HIV and AIDS. It was, however, revealed that the years of experience (χ^2=12.22, p=0.002) and marital status (χ^2=10.60, p=0.031) significantly influenced respondents' practice in the management of pregnant women with HIV and AIDS. Healthcare providers with adequate knowledge of management of pregnant women with HIV and AIDS were 99% more likely to have good practice of management of pregnant women with HIV and

AIDS [CI: 0.00-0.05, p=0.000]. **Conclusion**: It was concluded from the study that Midwives and Nurses at the 37 Military Hospital are practicing various forms of the prevention of mother-to-child transmission of HIV and AIDS that meet the recommended procedures and guidelines by the WHO. **Recommendations:** Health facilities in Ghana ought to collaborate to create nurses' and midwives' libraries across the various regions to allow nurses and midwives from different facilities to find updated information on HIV and AIDS in order to add on to their knowledge on pregnant women with HIV and AIDS management.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CD4	Cluster of Differentiation Four
CDC	Centre for Disease Prevention and Control
GHS	Ghana Health Service
GSS	Ghana Statistical Service
HIV	Human Immune Virus
MTCT	Mother to Child Transmission
PMTCT	Prevention of Mother to Child Transmission
PPE	Personal Protective Equipment
PWLHA	Person Living with HIV and AIDS
SDGs	Sustainable Developmental Goals
SSA	Sub Saharan Africa
TRA	Theory of Reasoned Action
UNAIDS	Joint United Nations program on HIV/AIDS
UNFPA	United Nations Population Fund
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

1.0 Chapter introduction

This chapter discuses studies that deals with the prevention of HIV and AIDS transmission from mother to child. The chapter also discusses the issue informing this study through literature and, accordingly, the study's goals and research issues. In addition, this section presents the approach used in the study as well as research assumptions.

1.1 Background to the study

Human Immune Virus (HIV) is a worldwide issue and remain a worldwide epidemic. The United Nations Joint Program on HIV and AIDS (UNAIDS) estimates that around 36.7 million people worldwide are living with HIV (UNAIDS, 2016). Of the roughly 36.7 million people living with HIV and AIDS in the same year of 2016, 2.1 million were kids with a global prevalence of 0.8% HIV and AIDS and one million AIDS-related deaths. The battle against the epidemic of HIV and AIDS is one element of the Sustainable Development Goals (SDGs). Goal number three of the SDGs is aimed at ensuring a healthy life for all people of all ages and promoting well-being. The goal is to stop the global epidemic of HIV and AIDS by the beginning of 2030 (Osborn, Cutter & Ullah, 2015). Globally, however, HIV and AIDS are still more frequently seen in developing nations as a significant health problem (Masoda & Govender, 2013). In West and Central Africa, 6.1 million individuals are living with HIV and AIDS. Also, HIV and AIDS deaths related to individuals were reported at 790,000 in 2015 (Joint United Nations HIV and AIDS program, 2016). Sub-Saharan Africa (SSA) is one of the regions with the highest HIV and AIDS rates, accounting for more than two-thirds (69%) of the global HIV burden (World Health Organization, 2016). Women account for more than 50

percent of the population of people living with HIV and AIDS in Sub-Saharan Africa and about 2.3 million of this population are children.

In Ghana, 290,000 individuals were found to be living with HIV and AIDS as at the year 2016. In that same year, 17,000 fresh infections and 20,000 AIDS-related deaths were recorded. Again in the year 2016 it was found that only 34% of the population living with HIV and AIDS are being treated (Joint United Nations HIV and AIDS program, 2017). The problems facing this part of the globe in stopping the spread of HIV and AIDS were ascribed to inadequate knowledge, negative attitude and risky practices of healthcare providers (World Health Organization, 2016). Pregnant women living with HIV are at danger of infecting their children with HIV. Most of this transmission takes place during labour, delivery and breastfeeding of the child. Globally, how to guarantee universal access to prevention, therapy, care and guarantee zero transmission of HIV to the unborn baby (in utero infection) is the primary challenge in the battle against HIV and AIDS. During labour and delivery (intrapartum infection), infection can also be transferred to infants when exposed to an infected maternal blood and after birth by breastfeeding (postpartum infection). All of these disease types constitute 30% of the overall danger of transmission of HIV (World Health Organization, 1999). According to Musoke and Mmiro (2002), about 2.4 million infected women give birth every day and 1800 infected children are infected with HIV daily. World Health Organization indicated in 2001 that, without preventive treatment such as preventing mother-to-child transmission (PMTCT) programmes, up to 40% of children born to HIV-positive women will be infected, primarily through mother to child transmission. (World Health Organization, 2001).There is, therefore, a need to make more attempts to prevent mother to child transmission of HIV and AIDS in order to guarantee enhanced survival of children born to mothers living with HIV and AIDS.

1.2 Problem statement

The 2014 Ghana Demographic and Health Survey (GDHS) stated that 2.0% of Ghanaian adults between the ages of 15 and 49 are HIV positive. In women, the incidence is greater (2.8%) than in men (1.1%). (Ghana Statistical Service, Ghana Health Service & ICF International, 2015). In Ghana, attempts have concentrated primarily on HIV prevention through sex, transfusion of blood and transmission from mother-to-child. This may have been advised by the reality that by combining these routes, more than ninety percent of HIV transmission occurs. (United Nations Population Fund, 2016). The Ghana AIDS Commission in 2016, reported that the incidence of HIV among young females visiting antenatal hospitals in Ghana was 2.4% (Ghana Aids Commission, 2017). It is, therefore, not surprising that out of the over 500 deliveries attended to by healthcare providers at the 37 Military Hospital, about 6% of them were pregnant women living with HIV and AIDS (37 Military Hospital Labour Records, 2018). The knowledge, attitude and practice of midwives and nurses are very essential in institutionalizing the prevention of mother-to-child. Knowledge has been recognized in all dimensions of human activities as a strong instrument for positive change. In the battle against HIV and AIDS, this is also accurate. In Ghana, like many sub-Saharan African nations, midwives and nurses continue to play a crucial role in health care systems, mainly because they are readily educated, less costly than doctors, and very often live in facilities that are closer to the residential areas of women (World Health Organization, 2013). This critical role is also noted in the execution of mother-to-child HIV infection avoidance programs. However, studies have shown that young females with HIV are prone to bad reception and care from medical personnel (Mbonu, De Vries, & Van der Borne, 2009). For instance, some married women are totally avoiding PMTCT programs and prenatal treatment due to dread of clinical providers reporting their HIV status (Thoursen, Sundby, & Martinson, 2008). Women are not always given voluntary private counselling before HIV testing are conducted in some centres in the developing countries, and

many women are stigmatized after the test, if discovered they are positive (Ndikom & Onibokun, 2007). Midwives and nurses perform a key role in attaining the Millennium Death Reduction Goals, improving maternal health, and battling HIV and AIDS (UN, 2004). Knowledge, attitudes and perceptions of midwives and nurses are the necessary factors needed to ensure that pregnant females with HIV receive adequate management at health facilities during their labour. Knowledge in the prevention of mother to child transmission counselling and attitudes towards pregnant females with HIV are especially crucial given the elevated incidence of HIV among females of childbearing age.

Research in developing countries, including Ghana, has concentrated on the effectiveness of PMTCT programs on customers themselves, such as their own knowledge of HIV, stigma attitudes in health care facilities, and willingness to pursue service that impacts their attachment to services (Workagegn, Kiros, & Abebe, 2015 ; Gourlay, Birdthistle, Mburu, Iorpenda, & Wringe, 2013 ; Merdekios & Adedimeji, 2011). Few studies have examined the knowledge, attitudes and practices of midwives and nurses in managing females with HIV and in the PMTCT. Therefore, this research sought to assess midwives and nurses ' knowledge, attitudes and practices in the 37 Military Hospital for the management of pregnant women with HIV and AIDS.

1.3 Research questions

1. What is the knowledge level of Midwives and Nurses at the 37 Military Hospital in the management of pregnant women with HIV and AIDS?

2. What are the attitudes of Midwives and Nurses at the 37 Military Hospital towards the management of pregnant women with HIV and AIDS?

3. What are the factors associated with practices of Midwives and Nurses at the 37 Military Hospital in the management of pregnant women with HIV and AIDS?

1.4 Objectives of the study

1.4.1 Main objectives

The study seeks to assess the knowledge, attitude and practices of Midwives and Nurses at the 37 Military hospital in the management of pregnant women with HIV and AIDS.

1.4.2 Specific objective

The study specifically seeks:

1. To determine the knowledge level of Midwives and Nurses at the 37 Military hospital in the management of pregnant women with HIV and AIDS.

2. To examine the attitude of Midwives and Nurses at the 37 Military hospital towards the management of pregnant women infected with HIV and AIDS.

3. To identify factors associated with practices of Midwives and Nurses at the 37 Military hospital in the management of HIV and AIDS pregnant women.

1.5 Definition of terms

Attitude: Perception, feeling and behaviour towards a pregnant woman with HIV and AIDS.

HIV-positive: people who had a positive outcome of the HIV test and were made aware of their status.

Knowledge: facts, consciousness and data obtained through experience or education. The theoretical or practical knowledge between pregnant females of HIV and AIDS.

Practice: Applying or using a concept, faith or technique for managing pregnant females with HIV and AIDS.

Prevention of mother-to-child transmission of HIV (PMTCT): All interventions aimed at reducing or eliminating the risk of HIV transmission from mother to child at different stages of pregnancy, labour, postnatal and breastfeeding. These include the primary prevention of

HIV among females of childbearing era; the avoidance of unintended pregnancies among females born with HIV; and the availability of treatment and help as suggested by the WHO for females associated with HIV, their children and their relatives.

1.6 Conceptual framework

The conceptual framework underpinning this study was developed from the objectives of the study; knowledge and attitude of midwives and nurses regarding care for pregnant women with HIV and AIDS management. In the framework (Figure 1), knowledge about common emergencies and their care can influence the kind of attitude a midwife or nurse may have with regards to care for pregnant women with HIV and AIDS. It also affects their actual role in provision of such care. The framework shows two possible outcomes of care practices in the management of pregnant women with HIV and AIDS. First, it indicates that quality care for pregnant women with HIV and AIDS stemming from knowledge of management of pregnant women with HIV and AIDS results in positive attitude towards care for pregnant women with HIV and AIDS and also, to quality and adequate care for pregnant women with HIV and AIDS. This will lead to positive health outcomes for pregnancies of HIV and AIDS positive women while the opposite is true for poor care resulting from poor knowledge and negative attitude towards management of pregnant women with HIV and AIDS.

Conceptual Framework

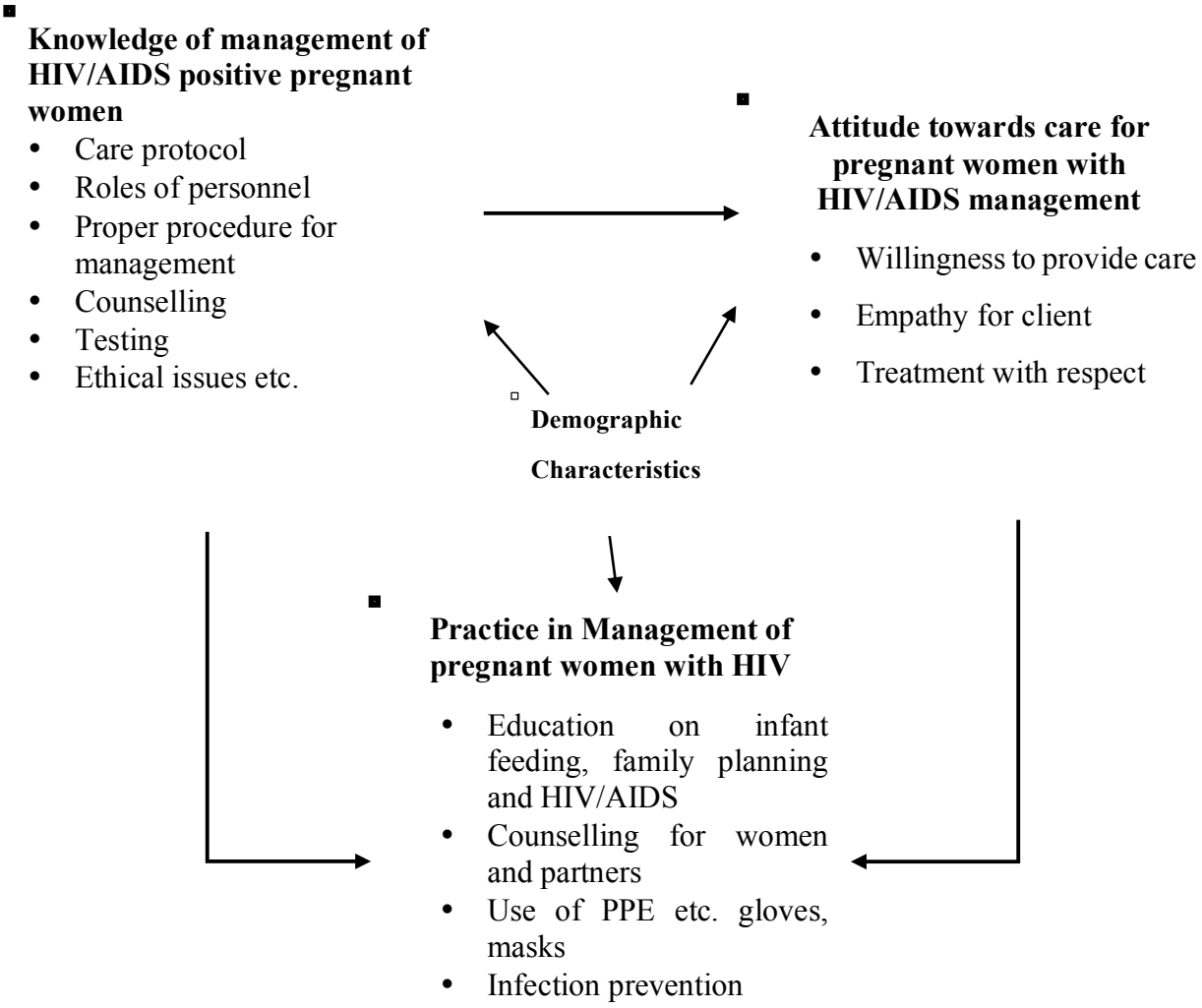

Figure 1: Conceptual Framework.

Source: Author

1.7 Organization of the study

This dissertation consists of six chapters. Chapter one presents the subject of the study and it covers the context, the problem statement, the study goals, and the research questions of the study. Chapter Two of the research reviews prior research, the study-related concepts, and creates a conceptual framework to support the study. Chapter Three provides the techniques

used to conduct the study, including the design of the research, the setting for the study, data sources, sample size, sampling procedure, data collection techniques, and data analysis. Chapter four of the research analyses the data collected, while Chapter five discusses the research outcomes. Lastly Chapter six presents the conclusions and recommendations from this study.

1.8 Chapter conclusion

In many developing countries, including Ghana, vertical transmission of HIV and AIDS is a significant means of spreading infection among children. To combat this, PMTCT services are provided to reduce the risk of transmission to the unborn child from an infected pregnant woman. This is accomplished through antenatal facilities, provision of care and management of infected persons. Midwives and Nurses in PMTCT programs are the key service providers. Access to PMTCT facilities and quality of care are highly associated with healthcare providers' knowledge, attitudes and practices. This research therefore assesses the knowledge, attitudes and practices of midwives and nurses at the 37 Military Hospital on HIV and AIDS management among pregnant women.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section reviews works on actions during pregnancy and delivery to decrease mother-to-child transmission of HIV. The empirical analysis focuses on past research conducted to evaluate midwives and nurses ' expertise, approach and methods in managing pregnant females with HIV and AIDS. The evaluation was provided depending on the study's particular goals. This section also discusses study-related theories and creates a conceptual framework to support the study.

2.1 Empirical review

2.1.1 Global interventions to reduce mother to child transmission of HIV and AIDS.

Prevention of mother to child transmission of HIV has been one of the biggest concerns of all in HIV prevention operations since 1998. The World Health Organization in 2010 encouraged a comprehensive strategy involving four elements: main avoidance of HIV disease among females of childbearing age; avoidance of unplanned pregnancies among females living with HIV; avoiding the transmission of HIV from a woman living with HIV to her baby through appropriate treatment, assistance and support for HIV parents and their kids. Once again, the World Health Organization proposed to provide continuous total antiretroviral therapy (ART) at the diagnostic level for all HIV-positive married women and breastfeeding women. The organization, regardless of the carrying method, also stipulates an ART for kids for four-six decades. Antiretroviral treatment decreases the bacterial burden of HIV in urine, semen, vaginal liquid and rectal liquid to very small concentrations, thus decreasing an individual's likelihood of HIV infection (Stevens & Lyall, 2014).

2.1.2 Knowledge of Midwives and Nurses in the management of pregnant women with HIV and AIDS.

The absence of education is a significant source of adverse behaviour among health employees in emerging nations, unwilling to care for individuals with HIV and AIDS (Reis et al., 2005). Hence, increasing the knowledge on HIV and AIDS among health workers would help minimize the risk of infection as this will improve their perceptions and practices. Many surveys have discovered poor understanding of HIV and AIDS leadership among pregnant females, including midwives and nurses (Khan et al, 2011).

However, in training institutions, most of the respondents (76.7%) had not been trained about HIV. These results indicated very small levels of understanding of the primary signs of HIV and AIDS among medical learner health studies in Pakistan (Shaikh, Khan, Ross & Grimes, 2007). Similarly, other studies found that healthcare providers have poor knowledge and poor practice in managing people with HIV and AIDS (Khan, Unemo, Zaman & Lundborg, 2011). However, other research found good knowledge in the management of pregnant women with HIV and AIDS among midwives and nurses. For instance, the findings of Ouzoni and Nakakis 2012,-cross-sectional survey in Greece discovered that generally HIV awareness among midwives and nurses was comparatively adequate. Many studies done in various countries reports similar results of suitable level of HIV knowledge among healthcare providers. Kermode, Holmes, Langkham, Thomas, and Gifford (2005) had similar results in their study conducted in rural India, Veeramah, Bruneau, and McNaught (2008), also reported similar findings in their study done in South-East England. Also in Southern Nigeria, Umeh, Essien, Ezedinachi and Ross (2008), had similar results in their study.

Some myths about HIV and AIDS transmission have been acknowledged by health care providers in Greece (Ouzoni & Nakakis, 2012). In Greece, midwives and nurses thought that HIV could be transferred through mosquito bites, bathroom seats, hugging, coughing, and

sneezing. Fear of occupational infection was also observed in the studies. Approximately 63% of rural India's healthcare providers regarded patients at elevated risk of HIV disease, while 91% believed they were at elevated risk of occupational accident that subjected them to disease (Kermode, Holmes, Langham, Thomas & Gifford, 2005). While evaluating health care providers behaviour towards individuals living with HIV and AIDS in Lagos State, Adebajo, Bamgbala and Oyediran (2003) disclosed that "most participants (96.3%) had mild to excellent understanding of HIV and AIDS, but the teachers ' stance towards individuals living with HIV and AIDS was low." Another study by Ndikom and Onibokun (2007), attempted to evaluate midwives ' HIV and AIDS understanding and behaviors among pregnant females. They discovered among the participants elevated rates of understanding. In particular, most participants (91%) were familiar with vertical HIV transmission. They also demonstrated outstanding knowledge of techniques of HIV avoidance such as antiretroviral substance use (60%), exclusive baby eating (58.7%), compulsory therapy and testing (58.7%), cesarean delivery choice (52.3%) to reduce the danger of vertical infection. (Onibokun and Ndikom, 2007).

2.1.3 Attitude of Midwives and Nurses towards the management of pregnant women with HIV and AIDS.

Many midwives and nurses have bad attitude towards clients with HIV and AIDS (Feldman & Maphoshere, 2003). Specifically, in the study by Feldman and Maphoshere (2003), it was realised that midwives and nurses scolded women who become pregnant after they had been advised not to have any children due to their HIV status. These adverse attitudes have been demonstrated in many cases in the manner of verbal intimidation, undermining remarks, name calling and cursing the infected females. Also, in another research it was discovered that, as a results of low knowledge in HIV management, healthcare providers had bad attitudes towards people with HIV and AIDS (Khan, Unemo, Zaman & Lundborg, 2011). It was also discovered

that HIV education and understanding resulted in a more favourable approach to care for HIV-positive patients (Earl and Penny, 2003). A few studies have discovered that healthcare givers such as midwives and nurses exhibit good attitude in the management of pregnant women with HIV and AIDS. The findings of the research carried out in Greece by Ouzoni and Nakakis (2012) indicated that nurses had favourable attitudes towards HIV-positive patients. In addition, 43.7% of staff were prepared to care for HIV and AIDS individuals (Ouzoni and Nakakis, 2012). A study in England also found that 91% of England's nurses and midwives were prepared to take care of HIV patients (Veeramah, Bruneau, and McNaught, 2008). Although in a research by Rondal, Innala, and Carlson (2002), nurses reported empathic attitude towards HIV patients and had less apprehension of contagion, 37% of respondents would continue to care for HIV patients.

2.1.4 Practices of midwives and nurses in the management of pregnant women with HIV and AIDS.

Some midwives and nurses have different methods in HIV and AIDS management of pregnant women. Such methods include, schooling, counseling, testing and distribution among others all directed at preventing mom to baby HIV and AIDS infection (Ndikom and Onibokun, 2007). It was found in this study by Ndikom and Onibokun (2007) that 78.1 percent of midwives always educated women about HIV and AIDS, but only (37.4 percent) provided personal counselling and screening to clients (VCT), while 76.8 percent only recommended women about baby delivery processes. Furthermore, most respondents (81.3%) used aprons and gloves as private safety gear (PPE) during shipment. On the other hand, some studies discovered bad practices among midwives. In a research by Montaño et al, 2008, universal precautionary procedures were less prevalent among health care givers. They discovered that 56% of health care providers conducted threat assessments, 60% conducted preventive

counselling, and 30% provided STD and HIV testing (Montaño, Philips, Kaspizyk, & Greek, 2008).

2.2 Theoretical review

2.2.1 Theory of Reasoned Action

The Theory of Reasoned Action (TRA) which was developed by Martin Fishbein and Icek Ajzen (1967), aims at explaining the relationship between attitudes and behaviours within human action. The primary purpose of the model is to understand an individual's voluntary attitude by examining the underlying motivation to perform the action (Doswell et al, 2011). The principle states that a person's desire to execute a behaviour is the primary predictor of whether or not it will be performed (Glanz et al, 2015). This thesis was subsequently modified and extended into two models: Planned Behavior Theory and Reasoned Action Approach Theory, to be used as a theory of comprehension in communication discourse as well (Gillmore et al, 2002). The TRA scientists realize that the relationship between behavioral intention and conduct can be influenced by three circumstances. The first situation is that "the criterion of purpose must conform to their specificity concentrations." This implies that the behavioural intention must be similarly precise in order to forecast a particular conduct. The second situation is that "consistency of motives must exist between measuring moment and behavioural efficiency." Between the time it is given and the time the behaviour is performed, the intention must remain the same. The final situation is "the extent to which the purpose is subjected to the individual's wilful command" (Ajzen Icek, 1992). The person always has power over whether the behaviour should be performed or not.

However, it is claimed that the model is inadequate to anticipate healthcare methods because it does not take into account that individuals do not have certain conditions that enable for behavioral effectiveness. Since the TRA relies on behaviours that are decisively adopted by individuals, the hypothesis is restricted in aspects of predicting behaviours that involve entry

to certain possibilities, abilities, circumstances and/or assets (Eagly and Chaiken, 1993). According to a study conducted by Bagozzi and Yi (1989), the performance of a behaviour is not always preceded by a strong intent. In fact, attitudes and behaviours may not always be linked by intentions, particularly when the behaviour does not require much cognitive efforts (Bagozzi et al, 1989). However, the significance of Reasoned Action's theory to this research is the power of ruling out feasible variables that may affect health care professionals ' behaviour in managing pregnant females with HIV and AIDS. It will, therefore, assist to clarify how variables such as midwives and patients ' behaviour and understanding of treatment for pregnant females with HIV and AIDS affect midwives and patients ' procedures in managing pregnant females with HIV and AIDS.

Theory of Reasoned Action

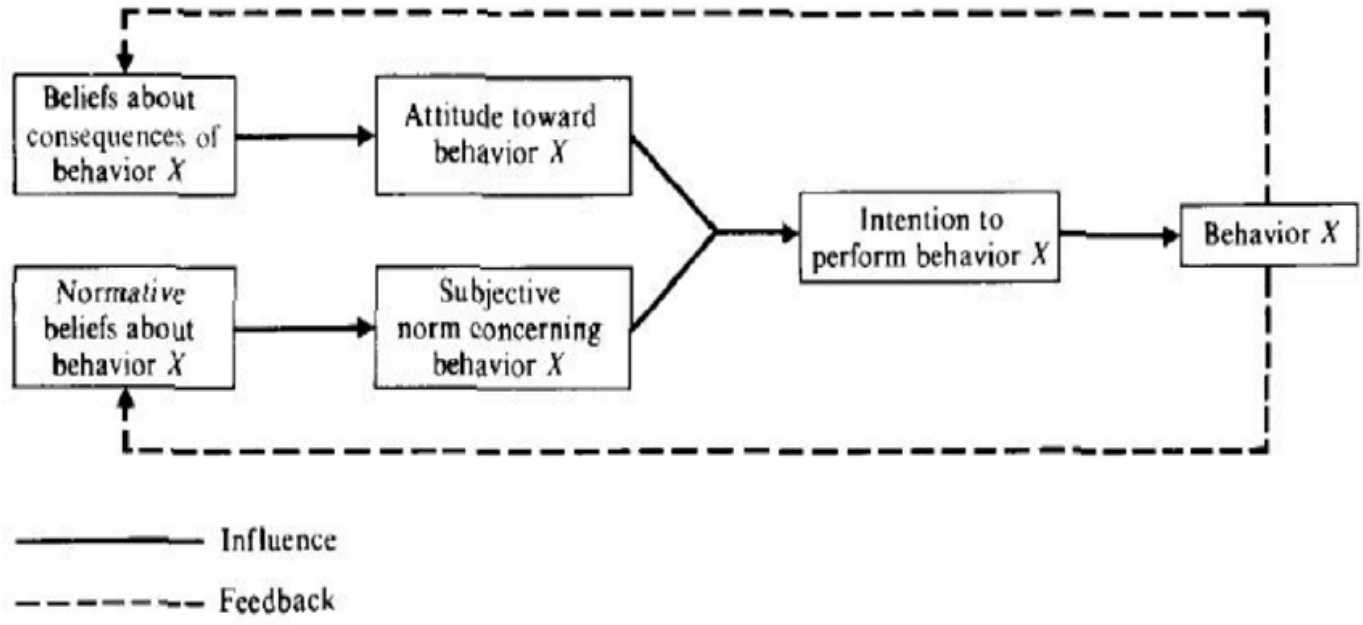

Figure 2: Theory of Reasoned Action

Source: Fishbein and Ajzen (1975)

2.3 Chapter conclusion

The review found few literature in Ghana assessing midwives' and nurses' knowledge, attitude and practices in the management of pregnant women with HIV and AIDS. However, in most developing countries, many studies found low knowledge and negative attitude of midwives and other healthcare providers such as nurses. In such cases, these have led to increased discrimination and stigmatization. Practices of midwives towards the management of pregnant women with HIV and AIDS including counselling and testing for HIV, education on infant feeding, dispensing of antiretroviral drugs for patients as well as delivery and obstetric care during labour. Therefore, this study seeks to assess midwives' knowledge, attitude and practices towards pregnant women with HIV and AIDS management.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the design of the study, the study setting and study population. The chapter also discusses the data collection procedure, sample size, and procedure, ethical considerations and procedure for data analysis used in conducting the study.

3.1 Study design

The study was a descriptive quantitative cross-sectional study. Descriptive cross-sectional design affords the opportunity to select a sample from the population being studied and make possible, generalisations of the sample being studied using questionnaires. This approach also offers the opportunity to quantify existing phenomenon such as knowledge and attitude among a particular population.

3.2 Study setting

This study was conducted in Ghana's Greater Accra region at the 37 Military Hospital. The hospital is at the regional level and serves as one of the focus of clinical care in the region. The hospital also serves as one of the point of reference for regional health centres and district hospitals. It provides both clinical care and technical services. It provides emergency, outpatient and inpatient services for four major clinical disciplines (surgery, internal medicine, obstetrics and gynaecology and paediatrics) and other specialities based on the local needs. It also provides laboratory, radiology, anaesthesia and pharmaceutical services. Furthermore, it provides training and supervision support to some of the district hospitals and health centres within the Greater Accra region.

3.3 Study population

The study population was made up of trained Midwives and Nurses working in the 37 Military Hospital in Accra. This population was selected because they provide maternal health services for pregnant women.

3.4 Study variables

The dependent variable in this study was practice in the management of HIV and AIDS pregnant women. Independent variables in this study, however, included knowledge of management of HIV and AIDS pregnant women, and attitude of midwives and nurses towards management of HIV and AIDS pregnant women.

3.5 Sample size determination

Table 1: Nursing and Midwives Staff strength of 37 Military Hospital

Health staff	Military	Civilian	Total
Nurse	205	197	402
Midwives	21	26	47
Total staff	226	223	449

The study adopted Yamane's (1998) formula for sample size determination as indicated below:

Formula: $n=\frac{N}{1+N(\propto)}^{2}$

Where:

n = sample size,

N= study population

α= margin of error which is 0.05 with significance level of 95%.

Thus, the sample size for the study is calculated as follows:

$$n=\frac{449}{1+449(0.05)}^{2}$$

$$n=\frac{449}{2.1225}$$

n = 211.54

Taking into consideration a non-response rate of 5%, the total sample size for this study was:

n = 211.54(1+0.05)

n = 222.12 ≈ 222

The study used a sample size of 222 midwives and nurses.

3.6 Sampling method

This study employed a simple random sampling technique in selecting the study respondents. This technique allowed for equal chance of each midwife and nurse to be included in the study. This was achieved by creating a list of all the midwives and nurses at the 37 Military hospital and then marking each midwife and nurse with a specific number, from 1 to 222. From this population, the study sample was chosen using the random number generator software. Midwives and nurses in the hospital were randomly selected to make up the desired sample.

3.7 Inclusion and exclusion criteria

Midwives and Nurses who are permanent staff of the 37 Military hospital and have worked at the facility for not less than three months were included. However, midwives and nurses who were on leave, busy at the time of data collection and were recently employed were excluded.

3.8 Data collection technique

A self-developed questionnaire was used as the instruments of the data collection for this study. It was developed based on the specific objectives of the study. With the help of one research assistant, the questionnaires were administered to the midwives and nurses. The researcher visited the hospital and made appointments with the midwives and nurses and engaged them in the data collection process individually at their own convenience.

3.9. Data collection instrument

The research instrument used for this study was a structured questionnaire. It contained four (4) sections. Section A collected demographic information of the respondents, section B assessed midwives' and nurses' knowledge on management of pregnant women with HIV and AIDS, while section C comprised of questions to assess midwives' and nurses' attitude towards the management of pregnant women with HIV and AIDS. Lastly, section D assessed the practices of midwives and nurses on HIV and AIDS management of pregnant women.

3.10 Pre-testing of data collection instrument

In order to standardize the data collection tool and ascertain its validity in measuring the needed information, the instrument was pre-tested among five midwives and five nurses at the Greater Accra regional hospital previously known as Ridge Hospital. Omissions and grammatical errors as well as any form of ambiguity was identified and rectified. Cronbach's Alpha reliability test showed that the data collection instrument is reliable, recording a coefficient of 0.723.

3.11 Data analysis

Data collected from the respondents were entered into Epi Data version 3.0 and analysed using Stata version 14. Descriptive statistics such as frequencies, proportions and means was calculated. Results were presented in tables and charts, where appropriate.

Knowledge level was measured by indexing the correct responses to the knowledge questions. Of the total of 15 questions assessing knowledge, a correct response was scored as 1 and incorrect response scored 0. Hence, an index score of >9 was considered adequate knowledge, a score of 9 was considered as average knowledge while a score <9 was considered inadequate knowledge.

Further, there are five (5) statements rated 5 – Strongly agree, 4 – Agree, 3-Neutral, 2 – Disagree, 1 – Strongly disagree, which assess attitude of midwives and nurses towards HIV and AIDS management of pregnant women. Hence, an index score of the attitude measuring responses from >15 was considered Good attitude while <15 regarded as Poor attitude. Also, 11 questions were assessing practices of midwives and nurses in the management of pregnant women with HIV and AIDS. A correct practice was indexed as 3. Hence, index scores of 16-33 and 0-15 was considered good and poor practices, respectively.

Chi-square analysis was used to establish statistical associations between the dependent variable (practices of midwives and nurses in the management of pregnant women with HIV and AIDS) and the independent variables such as the socio-demographics of the respondents and knowledge and attitude of midwives and nurses towards management of pregnant women with HIV and AIDS. A multivariate analysis of factors associated with the practice of midwives and nurses at the 37 Military hospital on the management of pregnant women with HIV and AIDS was done. At a confidence interval of 95%, a p-value of <0.05 was considered statistically significant.

3.12 Ethical issues

Ethical approval for this study was received from the 37 Military Hospital Ethical Review Board (37MH-IRB IPN/284/2019). Permission was obtained from the Nurses and Midwives

Managers of the 37 Military Hospital before starting data collection. Written informed consent was obtained from respondents before including them in the study.

3.13 Confidentiality

Data collected from the respondents' were not disclosed to any unauthorized persons including respondents' immediate command or supervisors in order to establish the highest level of confidentiality. Also, data was kept under lock-and-key to prevent third party access to the data.

3.14 Privacy and Anonymity

Data was collected at respondents' own choice of place to ensure privacy for the participants. Also, participants were assured of anonymity by informing them that their names and other characteristics which personally identify them will not be included in the study. As such, questionnaire identification numbers were given to each questionnaire after it was received from the respondents.

3.15 Risks and benefits

There was no direct benefit for participation in this study. However, the time taken to answer the questions and the inconvenience of having to recall past experiences concerning the topic were the only discomforts that might be associated with participating in this study.

3.16 Chapter conclusion

The method used in conducting this study was a descriptive quantitative cross sectional method. The data collection instrument was a self-developed questionnaire. Anonymity and privacy in this study was observed by allocating a questionnaire identification number for each questionnaire. All questions in the questionnaire were answered by all the participants and returned to the researcher.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the results of the study after collecting of data. The results of this study are presented under five headings namely; demographic characteristics of respondents, knowledge of PMTCT among healthcare providers at 37 military hospital, attitude of health professionals towards HIV and AIDS management in pregnancy, practice of healthcare providers in the management of HIV and AIDS in pregnancy and association between predictors of knowledge, attitude and practice of the management of pregnant women with HIV and AIDS. It was shown from the study that there were no significant association between the demographic characteristics and practice on pregnant women with HIV and AIDS management except years of experience of respondents (χ^2=12.22, p=0.002), and marital status of participants ((χ^2=10.60, p=0.031). There were also no significant association between the demographic characteristics and knowledge of respondents towards the management of pregnant women with HIV and AIDS, and demographics and attitudes of Midwives and nurses at 37 Military hospital on the management of pregnant women with HIV and AIDS. All the variables reported p-values >0.05.

4.1. Demographic characteristics of study respondents

At the 37 Military Hospital, Accra, the study involved 222 nurses and midwives, of whom (33.8%) were males and (66.2%) were females. A relative majority (48.7%) were 31-40 years of age, while few (2.2%) were 50 + years of age. More than half (53.6%) of the respondent were married while less than half were single (41.4%). In addition, most of the participants (88.7%) were Christians and Muslims (11.3%). While most of them (51.4%) had graduated training college with a certificate less than half (46.4%) had graduated from a university with a degree. Majority of the respondents (86.5%) are nurses and (13.5%) are midwives.

Table 2: Demographic Characteristics of Respondents (N=222)

Variable	Frequency	Percentage
Age (Yrs.)		
20-30	61	27.5
31-40	108	48.7
41-50	48	21.6
50+	5	2.2
Mean ± SD 34.96 ± 0.45 (CI: 34.07-35.86)		
Sex		
Male	75	33.8
Female	147	66.2
Marital Status		
Single	92	41.4
Married	119	53.6
Co-habiting	6	2.7
Divorced/Separated	4	1.8
Widowed	1	0.5
Educational level		
Certificate	114	51.4
Degree	103	46.4
Masters	5	2.2
Religion		
Christianity	197	88.7
Muslim	27	11.3
Years of experience		
6months-5 years	6	2.7
6-10 years	138	62.2
>10 years	78	35.1
Professional category		
Midwife	30	13.5
Nurse	192	86.5

4.2 Knowledge of PMTCT among healthcare providers at 37 military hospital

This study assessed nurses and midwives' knowledge on the management of HIV and AIDS pregnant women and the data is presented in Table 3. The majority of participants (76.1%) knew that pregnant females should be tested twice for HIV and AIDS. Nearly all participants knew that HIV and AIDS management (94.6%) should be launched instantly after testing positive, however all the respondents (100%) knew that the virus affinity for HIV and AIDS are CD4 cells. Also 86.6% of the respondents were aware that pregnant females could transmit HIV and AIDS to the unborn baby. While 75.7% knew the routes for mother-to-child

transmission of HIV and AIDS, all participants (100%) knew that breastfeeding was the means of transmitting HIV and AIDS from mother to baby after delivery. With regard to risk variables, nearly all participants (97.8%) knew that artificial membrane rupture was a risk factor for vertical HIV and AIDS transmission. Most of them (64%), however, believed that the caesarean section was a risk factor for vertical transmission. Most participants (92.8%) knew about the strategies for the prevention MTCT, and (55.9%) of respondents knew that vaginal delivery was a risk factor for MTCT. Again most of the respondent knew that the following were strategies when it came to PMTCT of HIV and AIDS; antiretroviral drug use (92.8%), exclusive formula feeding (89.2%), voluntary counselling and screening (95.1%), and caesarean section option. Overall 93.7% of the respondents had adequate knowledge on the management of pregnant women with HIV and AIDS.

Table 3: Knowledge of PMTCT of Healthcare providers at the 37 Military Hospital.

Variable	Frequency	Percentage
Number of times a pregnant woman should test for HIV/AIDS		
Once	53	23.9
Twice	169	76.1
When management should be initiated after positive test		
Immediately	210	94.6
After delivery of child	9	4.0
Second trimester	3	1.4
Virus affinity for HIV/AIDS		
CD3 receptors	0	0.0
CD4 receptors	222	100.0
CD5 receptors	0	0.0
Desired CD4 count range during management of HIV/AIDS positive pregnant woman		
100–500 cells/mm	79	35.6
500–1200 cells/mm	143	64.4
A pregnant woman can transmit the HIV/AIDS virus to unborn child		
Yes	192	86.6
No	15	6.7
Don't know	15	6.7
Route for transmission of HIV/AIDS from pregnant woman to unborn child		
Vaginal fluid	54	75.7
Amniotic fluid	168	24.3
Way of transmitting HIV/AIDS from mother to child		
Breastfeeding	222	100.0
Kissing	0	0.0
Touching	0	0.0
Artificial rupture of membranes as risk factor in MTCT		
Yes	217	97.8
No	5	2.2
Caesarean section as risk factor in MTCT		
Yes	142	64.0
No	80	36.0
Perineal trauma as risk factor in MTCT		
Yes	100	45.1
No	122	54.9
Vaginal delivery as risk factor in MTCT		
Yes	98	44.1
No	124	55.9

Table 3 cont'd: Knowledge of PMTCT of Healthcare providers at the 37 Military Hospital.

Variable	Frequency	Percentage
Use of antiretroviral drugs as a strategy for PMTCT		
Yes	206	92.8
No	16	7.2
Exclusive formula feeding as a strategy for PMTCT		
Yes	198	89.2
No	24	10.8
Voluntary counseling and testing as a strategy for PMTCT		
Yes	211	95.1
No	11	4.9
Caesarian section as a strategy for PMTCT		
Yes	162	72.9
No	60	27.1
Overall knowledge score		
Adequate	208	93.7
Average	9	4.1
Inadequate	5	2.2

4.3 Attitude of health professionals towards HIV and AIDS management in pregnancy

This study also assessed health professionals' attitude towards management of pregnant women with HIV and AIDS. It was shown that few of the respondents; preferred not to attend to HIV positive pregnant women (12.6%), also (14.9%) believed that no special attention should be given to HIV positive pregnant women, lastly (34.7%) got angry when an HIV positive woman attends the facility pregnant after she has been told of risks. (As shown in table 4).

Table 4: Attitudes of Healthcare providers at 37 Military Hospital towards HIV and AIDS Management

Variable	Frequency	Percentage
I prefer not to attend to HIV positive pregnant woman		
Strongly agree	46	20.7
Agree	19	8.6
Undecided	3	1.4
Disagree	131	59.0
Strongly disagree	23	10.3
No special attention should be given to pregnant women who are HIV positive		
Strongly agree	65	29.3
Agree	27	12.2
Undecided	3	1.3
Disagree	115	51.8
Strongly disagree	12	5.4
I fear I will be infected so I don't attend to HIV positive pregnant women		
Strongly agree	89	40.0
Agree	0	0.0
Undecided	3	1.4
Disagree	128	57.7
Strongly disagree	2	0.9
I don't want to be involved in PMTCT services delivery		
Strongly agree	100	45.0
Agree	43	19.4
Undecided	3	1.4
Disagree	71	31.9
Strongly disagree	5	3.3
I get angry when an HIV positive woman attends with pregnancy after I had told her it's risky for the baby.		
Strongly agree	6	2.7
Agree	68	30.6
Undecided	0	0
Disagree	84	37.8
Strongly disagree	64	28.8
Overall Attitude Score		
Poor	72	32.4
Good	150	67.6

4.4 Practice of healthcare providers in the management of HIV and AIDS in pregnancy

Furthermore, this study evaluated the practice of management for pregnant females with HIV and AIDS. As shown in table 5, practice was evaluated on the frequency with which certain management procedures for infection prevention are performed. It was shown that a few number of participants (31.5%) always educated females on HIV and AIDS, similarly (27.9%) always provided voluntary counselling and testing to pregnant females and a small number of respondents (33.3%) advised females on secure feeding for infants. However, most participants (80.6%) did not report the status of HIV and AIDS-positive pregnant women to their spouses. During delivery, nearly all of them (99.6%) use aprons, gloves and masks as well as wear gloves when removing soiled sanitary pads. When exposed to contaminants, almost all (98.6%) washed under running water and 99.6% report the incident while 11.7% stop attending to pregnant woman. Overall, majority (93.2%) of the participants had good practice in the management of HIV and AIDS pregnant women while a small number (6.8%) had poor practice.

Table 5: Practice of Healthcare providers at the 37 Military Hospital on the management of pregnant women with HIV and AIDS.

Practice variable	Frequency (%)
How often do you do the following?	
Educate women in HIV and AIDS.	
Not at all	3 (1.4)
Sometimes	149 (67.1)
Always	70 (31.5)
Offer voluntary counseling and testing (VCT) to pregnant women.	
Not at all	5(2.3)
Sometimes	155(69.8)
Always	62(27.9)
Obtain consent before testing.	
Not at all	3 (1.4)
Sometimes	12 (5.4)
Always	207 (93.2)
Inform an infected woman's spouse about her status.	
Not at all	179 (80.6)
Sometimes	23 (10.4)
Always	20 (9.0)
Counsel women on safe infant feeding.	
Not at all	7 (3.2)
Sometimes	141 (63.5)
Always	74 (33.3)
Do you use aprons, gloves and masks during delivery?	
Yes	221 (99.6)
No	1 (0.4)
Do you encourage mothers with HIV/AIDS to feed babies exclusively with formula?	
Yes	196 (88.3)
No	26 (11.7)
Do you wear gloves when checking soiled sanitary pads?	
Yes	221 (99.6)
No	1 (0.4)
In case of accidental exposure to contaminant during delivery of HIV positive mother	
Do you wash under running water?	
Yes	219 (98.6)
No	3 (1.4)
Do you report the incident?	
Yes	220 (99.1)
No	2 (0.9)
Do you stop attending to the infected mother?	
Yes	26 (11.7)
No	196 (88.3)
Overall practice score	
Good	207 (93.2)
Poor	15 (6.8)

4.5 Association between demographics characteristics and practice of the management of pregnant women with HIV and AIDS.

A bivariate analysis was conducted to determine if a statistically significant association existed between demographic characteristics and practice at 95% confidence level. The results shows that the years of experience (χ^2=12.22, p=0.002) and marital status ((χ^2=10.60, p=0.031) were statistically significant. Religion, educational level, sex and age, knowledge and attitude were all assessed but were found not to be statistically significant.

Table 6: Association between demographics characteristics and practice of the management of pregnant women with HIV and AIDS

	Practice n (%)		Total	Chi-square p- value
	Good	poor		
Age				0.184
20-30	54 (88.5)	7(11.5)	61(100.0)	
31-40	103(95.4)	5 (4.6)	108(100.0)	
41-50	46 (95.8)	2(4.2)	48 (100.0)	
>50	4 (80.0)	1 (20.0)	5 (100.0)	
Sex				0.242
Male	72(96.0)	3(4.0)	75 (100.0)	
Female	135(91.8)	12 (8.2)	147 (100.0)	
Educational level				0.070
Certificate	103 (90.4)	11 (9.6)	114 (100.0)	
Degree	100(97.1)	3(2.9)	103 (100.0)	
Masters	4 (80.0)	1(20.0)	5(100.0)	
Profession				0.123
Midwife	26 (86.7)	4 (13.3)	30 (100.0)	
Nurse	181 (94.3)	11 (5.7)	192 (100.0)	
Experience (Years)				0.002*
6months-5 years	5(83.3)	1 (16.7)	6 (00.0)	
6-10 years	135(97.8)	3 (2.2)	138 (100.0)	
>10 years	67(85.9)	11 (14.1)	78 (100.0)	
Religion				0.560
Christianity	183(92.9)	14(7.1)	197 (100.0)	
Muslim	24(96.0)	1(4.0)	25 (100.0)	
Marital status				0.031*
Single	83(90.2)	9(9.8)	92(100.0)	
Married	115(96.6)	4(3.4)	119(100.0)	
Co-habiting	4(66.7)	2(33.3)	6(100.0)	
Divorced/Separated	4(100)	0(0.0)	4(100.0)	
Widowed	1(100)	0(0.0)	1(100.0)	

***Significant at p≤0.05**

Table 7: Association between Knowledge, Attitude and Practice

	Practice n (%)			Chi-square
	Good	poor	Total	p- value
Knowledge				0.417
Adequate	195 (93.8)	13(6.2)	208 (100.0)	
Average	8 (88.9)	1 (11.1)	9 (100.0)	
Inadequate	4(80)	1(20)	5 (100.0)	
Attitude				0.621
Good	139 (92.7)	11(7.3)	150 (100.0)	
Poor	68 (94.4)	4(5.6)	72 (100.0)	

4.6 Factors associated with practice of midwives and nurses on the management of HIV+ pregnant women

Multiple logistic regression analysis was conducted on all factors. These factors included; age, sex, educational level, profession, years of experience, knowledge and attitude. Out of these factors, only 2 were significantly associated with practices at the multiple logistic regression analyses level ($p \leq 0.05$). These factors were marital status and years of experience (see Table 8). The results show that midwifes and nurses who are married were 2.75 times more likely to have good practice on pregnant women with HIV and AIDS management compared to those that were single (AOR=2.75; 95% CI=1.611-12.349). This could be because most married healthcare professionals are meticulous and pay attention to details as compared to those who are single who might be carefree and callous. Midwives and nurses who had worked for a period between 6-10 years were 13.28 times more likely to have good practice on pregnant women with HIV and AIDS management compared to those that had worked for a period between 6months-5 years (AOR=13.28; 95% CI=1.570-7.162). This could be explained that healthcare providers continue to acquire knowledge and develop a good attitude as the years of service increases and this can affect their practice significantly.

Table 8: Factors associated with practice of midwives and nurses on the management of HIV+ pregnant women

Variable	Practice		COR (95%CI)	AOR(95%CI)
	Good	Poor		
Age				
20-30	54 (88.52)	7(11.48)	1.0 (ref)	1.0(ref)
31-40	103 (95.37)	5 (4.63)	2.67 (0.809-8.812)	1.41 (0.312-6.329)
41-50	46 (95.83)	2(4.17)	2.98 (0.590-15.065)	0.30 (0.030-3.095)
>50	4 (80.00)	1 (20.00)	0.52 (0.505-5.321)	0.08(0.003-2.494)
Sex				
Male	72 (96.00)	3(4.00)	1.0(ref)	1.0(ref)
female	135 (91.84)	12 (8.16)	0.47 (0.128-1.715)	0.53 (0.108-2.575)
Educational level				
Certificate	103 (90.35)	11 (9.65)	1.0(ref)	1.0(ref)
Degree	100(97.09)	3(2.91)	3.56 (0.964-13.139)	0.64 (0.081-5.052)
Masters	4 (80.00)	1(20.00)	0.43 (0.043-4.167)	0.18(0.010-3.181)
Profession				
Midwife	26 (86.67)	4 (13.33)	1.0(ref)	1.0
Nurse	181 (94.27)	11 (5.73)	2.53 (0.750-8.539)	1.87 (0.413-8.537)
Experience (Yrs)				
6months-5 years	5(83.33)	1 (16.67)	1.0(ref)	1.0(ref)
6-10 years	135(87.82)	3 (2.17)	**8.99 (1.79-10.25)**	**13.28 (1.570-7.162)**
>10 years	67 (85.90)	11 (14.10)	1.22 (0.129-11.439)	1.29 (0.066-25.285)
Marital status				
Single	83(90.22)	9(9.78)	1.0(ref)	1.0(ref)
Married	115(96.64)	4(3.36)	**3.12(1.928-10.466)**	**2.75(1.611-12.349)**
Co-habiting	4(66.67)	2(33.33)	0.22(0.034-1.354)	0.258(0.029-2.276)
Religion				
Christian	183(92.89)	14(7.11)	1.0(ref)	1.0(ref)
Muslim	24(96.00)	1(4.00)	1.84(0.231-14.593)	1.32(0.106-16.270)
Knowledge				
Adequate	195 (93.95)	13(6.25)	1.0(ref)	1.0(ref)
Average	8 (88.89)	1 (11.11)	0.53(0.619-4.594)	0.33(0.027-4.076)
Inadequate	4(80.00)	1(20.00)	0.267(0.028-2.561)	0.61(0.037-10.166)
Attitude				
Good	139 (92.67)	11 (7.33)	1.0(ref)	1.0(ref)
Poor	68 (94.44)	4(5.56)	0.74(0.228 – 2.420)	0.57(0.128-2.545)

4.7 Chapter conclusion

The results of the study shows that midwives and nurses at the 37 Military Hospital have good knowledge on pregnant women with HIV and AIDS management. Also it was seen from this study that midwives and nurses at the 37 Military hospital have good attitude and good practice in the management of HIV and AIDS pregnant women.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter discusses the findings of the results emanating from the study, it introduces a set of basic procedures and statistical measures for describing the data. This study assessed the knowledge, attitude and practice of midwives and nurses on the management of pregnant women with HIV and AIDS. It appeared in this study that majority of the participants had adequate knowledge on HIV and AIDS which suggests that PMTCT programs at the 37 Military hospital are effective and should be encouraged. Also the attitudes and practices of healthcare providers at the 37 Military Hospital found to be good. This therefore suggests that nurses and midwives at the 37 Military hospital are engages in the proper management of pregnant women with HIV and AIDS, hence they should be commended.

5.1 Demographic characteristics of respondents

Most of the respondents (46.4%) in the study population were between the ages of 31 to 40 years which is could be due to the number of years these midwives and nurses use in training and post training attachments. It must however be noted that just a few of the respondents were males and all of them were nurses. All the respondents (100%) who were midwives were females. This could be due to the fact that in the past only females were allowed to become midwives and hence males currently do not find the profession appealing. Also, most Ghanaian women do not like to consult male midwives when they are in labour. Furthermore, some men do not support the idea of their spouses being attended to by male midwives. Again, a significant proportion of the respondents (53.6%) were married, which was understandable because of the age range that represent the majority of the participants. The Ghanaian society also sees a married person as a responsible person, therefore a lot people strife for that. Also

even though majority of the respondents (62.2%) had worked in the facility for more than six years, only a small proportion of them (2.2%) had attained a tertiary education. This is a clear indication that the level of tertiary education among the midwives and nurses at the 37 Military hospital is average, and could be attributed to midwifery being seen as a specialised profession. Therefore, midwives and nurse experience some level of accomplished which does not motivate them to pursue tertiary.

5.2 Knowledge on the management of pregnant women at 37 Military Hospital.

Compared to similar findings by Famoroti, Fernandes, & Chima (2013) and Shahzadi, Kousar, Jabeen, Waqas & Gilani (2017), the overall knowledge of nurses and midwives in this study were found to be adequate. More than half of the participants (67.6%) knew that pregnant females should be tested twice for HIV and AIDS before giving birth to their children. This is useful because it is consistent with the guidelines of the Center for Disease Prevention and Control, which recommends offering HIV screening in the first trimester and repeat screening in the third trimester in certain jurisdictions with high HIV infection rates among pregnant females. (Centre for Disease Prevention and Control, 2016) The majority of participants, 94.6% and 92.8%, realized that the management of pregnant females with HIV and AIDS should be launched immediately after a positive test and that the CD4 receptors are the virus affinity for HIV and AIDS. This is in line with the research conducted by Ndikom and Onibokun (2007), who also discovered an elevated level of understanding among nurses and midwives in seeking to ascertain their knowledge and attitudes on the management of HIV and AIDS among pregnant females. This research also discovered that 86.4% of participants knew that pregnant females were able to transmit HIV and AIDS to their unborn baby and that the bulk of participants also knew that the routes of transmission of HIV and AIDS to an unborn baby were through vaginal fluids and amniotic fluid. All of these results were in line with the results of Marranzano et al. (2013) and Shahzadi et al. (2017) whose results indicated that nurses and

midwives had an accurate understanding on the transmission of HIV. However, some of the participants still have a bad understanding of HIV and AIDS, its transmission and misconceptions. Some respondents (35.6%) knew not the required CD4 count range required during the management of pregnant women with HIV and AIDS, while an enhanced proportion of participants (41.9%) did not know the routes of transmission of HIV from a pregnant women to their unborn child. This should be a cause for concern as such poor knowledge could impact nurses' and midwives' methods in managing patients living with the disease. A comparable observation is reported by Wu et al. (2016) and Iwoi et al. (2017), whose research results showed an inadequacy of knowledge on the management of pregnant females with HIV and AIDS portrayed by health care providers due to limited amount of HIV and AIDS training courses through workshops and seminars.

5.3 Attitude on HIV and AIDS management in pregnant women at the 37 Military Hospital.

Several studies indicate that nurses and midwives demonstrate good attitudes towards people living with HIV and AIDS (Ishimaru et al., 2017), (Ledda et al., 2017) and (Zarei, Joulaei, Darabi, & Farararouei, 2015). Similarly, the findings of this research showed that there are favourable attitudes among nurses and midwives at the 37 Military Hospital, with the majority indicating higher agreement with favourable statements and higher disagreement with unfavourable statements. Majority of the participants preferred to manage pregnant women with HIV and AIDS and also disagreed that there is no need for special attention to be paid to pregnant women with HIV and AIDS. These findings are in line with a research by Ledda et al. (2017), whose research found that while nurses and midwives are afraid of contracting HIV and AIDS, their conscience and integrity enabled them to show positive attitudes during the management of people living with HIV and AIDS (PLWHA). The lack of fear and anxiety among respondents was revealed when majority (67.1%) and (59.4%) of participants responded

negatively to statements on fear of getting infected and their reluctance to engage in PMTCT services respectively. However, a proportion of participants (28.8%) agreed that they get upset when an HIV-positive person gets pregnant after they have been told about its consequences. This is a cause for concern as this attitude tends to influence the management of pregnant females with HIV and AIDS, and can lead to stigma and discriminatory attitudes towards PLWHA. In this research, the generally favourable attitude of nurses and midwives is useful for the future delivery of health care at 37 Military Hospital as research respondents can serve as ambassadors for the appropriate management of pregnant women with HIV and AIDS. The poor attitudes shown by few participants, however, imply that some nurses and midwives may have stigmatizing or refraining attitudes toward managing pregnant females living with HIV and AIDS, and this may adversely affect their engagement in health service delivery of PLWHA.

5.4 Practices on HIV and AIDS management in pregnant women at the 37 Military Hospital.

The practice at the 37 Military Hospital by nurses and midwives on managing pregnant females with HIV and AIDS can be said to be good. Most participants agreed to adhere to the correct protocols recommended by Centre for Disease Prevention and Control (CDC), and these findings are compatible with a study done by Som and colleagues among nurses in a medical college and hospital in Kolkata India (Som et al, 2015). Before checking soiled sanitary pads, the majority (99.6%) wore gloves whiles another majority (99.6%) also used aprons, gloves and masks during delivery. Increased adherence to this precaution is consistent with a study done by Beckers ' Hospital Review Board in 2016. According to a study by Chatrath (2017), the most important method for stopping cross-contamination is compulsory hand hygiene before and after contact with patients (Chatrath, 2017). This is compatible with the results in this research as many of the respondents (98.6%) agreed to washing under running water in

case of accidental contaminant exposure during delivery of an infected woman. However, it was worrying to find out that some percentage of participants (11.7%) agreed that they would stop taking care of the infected woman during delivery in the case of accidental exposure to contaminant. According to the Centre for Disease Prevention and Control (CDC, 2006) guidelines, all females should be counselled and screened for HIV during each maternity visit or as soon as possible during childbirth. In line with this, the results of this study showed also that 67.1% of respondents sometimes educated women on HIV and AIDS, 69.8% of them offered to pregnant women counselling and testing that are voluntary (VCT) and 93.2% of respondents obtain consent before testing for HIV and AIDS which should be commended.

5.5 Factors associated with practice of midwives and nurses on the management of HIV+ pregnant women

A multivariate analysis of factors associated with the practice of midwives and nurses at the 37 Military hospital on the management of pregnant women with HIV and AIDS show that even though adequate knowledge and good attitudes were found among respondents, it did not have any statistical significance on the practice of healthcare providers at the 37 Military hospital. This is in contrast with various studies done to assess knowledge, attitudes and practice of healthcare providers. It is however worth noting that the years of service of the respondents and their marital status was statistically significant to the practice on the management of pregnant women with HIV and AIDS. This could be due to the fact that even though one might have attained a higher form of education it does not necessarily relate to better form of practice, because experience is what improves practice. Hence even though the healthcare workers at 37 Military hospital have adequate knowledge and good attitude, it is their years of service in the management of HIV and AIDS pregnant women that affects their practice of care.

5.6 Limitations of the study

The study was carried out at the 37 Military Hospital in Accra and the results may therefore only be relevant to this setting. Hospital based in-service training on the subject may have influenced nurses and midwives KAP on HIV and AIDS.

5.7 Chapter Conclusion

At the 37 Military Hospital, nurses and midwives play a major role in the management of pregnant women with HIV and AIDS, hence it is encouraging to find that these midwives and nurses have good knowledge, good attitude and good practice in the management of pregnant women with HIV and AIDS.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This Chapter, which is the last chapter for this study makes conclusions from the whole study. It goes further to make recommendations based on the outcome of the study and suggests areas for future research.

6.1 Conclusion

In line with the specific objectives of this study: to determine the level of knowledge of midwives and nurses in the management of HIV and AIDS pregnant women, to determine the attitude of midwives and nurses towards providing care to pregnant women with HIV and AIDS, and also to identify midwives and nurses ' practices in the care of pregnant women with HIV and AIDS. This research shows that nurses and midwives at the 37 Military Hospital have adequate knowledge in the management of pregnant women with HIV and AIDS, good attitude towards providing care to pregnant females infected with HIV and AIDS, and also good practices on HIV and AIDS management of pregnant females. This could imply that the training obtained by these healthcare providers are well structured on HIV and AIDS management and thus provides them with appropriate knowledge, favourable attitude and accepted practice during the management of pregnant females with HIV and AIDS.

6.2 Recommendation

Based on the findings of this study, the following recommendations are being made:

Military Health facilities in Ghana ought to collaborate to create nurses' and midwives' libraries across the various regions to allow nurses and midwives from different facilities to

find updated information on HIV and AIDS in order to add on to their knowledge on pregnant women with HIV and AIDS management.

Continuous dialogue and intermittent feedback should be received from pregnant women with HIV and AIDS by Clinical Managers at the 37 Military Hospital in order to improve on the attitudes of Nurses and Midwives towards the management and care of pregnant women with HIV and AIDS.

Routine monitoring and evaluation of the practices of Nurses and Midwives during the care of pregnant women with HIV and AIDS should be organised by the Nurses and Midwifery Council so that various Health Institutions will ensure that their staff conform to the standard guidelines and practices during pregnant women living with HIV and AIDS management in a way that conforms to the ethics of their profession.

Nurses and Midwives should collaborate to create an online platform to enable them share knowledge and Practices in the management of Pregnant women with HIV and AIDS.

6.3 Further Research

Further studies should be done to find out the reason why the few number of the midwives and nurses at the 37 Military hospital portray a poor attitude towards the provision of care for pregnant women with HIV and AIDS.

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APPENDICES

APPENDIX I: INFORMED CONSENT

Part I: Information Sheet

Title: KNOWLEDGE, ATTITUDE AND PRACTICES OF HEALTHCARE PROVIDERS AT THE 37 MILITARY HOSPITAL ON THE MANAGEMENT OF PREGNANT WOMEN WITH HIV AND AIDS.

Introduction

I am Eunice Osei-Mensah, a Master of Public Health student at the University of Ghana, School of Public Health, conducting a study on Knowledge, attitude and practices of healthcare providers on the management of pregnant women with HIV and AIDS at the 37 Military Hospital**.**

Purpose of the study

The objective of this study is to assess the knowledge, attitude and practices of midwives and nurses at the 37 Military hospital on the management of pregnant women with HIV and AIDS. This study specifically seeks to assess the level of knowledge of midwives and nurses on management of pregnant women with HIV and AIDS; determine the attitude of midwives and nurses towards management of pregnant women with HIV and AIDS; and identify the practices of midwives and nurses towards management of pregnant women with HIV and AIDS.

Mode of participation

You are not required to pay any amount of money or be forced to take part in this study. Participation is voluntary and you can withdraw at any stage without any penalty. Your refusal to partake in this study will not in any way affect your professional career. You are at liberty to ask any question about the study as well as seek clarifications on any question in the questionnaire. This study has been reviewed and approved by the 37 Military Hospital Ethical

Review Board which is the committee whose task is to make sure that research participants are protected from harm and their rights are respected.

Role of participant

If you agree to partake in the study, you will be required to answer a set of structured questions concerning the study. You will be asked about your knowledge, attitude and perceptions on the management of pregnant women with HIV and AIDS. It will take at least 15–20 minutes of your time.

Confidentiality

Your responses and any other identifying information provided will be kept in a locked file cabinet in the personal possession of the researcher. Information from this research will be used solely for the purpose of this study and any publications that may result from this study will not include any identification data on you. When no longer necessary for research, all materials will be destroyed.

Advantages/Risk of the study

There will be no direct benefit to you for your participation in this study. However, I believe that the information obtained will be useful in ensuring that training program of midwives and nurses are modelled to ensure acquisition of knowledge on management of pregnant women with HIV and AIDS, which can subsequently result in positive attitude and good practice towards the management of pregnant women with HIV and AIDS. The time you are going to take to answer these questions however, are the only discomforts you may have.

Contact Information

For further information/clarification, contact:

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Part II: Consent form

By signing this consent form, I **……,** confirm that I have read/the information on the sheet has been read to me and that I understood the information. I have had the opportunity to ask questions and any question asked has been answered to my satisfaction. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I voluntarily agree to take part in this study.

Signature: …….. **Thumbprint:**

Date: ……../……../..……..

I certify that I have explained the information on the sheet to the participant and that he/she has understood and agree to take part in this study.

Signature: ……..

Name of interviewer: …….. **Date:……/……/……**

Appendix II Questionnaire

UNIVERSITY OF GHANA

SCHOOL OF PUBLIC HEALTH

QUESTIONNAIRE ON KNOWLEDGE, ATTITUDE, AND PRACTICES OF HEALTHCARE PROVIDERS ON THE MANAGEMENT OF PREGNANT WOMEN WITH HIV AND AIDS

INTRODUCTION

You are kindly invited to participate in a research on knowledge, attitude and practices of healthcare providers at 37 Military hospital on the management of pregnant women with HIV and AIDS. This Study seeks to determine the level of knowledge, ascertain the attitudes and identify the practices of midwives and nurses on the management of pregnant women with HIV and AIDS. Participation in this study is voluntary and you are at liberty to withdraw at any point during this research. Data collected is purely for academic purposes and it will be kept confidential. The outcome of this research will be used to enrich the training programs of nurses and midwives in our health institutions.

If you are satisfied with this, kindly proceed to answer the following questions.

ID: _____ **Date:** / /

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENT (Kindly circle one correct answer or write your answer in the blank provided)	
1. Sex of respondent	1. Male 2. Female
2. Age in completed years	_____
3. Marital status	1. Single 2. Married 3. Co-habiting 4. Divorced/separated 5. Widowed
4. Level of Education	1. certificate

	2. Degree 3. Masters
5. Religion	1. Christian 2. Muslim 3. Traditionalist 4. Others _____
6. Ethnicity	1. Akan 2. Ewe 3. Ga 4. Hausa 5. Others _____
7. Which profession are you?	1. Midwife 2. Nurse
8. Years of service	1. 6months -5years 2. 6years -10years 3. >10years
9. Position in the facility	_____
Section B: Knowledge of management of pregnant women with HIV and AIDS Please, select the best response to the following questions on the management of pregnant women with HIV and AIDS by circling one of the options provided.	
10. How many times does a pregnant woman test for HIV and AIDS?	1. Once 2. Twice 3. Thrice
11. When is management initiated after a positive HIV and AIDS test?	1. Immediately 2. After Delivery of the child 3. Second Trimester
12. What is the Virus affinity for HIV and AIDS?	1. CD5 receptors 2. CD3 receptors 3. CD4 receptors
13. What is the desired CD4 count range during the management of a pregnant woman with HIV and AIDS?	1. 100–500 cells/mm 2. 500–1200 cells/mm 3. 1200–2000 cells/mm

14. Can a pregnant woman transmit the virus to her unborn child?	1. Yes 2. No 3. Maybe
15. What are the routes a pregnant woman can transmit HIV and AIDS?	1. Vaginal fluid 2. Amniotic fluid 3. All the above
16. What way can an infected mother transmit the virus to her child?	1. Breastfeeding 2. Bathing 3. Touching
Risk factors in MTCT (circle one of the options provided)	
17. Artificial rupture of membranes	1. Yes 2. No
18. Caesarean section	1. Yes 2. No
19. Perineal trauma	1. Yes 2. No
20. Vaginal delivery	1. Yes 2. No
Strategies for PMTCT: (circle one of the options provided)	
21. Use of antiretroviral drugs	1. Yes 2. No
22. Exclusive formula feeding	1. Yes 2. No
23. Voluntary counselling and testing	1. Yes 2. No
24. Caesarean section option	1. Yes 2. No

Section C: Attitude towards management of pregnant women with HIV/AIDS

Please, tick the box that best describes the extent to which you agree or disagree to the following statements.

Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
25. I prefer not to attend to HIV positive pregnant women					
26. No special attention should be given to pregnant women who are HIV positive					
27. I fear I will be infected so I don't attend to HIV positive pregnant women					
28. I don't want to be involved in PMTCT services delivery					
29. I get angry when HIV positive woman presents with pregnancy after I had told her its risky for the child					

Section D: Practice in the management of pregnant women with HIV/AIDS. (circle one right answer)

How often do you do the following?

30. Educate women on HIV/AIDS?	1. Not at all 2. Sometimes 3. Always
31. Offer voluntary counselling and testing (VCT) to pregnant women	1. Not at all 2. Sometimes 3. Always
32. Obtain consent before testing	1. Not at all 2. Sometimes 3. Always
33. Inform an infected woman's spouse about her status.	1. Not at all 2. Sometimes

		3. Always
34. Counsel women on safe infant feeding		1. Not at all 2. Sometimes 3. Always
35. Do you use aprons, gloves and masks during delivery?		1. Yes 2. No
36. Do you encourage mothers living HIV to feed baby exclusively with formula?		1. Yes 2. No
37. Do you wear gloves when checking soiled sanitary pad?		1. Yes 2. No
In case of accidental exposure to contaminant during delivery of HIV positive mother		
38. Do you wash under running water?		1. Yes 2. No
39. Do you report the incident?		1. Yes 2. No
40. Do you stop attending to the infected mother?		1. Yes 2. No

Thank you

APPENDIX: III ETHICAL CLEARANCE