

**STRATEGIES FOR PROMOTING THE PREVENTION OF MOTHER TO CHILD  
TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS AMONG ANTENATAL  
ATTENDEES IN THE CENTRAL REGION OF GHANA**

by

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**SUPERVISOR: PROFESSOR DSK HABEDI**

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## DECLARATION

I declare that **STRATEGIES FOR PROMOTING THE PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS AMONG ANTENATAL ATTENDEES IN THE CENTRAL REGION OF GHANA**, is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.



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June 2021

**Date**

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**ABSTRACT**

**Introduction**

Prevention of mother-to-child transmission (PMTCT) of human immunodeficiency virus (HIV) services have become integral in antenatal services to ensure the effective control and generational transmission of HIV. According to the Ministry of Health Ghana (MOH/GHS 2014:3), PMTCT of HIV services have been introduced in all regions of Ghana, but mother-to-child transmission (MTCT) of HIV continues to rise and has always been a major concern for the country, especially the health sector. One of the critical issues for promoting PMTCT of HIV services is to promote awareness among antenatal attendees.

**Purpose of the study**

The purpose of this study was to explore and describe antenatal attendees' and midwives' perceptions and develop strategies for the promotion of antenatal attendees' awareness of the prevention of mother-to-child transmission of human immunodeficiency virus services in the Central Region of Ghana.

**Method**

The study used a quantitative research approach. Questionnaires were used as tools for gathering data for the study. The population comprised of all pregnant women aged 15 to 49 attending antenatal clinics in the selected district hospitals in the Central Region of

Ghana and all midwives aged 21 to 60 working at the antenatal clinics in those selected district hospitals. A total of 496 respondents were sampled for the study, comprising 48 midwives and 448 antenatal attendees. The census sampling and the convenient sampling were used respectively. The table for determining sample size from a given population provided by Krejcie and Morgan (1970) was used to sample the antenatal attendees and the stratified allocation formula was utilised to distribute them across the various ANCs. The study was conducted in the antenatal clinics of the selected district hospitals. Data were processed using Statistical Package for the Social Sciences (SPSS) version 21.

## **Results**

The study found that the midwives generally had positive perceptions on PMTCT of HIV services. The midwives also had positive attitudes towards the provision of PMTCT of HIV services to antenatal attendees. Further, the antenatal attendees had poor perceptions about the PMTCT of HIV services hence, affecting their awareness of the services. The multiple regression analysis was used to predict four factors that can affect antenatal attendees' decision to test for HIV. These are the availability of treatment in case I test positive, confidentiality of status, approval from partners and free testing. Finally, new strategies were developed to promote the awareness of PMTCT of HIV services among antenatal attendees in the Central Region of Ghana.

## **Conclusion**

Even though the midwives had positive perceptions and attitudes toward the PMTCT of HIV services they were rendering, the antenatal attendees' receiving the services had poor perceptions towards the services, hence, affecting their awareness of the services available. Also, incorporating the new strategies developed from the study into the existing ones would help to increase participation which would promote PMTCT of HIV awareness among antenatal attendees in the Central Region of Ghana.

**Key words:** Antenatal attendees, Human immunodeficiency virus (HIV), Prevention of mother to child transmission (PMTCT), Strategies, Antenatal clinic, Mother to child transmission, Central Region, Ghana, Midwives and Health facilities.

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## Dedication

To my husband and children

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## LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral
GHS	Ghana Health Services
HIV	Human Immunodeficiency Virus
MTCT	Mother-to-Child Transmission
MOH	Ministry of Ghana
NACP	National AIDS and STIs Control Program
PLWHA	People Living with HIV/AIDS
PMTCT	Prevention of Mother-to-Child Transmission
SPSS	Statistical Package for the Social Sciences
STIs	Sexually Transmitted Infections
UNAIDS	Joint United Nations Programs on AIDS
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organisation

# CHAPTER 1

## ORIENTATION TO THE STUDY

### 1.1 INTRODUCTION

Mother-to-Child Transmission (MTCT) of Human Immunodeficiency Virus (HIV) infection is generally referred as the transmission of the virus from HIV-infected mothers to children during pregnancy, labour, childbirth, or breastfeeding (Tesfaye, Tufa, Likisa, Alebachew, Temesgen, & Dinsa, 2015:1). Globally, the HIV pandemic increases its spread with an estimated infection rate of five million people each year. For decades, the pandemic that was once dominated by infected men has become more feminine, with a greater percentage of female adults living with HIV (Olugbenga-Bello, Adebimpe, Osundina & Abdulsalam 2013:339). In sub-Saharan Africa, where there are about two-thirds of the global disease burden, 55% of adult HIV victims are women (UNAIDS 2021:2). As the number of women infected with the virus increases, the number of children who get infected by their mothers also increases. About 1,800 new HIV infections occur every day in children under 15 years of age with over 90% of them in developing countries. Most of these infections (about 90%) are associated with MTCT. In addition, 1,400 children under the age of 15 die every day due to HIV-related illnesses (Tesfaye et al 2015:1). Hence, MTCT of HIV contributes immensely in infecting young children with HIV. When pregnant women who visit antenatal clinics are targeted, it presents a distinct prospect of implementing mother-to-child transmission prevention (PMTCT) programs against HIV infection in new-borns (Deressa, Seme, Asefa, Teshome & Enqusellassie 2014:1). Despite global interventions to PMTCT of HIV, HIV infection among children remains high. Sub-Saharan Africa alone accounts for over 90% of the global MTCT of HIV burden (Dako-Gyeke, Dornoo, Ayisi Addo, Atuahene, Addo & Yawson 2016:2). This was disturbing because the rate of MTCT was an indication that the strategies for PMTCT were ineffective. Therefore, the study explored and described antenatal attendees' and midwives' perceptions and developed new strategies for midwives to promote antenatal attendees' awareness of PMTCT of HIV services.

## **1.2 BACKGROUND INFORMATION TO THE RESEARCH PROBLEM**

### **1.2.1 Background to the research problem**

According to UNAIDS (2021:1), statistics on HIV / AIDS indicated that 37.7 million people worldwide were infected with HIV / AIDS at the end of 2020. Of these, 7.1 million were children under 14 years old. Also, there were about 1.5 million new HIV infections in 2020 compared to 3.0 million in 1997 (UNAIDS 2021:1). There were previous concerns that the annual figure for new infections among adults would remain constant as incidence rates failed to shift between 2010 and 2015. However, for the general population between 2016 and 2020, a slightly more positive trend appeared in the form of new infections in adults with a decrease of 31% from 2.1 million to 1.5 million in 2020 (UNAIDS 2021:1). While new HIV infection among children globally decreased by 53% from 320,000 in 2010 to 150,000 in 2020 (UNAIDS 2021:1), reports indicated that more effort is required to increase information on HIV and HIV testing in adolescents and young adults. The alarming percentage of women and girls living with HIV globally required a rapid intervention since this group of people could easily transmit it to their children (UNAIDS 2021:1). In this group, young women aged 15-24 years are 59% more likely to become infected (Vieira, Rasmussen, Oliveira, Gomes, Aaby, Wejse, Sodemann, Reynolds & Unger 2021:2). Also, despite progress made in 69 countries that had seen a decline in new infections, the Joint United Nations Program on HIV / AIDS (UNAIDS) warned that progress in dealing with HIV transmission was still not rapid to achieve global goals (Vieira et al 2021:2).

According to Kharsany and Karim (2016:34), AIDS is an important global health priority. While, over the years, there has been progress in the fight against new HIV infections and reducing the figure for deaths related to AIDS, the number of people living with HIV continues to increase. AIDS-related diseases remain the leading cause of death worldwide, and it is expected to remain the primary global cause of early death in the coming decades. Although AIDS is no longer a new syndrome, global cohesion to tackle AIDS remains a necessity (UNAIDS 2014:1). In 2020, 1.4 million pregnant women worldwide were still infected with HIV (all of whom needed interventions for PMTCT of



HIV), and approximately 85% received antiretroviral therapy (ART) for PMTCT of HIV which is 5% increase since 2017.

A report from the United Nations Children's Fund (UNICEF) (2018:1) states that more than 60% of children and adolescents with HIV are found in eastern and southern Africa. These were the areas where the HIV response has made the most progress. In 2017, the coverage of ART for HIV-positive pregnant and breastfeeding mothers was 93% in these regions. In the same year, an estimated 120,000 adolescents between the ages of 10-19 and 94,000 children between the ages of 0-9 were infected with HIV. They now have about 1.9 million children and young people living with HIV in the regions (UNICEF 2018:1). Despite continued progress, 65,000 children and adolescents died in the region from AIDS-related causes in 2017. Moreover, all young children with HIV were infected with MTCT and about 90% of the 110,000 children who were newly infected with HIV in 2017 were in the WHO African Region (UNICEF 2018:1).

By mid-2018, almost all low- and middle-income countries had carried out ART treatment for life and started immediately after diagnosis. However, coverage of antiretroviral drugs among HIV-positive pregnant women varied significantly across regions. This coverage was high with 16.0 million in the WHO African region (89%), followed by WHO Pacific region with 3.7 million (81%), WHO American region with 1.4 million (77%) and WHO European region with 870,000 (75%). All other sectors have made progress, but overall, coverage in 2020 was relatively low. Coverage is 53% in the Southeast Asia region of the World Health Organization and 14% in the Eastern Mediterranean Region of the World Health Organization. The total number of women receiving PMTCT antiretroviral drugs is greatly influenced by the development of the WHO region in Africa, which includes about 91% of HIV-positive pregnant women globally (Prendergast, Essajee & Penazzato 2015:49).

Dako-Gyeke et al (2016:2) also testify that, despite global interventions to PMTCT of HIV, there is still a high infection among children infected with HIV, resulting in unequal access in resource-limited environments. Consequently, the majority of people living with HIV live in low- and middle-income countries, and it is estimated that 25.5 million of them live in sub-Saharan Africa. The group has 19.4 million people living in eastern and southern

Africa, which got 44% of new HIV infections globally in 2016 (González-Alcaide, Menchi-Elanzi, Nacarapa & Ramos-Rincon 2020:2).

In 2013, Sub-Saharan Africa accounted for 71% of the global HIV infection rate out of the estimated 35 million people infected with HIV worldwide, although it represents only 12% of the world's population (UNAIDS 2014:9). The trend of new HIV infections in all countries in sub-Saharan Africa has decreased from about 2.2 million in 2005 to 1.5 million in 2013, however, it remains high. The growth and widespread coverage of ART have led to a significant reduction in new HIV infections. For example, non-HIV-infected people living in high-coverage communities for ART treatment had a 38% lower risk of HIV infection compared to people who lived in societies where ART coverage was low (Kharsany & Karim 2016:35). Despite this decrease, the HIV infection rate is unacceptably high with the largest number of new infections coming from South Africa (23%), Nigeria (15%), Uganda (10%), Mozambique (8%) and Kenya (7%) (UNAIDS 2014:9). Further, the pandemic appears to be declining in Botswana, Namibia and Zambia, while Lesotho, Mozambique and Swaziland remain unchanged (Kharsany & Karim 2016:35).

In sub-Saharan Africa, the mode of transmission of HIV is through gender transmission and vertical transmission in children. As such, women and girls accounted for 63% of all new HIV infections in 2020. Also, six in seven new HIV infections among adolescent girls aged 15–19 years are as twice as likely to be living with HIV than males. Around 4200 adolescent girls and young women aged 15–24 years became infected with HIV every week in 2020 (UNICEF 2020:34). As more people receive ART, the number of AIDS-related deaths has steadily decreased, and in Sub-Saharan Africa, these deaths have decreased by 39% between 2005 and 2013 (Kharsany & Karim 2016:35).

Notwithstanding the benefits of ART, in 2013 the region still accounted for 74% of deaths from AIDS-related diseases. However, achievements of Millennium Development Goals that specifically sought to “stop and reverse the HIV epidemic” began to reveal a declining pattern in HIV infection rates, necessitating that the 2015 Sustainable Development Goals (SDGs) which was primarily to contribute to better living conditions of present and future generations have a far-reaching, profound and sustained impact on health and increases

in life expectancy by reaching out to HIV positive individuals irrespective of CD4 cell count (Kharsany & Karim 2016:35).

Furthermore, 1.5 million people affected by conflict, displacement or disaster and living with HIV lived in sub-Saharan Africa. Since then, this number has increased as the total number of displaced globally has increased (UNAIDS 2014:26). Therefore, sub-Saharan Africa has the highest HIV prevalence. Also, their unmet need for contraception is relatively high, with one out of five women unable to plan or restrict pregnancy (UNFPA 2016:11).

Additionally, the potential for MTCT in sub-Saharan Africa could be high, with traditional birth attendance. In Cameroon, the HIV infection rate among children born to HIV-positive mothers due to traditional birth delivery was 8.8% (Awungafac, Achiangia, Ndasi & Mbuagbaw 2015:2). In 2008, nearly 350,000 new MTCT cases occurred in low- and middle-income countries, with sub-Saharan Africa accounting for over 90% (Dako-Gyeke et al 2016:2). Further, the majority of children living with HIV live in West Africa, where AIDS remains the leading cause of death among adolescents (Myer & Phillips 2017:24).

The expected national HIV prevalence rate in Ghana was 1.6% (Ghana AIDS Commission 2019:12) with 334,713 people living with HIV/AIDS (PLWHA) (UNAIDS 2019:34). Out of these, 142,634 were women with most of them in the reproductive age group. In that same year, the average rate of HIV among women attending antenatal clinics was 1.9% (MOH/GHS 2014:7). In addition, the national HIV prevalence rate in Ghana in 2016 among antenatal attendees was 2.4%, with a total of 293,804 persons infected with the virus. With these, 178,560 were women 15 years and above and 32,034 were also children under 15 years of age. In that same year, the HIV prevalence rate in the Central Region was 1.8% (Ghana AIDS Commission 2018:1). Although the prevalence rate in Africa is very low, it is relatively high compared to 2.1 million worldwide between 2001 and 2015 (Nweze, Eke & Nweze 2017:240).

According to Dako-Gyeke et al (2016:4), Central Region had 27% untested ANC clients in 2013, which was relatively higher than what was recorded in previous years. The lowest percentage of untested ANC clients in 2011 was in the region (4%), with an 84% difference between 2011 and 2013. A report from the Ghana Health Service indicates

that 97 people including six children under the age of 15, died due to AIDS in 2017 in the region. In the same region, five pregnant teenage girls were infected with HIV and were put under close monitoring to protect their children from getting infected. Meanwhile, there were approximately 940 new infections, including 32 children under the age of 15. Therefore, the HIV prevalence rate in the Central Region is 1.8%, with more than 7,642 infected people, including 394 children under 15 years old (Opoku-Danso & Ampofo 2017:1094).

The burden of HIV among women in Ghana has implications for MTCT since an HIV infected woman can pass the virus to her baby during pregnancy, labour and delivery or breastfeeding (Opoku-Danso & Ampofo 2017:1094). Like most sub-Saharan African countries, MTCT of HIV is the second most common mode of transmission in Ghana, accounting for about 15% of all new infections in the country (Kharsany & Karim 2016:35). Without treatment, about 15-30% of babies born to HIV-positive women will be infected with HIV during pregnancy and delivery and there will also be 5-15% getting infected through breastfeeding (Abdollahi & Saffar 2016:89).

In response to the high incidence of MTCT of HIV, an intervention called PMTCT of HIV has been adopted, which aims to provide medication, counselling and psychological support to help mothers protect their babies from viral infections (Dong, Guo, Liu, Yan, Feng & Liang 2020:2). This awareness has caused the health sector to rank the elimination of MTCT of HIV as an important intervention and, therefore, adopted 2010 WHO Option B Recommendations for PMTCT of HIV including the use of triple combination ARV as either treatment or prophylaxis for all HIV positive pregnant women as well as prophylaxis and early diagnosis for the exposed infant to avert child morbidity and mortality (Ministry of Health /Ghana Health Service 2014:3).

To popularize and access e-MTCT services, Ghana developed four main functional strategies, which are primary prevention of HIV infection, prevention of unwanted pregnancy in HIV-infected women, prevention of infection from HIV-positive women to their children and the provision of treatment, care and support for HIV-positive women, their children and their families (MOH/GHS 2014:9). These strategies were derived from the five main strategies of the United States of America. It focused primarily on HIV-

positive women during pregnancy, labour, delivery and breastfeeding. It further extended the focus on partners and children of pregnant women (Ministry of Health/Ghana Health Service 2014:7). Although these strategies have been in existence for quite some years, progress of PMTCT of HIV is slow and erratic. The implementation process is complex and continuous progress has been a constant challenge (Flax, Yourkavitch, Okello, Kadzandira, Katahoire & Munthali 2017:1). Yet, these existing strategies are all integral parts of regular antenatal, labour and delivery, as well as postpartum services (Dako-Gyeke et al 2016:2).

For this intervention to succeed, every woman, especially those of child-bearing age, needs to gain knowledge about HIV infection, the risk of transmission to her child and must be provided with the services that reduce the risk of transmission to infants. Therefore, all health care workers, especially those providing sexual and reproductive services, must implement new strategies in addition to the existing ones at all levels of service delivery as part of the national effort to eliminate MTCT of HIV (MOH/GHS 2014:3).

### **1.2.2 STATEMENT OF THE RESEARCH PROBLEM**

Numerous studies have shown that the rate of MTCT of HIV is high (Linguissi, Sagna, Soubeiga, Gwom, Nkenfou, Obiri- Yeboah, Ouattara, Pietra & Simpore 2019:166). Without treatment, the probability of MTCT of HIV would be 15% to 45%. However, ART and other effective interventions of PMTCT of HIV can reduce this risk by 5% (Adetokunboh & Oluwasanu 2016:400). The scope of global MTCT prevention of HIV has continued to expand, and the level of service has improved resulting in a decrease in the number of new infections among children worldwide by 53% from 320,000 since 2010 to 150,000 in 2020 (UNAIDS 2021:2). For instance, about 1.6 million new HIV infections among children have been prevented since 1995 due to the implementation of PMTCT of HIV services. Among them, 1.3 million are estimated to have been prevented in the five years, between 2010 and 2015 (Dako-Gyeke et al 2016:2).

In a recent gap analysis report, WHO estimated that in 21 priority countries, nearly 1.3 million women still lack PMTCT of HIV intervention (Dako-Gyeke et al 2016:2). If HIV-

positive pregnant women do not receive any antiretroviral drugs, then the high risk of MTCT of HIV occurrence (25-40%) must be considered and differences in access must be addressed (UNAIDS 2014:14). Many efforts are needed to narrow the gap in access because the new analysis shows that a 10% increase in treatment coverage may reduce new infections by 1% (Dako-Gyeke et al 2016:2). Meanwhile, there are already existing PMTCT of HIV strategies (national agenda) which were derived from the international agenda and the WHO recommendations in place and being used in managing HIV positive mothers at the ANCs.

Likewise, previous studies have identified structural, social and cultural factors as the main obstacles to achieving the PMTCT of HIV / AIDS access in resource-limited settings. These include insufficient knowledge of PMTCT of HIV, negative perceptions, stigmatization, fear and lack of support which may limit the use of PMTCT of HIV services in countries with limited resources (Dako-Gyeke et al 2016:2). Moreover, the current challenges of delivering maternal health care in low-income countries, in the context of integrating PMTCT- MNCH, may not enhance equitable PMTCT of HIV access. Similar to maternal and child health care packages, PMTCT interventions should be implemented comprehensively and continuously. Unfortunately, WHO continues to see gaps in the continued use of recommended and associated maternal health services in the African region such as four-time antenatal visits (55%) and a low number of skilled births (50%) which may limit the equitable reach of PMTCT interventions among the target population (Dako-Gyeke et al 2016:2) hence, increasing the rate of MTCT of HIV in the region.

According to the Ministry of Health, Ghana (MOH/GHS 2014:3), PMTCT of HIV services have been introduced in all regions of Ghana, however, MTCT of HIV continues to rise and has always been a major concern for the country, especially the health sector. This has also led to an increase in HIV infections in the Central Region and serves as an indication that, the existing PMTCT of HIV strategies in Ghana are not so strong enough to bridge the PMTCT of HIV access gap, hence, the development of new ones to complement the existing strategies.

According to the Annual Review report on HIV/AIDS, 76,734 pregnant women in the central region who visited the antenatal clinic, 61,447 representing 80% took an HIV test,

and 585 of them (0.95%) testing positive (Every 2016:52). In addition, due to concerns about discrimination and rejection by male partners and family members, many women choose to withdraw from the PMTCT of HIV program and have given birth to children with HIV (Nordberg, Gabriel, Were, Kaguir, Ekstrom, Kagesten & Rautiainen 2020:2). Therefore, children continue to die from HIV/AIDS which could have been prevented.

Few studies have been done globally and in Ghana to assess strategies for implementing the program. Although Ghana is one of the heavily burdened countries in sub-Saharan Africa, there are limited or low campaigns to stop MTCT of HIV coverage. Therefore, there has been little achievement and progress in this direction. Moreover, despite people's awareness of the spread of HIV / AIDS in Ghana (99% of men in the country and 98% of women), their knowledge and perceptions of MTCT for HIV differ. Research on pregnant women's awareness has produced varying results. Additionally, most research on this topic focuses only on knowledge and awareness with little interest in the strategies (Mariwah, Kumi-Kyereme, Tanle & Donkoh 2017:1). Studies on PMTCT of HIV promotion strategies have, therefore, become important after the infection has spread widely despite a significant level of awareness (Ghana AIDS Commission 2016:20).

The appreciable level of knowledge and significance awareness without a corresponding positive decline in MTCT of HIV suggests that some barriers associated with HIV/AIDS might have been contributing factors. Also, since the inception of the program in the region, there are limited researches done to assess how women in Ghana are embracing the intervention program. It is against this backdrop that this study aims to explore and describe the antenatal attendees' and midwives' perceptions towards PMTCT of HIV services and to develop new strategies for midwives to promote antenatal attendees' awareness of PMTCT of HIV services in the Central Region of Ghana.

### **1.3 AIM OF THE STUDY**

#### **1.3.1 Research purpose**

The aim or purpose of the study is to explore antenatal attendees and midwives' perception towards PMTCT of HIV services and to develop strategies for the promotion

of antenatal attendees' awareness of the prevention of mother-to-child transmission of human immunodeficiency virus services.

### **1.3.2 Research objectives**

The objectives of the study were in three steps:

Step 1:

- Explore and describe the antenatal attendees' and midwives' perceptions to promote antenatal attendees' awareness of PMTCT of HIV services.

Step 2:

- Develop and describe strategies for midwives to promote antenatal attendees' awareness of PMTCT of HIV services.

Step 3:

- Evaluate the developed strategies for the promotion of antenatal attendees' awareness of PMTCT of HIV services.

### **1.3.3 Research questions**

This study sought to answer the following research questions:

Step 1:

- What are the antenatal attendees and midwives' perceptions to promote antenatal attendees' awareness of PMTCT of HIV services?

Step 2:

- How can strategies for midwives to promote antenatal attendees' awareness of PMTCT of HIV services be developed and described?

Step 3:

- What are the strategies for the promotion of antenatal attendees' awareness of PMTCT of HIV services?

## **1.4 SIGNIFICANCE OF THE STUDY**

MTCT of HIV is known to be the primary mode of transmission of HIV from mother to child and this has led to an increased number of children with HIV/AIDS, specifically in sub-Saharan Africa. Exploring the perceptions of antenatal attendees and midwives on PMTCT of HIV services will help create much awareness towards the services and develop new strategies to promote antenatal attendees' awareness of the PMTCT of HIV



services in the Central Region of Ghana. Also, evaluating the new strategies developed will help PMTCT of HIV services coordinators, HIV program managers and policy makers to incorporate the new strategies into the existing ones which, when employed by the midwives, will promote the antenatal attendee awareness and increase their participation in the PMTCT of HIV services. This will also curb the spread of mother-to-child HIV transmission and keep the mothers and their babies alive in the Central Region and Ghana at large.

## **1.5 DEFINITIONS OF TERMS**

### **1.5.1 Conceptual definitions**

**1.5.1.1 Strategies:** According to Pender's Health Promotion Model (Pender 2011), strategies are the concepts of intention and identification of a plan which leads to the implementation of health behaviour. In the context of this study, strategies are the new plans which would be developed and implemented to improve antenatal attendees' awareness of PMTCT of HIV services in the Central Region of Ghana.

**1.5.1.2 Human Immunodeficiency Virus (HIV):** This is the virus that interferes with the body's capability of preventing organisms that cause diseases by damaging the immune system (Terms 2021:79). In the context of this study, it is the virus that causes the HIV infection in the antenatal attendees' and their babies.

**1.5.1.3 Antenatal attendees:** Women attending antenatal clinic when they are pregnant or before birth, so that the medical staff can check that they and their babies are healthy (Oxford Mini Dictionary 2015:20). In the context of this study, antenatal attendees refer to pregnant women attending antenatal clinics in the district hospitals in the Central Region of Ghana.

**1.5.1.4 Midwives:** These are the nurses trained in midwifery and giving special medical care to pregnant women who visit the antenatal clinics (Oxford Mini Dictionary 2015:20).

In the context of this study, they are the health professionals who take care of the antenatal attendees at the ANCs and manage the PMTCT services.

**1.5.1.5 Perception:** This is the ability of someone to notice and understand things that are not obvious to other people (Oxford Mini Dictionary 2015:22). In the context of this study, perception refers to knowledge, awareness, attitudes, beliefs, perception and feelings about strategies to promote awareness of PMTCT of HIV services in the Central Region of Ghana.

## **1.5.2 Operational definitions**

**1.5.2.1 Strategies:** According to Pender's Health Promotion Model (Pender 2011), strategies are the concepts of intention and identification of a plan which leads to the implementation of health behaviour.

**1.5.2.2 Prevention of mother to child transmission:** This is an intervention instituted to prevent HIV transmission from the mother to the child during pregnancy, delivery and through breastfeeding (Terms 2021:143).

**1.5.2.3 Human Immunodeficiency Virus (HIV):** This is the virus that causes acquired immunodeficiency syndrome (AIDS) and can be spread through contact with infected blood or from mother to child during pregnancy, childbirth or breastfeeding (Terms 2021:79).

**1.5.2.4 Mother To Child Transmission (MTCT):** This constitutes a mode of HIV transmission in children or a vertical mode of HIV transmission where an HIV-infected mother passes HIV to her infant during pregnancy, labour, delivery, or breastfeeding (Terms 2021:133).

## **1.6 THEORETICAL FOUNDATIONS OF THE STUDY**

### **1.6.1 Research paradigm**

Research paradigms guide scientific discovery through hypotheses and theories. Understanding the paradigm-specific assumptions can help clarify the quality of results that support scientific research and identify gaps in generating reliable evidence (Park, Konge, & Artno 2020:690).

Positivism is based on hypothetical reasoning to test a priori hypothesis. This hypothesis allows us to derive a functional relationship between independent variables and dependent variables (Kivunja & Kuyini 2017:26). The main objective of positivist research is to produce descriptive or causal relationships which ultimately lead to the prediction and control of the event in question. In this study, the positivist paradigm is adopted.

### **1.6.2 Theoretical framework**

The theoretical framework is the structure that guides research through the use of formal theoretical constructions that use consistent explanations of some phenomena and relationships (Ahmad, Shad, Latada & Wahab 2019:2). The theoretical framework used in this study was adapted from two theories namely, Pender's Health Promotion Model (HPM) and the Theory of Planned Behaviour (TPB). These two theories were chosen because they make a perfect pair. That is, they have similar concepts which are interrelated. Also, most of the concepts of the theory of planned behavior are embedded in the construct of the Pender's health promotion model. Furthermore, the concepts of the two theories are essential to promote health and prevent disease which is in line with the aim of this study. Both theories are used to plan behavioral modification interventions to assist in the improvement and prevention of unhealthy behavior which will assist in the achievement of optimum health promotion for patients and the community. This relates with the purpose of this study which is to explore antenatal attendees and midwives' perceptions towards PMTCT of HIV services and to develop strategies to promote antenatal attendees' awareness of PMTCT of HIV services. This awareness creation might increase the antenatal attendee's participation in the services and further reduce or prevent MTCT HIV. Both theories explore the concept that everyone (midwives or antenatal attendees) has her own set of characteristics or experiences which in turn help

shape their actions. The two theories involve the behavior specific cognition and affect and perceived behavioral control which have direct impact on the individual motivation for change (Butt & Rich 2018:2). That are the midwives and the antenatal attendees' perceptions been negative or positive towards PMTCT of HIV services might influence their awareness and participation as well as the perceptions of significant others. The Pender's health promotion model and the theory of planned behavior all end in a behavioral outcome which results from the individual committing to taking steps necessary to make a change (Butt & Rich 2018:2). Thus, the antenatal attendees participating in the PMTCT of HIV services might promote their awareness and prevent MTCT HIV. Also, the midwives employing the needed strategies properly might create more awareness and increase participation which might reduce or prevent MTCT HIV.

Since the concepts of the Pender's health promotion model are many, the researcher selected those that will meet the purpose of the study. For the theory of planned behavior, all the concepts were used.

### **The health promotion model**

The HPM is a middle-range theory derived from Bandura's social cognitive theory (Keep 2013:20; Pender 2011:5). In this study, the HPM explored the multifaceted processes that motivate individuals to engage in positive health behaviour changes. Both cognitive-perceptual factors and modifying factors were used to explain and predict health behaviours (Keep 2013:20). The approach is frequently utilized for health promotion, which is one of modern nursing's major goals. Healthy habits can improve a patient's general well-being while also protecting them against sickness and chronic diseases. Furthermore, the HPM provides a comprehensive perspective of the patient by analysing the patient's past and self-perceptions, allowing the nurse to intervene and construct treatment plans accordingly.

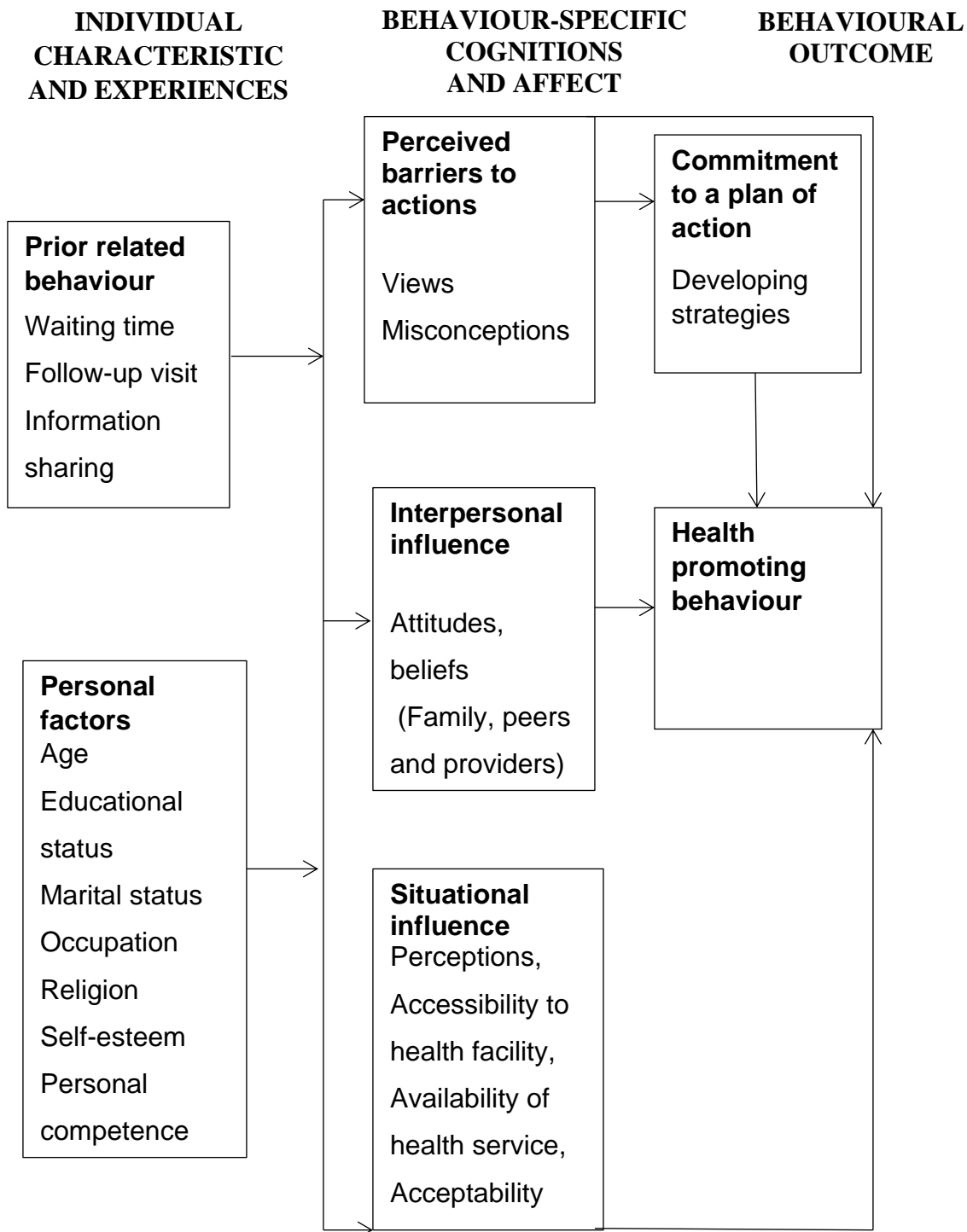
The HPM effectively brings together all of the variables that might inspire a person to improve their health. Perceived self-efficacy, advantages, and obstacles all have a role in predicting health behaviours, according to studies. (Pender 2011:3). The HPM proposed by Pender (2011) was designed to be a complementary counterpart to models of health promotion. It defines health as "a positive dynamic state not merely the absence of

disease" (Pender 2011:4). Health promotion is directed at increasing a client's level of well-being. It depicts the multidimensional character of people as they interact with their surroundings to achieve health. Pender's model is divided into three components: individual traits and experiences, behaviour-specific cognitions and feelings, and behavioural outcomes. The theory postulates that individuals have distinct personal qualities and experiences that impact future behaviour.

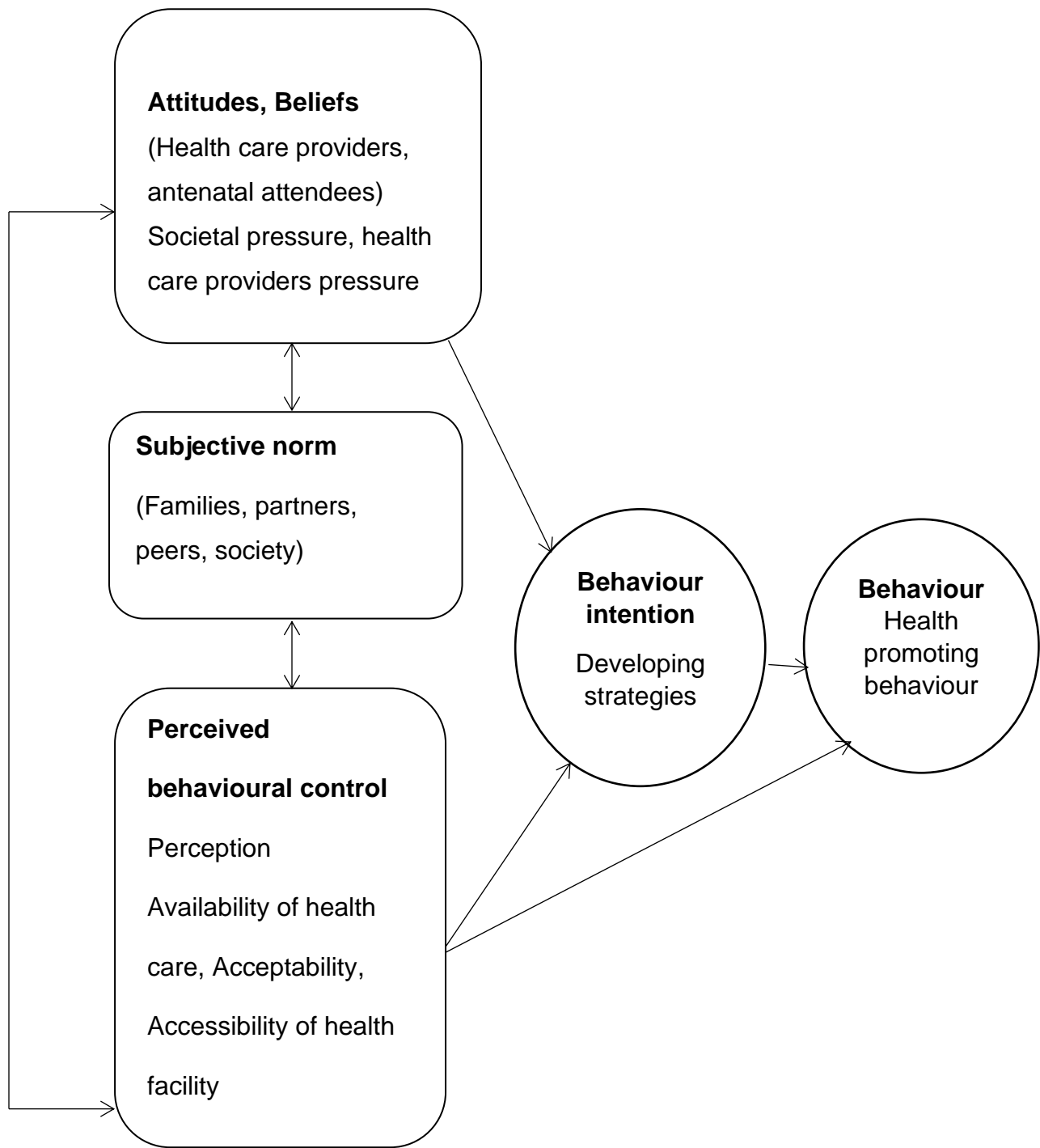
The collection of compartmental variables has substantial motivating meaning for certain knowledge and effects. Variables can be altered by the actions of nurses. The desired behavioural result, which makes it the endpoint of the HPM, is the health-promoting behaviour. These behaviours are expected to result in better health, increased functionality at every stage of development and improved quality of life. The ultimate demand for behaviour will also be affected by the direct rival demand and preferences to overturn targeted health promotion measures.

### **The theory of planned behaviour**

The TPB was also used in this study. This theory links one's beliefs and behaviour. The theory states that the attitude towards behaviour, subjective norms and perceived behavioural control, together shape an individual's behavioural intentions and behaviours. The theory of planned behaviour focuses on three areas. These are normative beliefs and subjective norms, control beliefs and perceived behavioural control and behavioural intentions and behaviour. This means that, for an individual to have a behaviour change or adopt a new behaviour (health-promoting behaviour), it depends on certain influences which could be from the individual him/herself (attitude) or the health professional's attitude towards the delivery of health care. It could also be from societal pressure and influence, family support system which includes the spouse, families and peers as well as the beliefs of the individual towards the behaviour (Ajzen 2014:443). For this study, the key major concepts were considered.



**Figure 1.1: Conceptual Framework Adapted from Pender's Model (2011)**



**Figure 1.2: Framework adapted from the theory of planned behaviour (Ajzen 2014)**

### 1.6.3 Definitions of Key Concepts (Theoretical Underpinning)

**Prior related behaviour:** This is the frequency of the same or similar behaviour in the past directly or indirectly affect the likelihood of engaging in health-promoting behaviours. This could be some previous experiences that keep on occurring over and over again which could be positive or negative, hence, might affect the decision of some women towards PMTCT of HIV services. For this study, prior related behaviours included variables such as time spent at the clinic, follow-up visits and information sharing.

- **Waiting time:** In this study, time spent at the clinic might influence the decision of some of the pregnant women in participating in the PMTCT of HIV services. For instance, if they used to spend a long time at the clinic in their previous pregnancies, this might affect their decision in participating in the PMTCT of HIV services. In a situation where they were attended to early in their previous visits or pregnancies, hence living the clinic early enough to attend to their activities might encourage some of the pregnant women to participate another time.
- **Follow-up visits:** Follow-up visits was also another variable in this study that was considered. A situation where some pregnant women were visited during their previous pregnancies might affect their decision in their current pregnancy towards the PMTCT of HIV services. On the other hand, if these follow-up visitations were lacking, then their decision to participate in subsequent PMTCT of HIV services would be affected.
- **Information sharing:** How often some of the pregnant women were given adequate information about HIV, MTCT and PMTCT of HIV services in their previous pregnancies when they attended the ANC might determine their compliance in the PMTCT of HIV services. Having enough information about the services in the previous participation might influence or encourage some of the pregnant women in participating again in the current services. Some of



the women may also share some of the information with other pregnant women which might influence others to participate in the services provided.

**Personal factors:** Personal factors are categorized into three factors, namely; biological, psychological and socio-cultural. These factors are predictive of a given behaviour and shaped by the nature of the target behaviour being considered (Pender 2011:4). For this study, the biological, psychological and socio-cultural factors would be considered.

**a. Biological factors:** They included variables such as age, gender, body mass index, pubertal status, aerobic capacity, strength, or balance (Pender 2011:4).

- **Age:** In this study, age is the variable that was considered under biological factors. Some of the respondents might be affected by their age in relation to decision making towards PMTCT of HIV services. For instance, respondents who are below 18 years might not be matured enough to decide for themselves. Also, they might not be financially sound since some of them might be unemployed to take decisions on their own. Therefore, any decision by their parents might affect their participation in the PMTCT of HIV services.

**b. Psychological factors:** They included variables such as self-esteem, self-motivation, personal competence, perceived health status and definition of health. For this study, self-esteem and personal competence were the variables that were considered.

- **Self-esteem:** The value some of the pregnant women might place on themselves or how worthy some of the pregnant women might think of themselves might influence their decision to participate in the PMTCT of HIV services. Some of the women might feel proud and might not want anyone to know of their HIV status. The stigma and discrimination attached to HIV positive individuals in society might also influence the decision of some of the women since it sometimes results in shame and low self-esteem of the individual.
- **Personal competence:** This might determine the measurable or in-depth knowledge of some of the women about HIV and PMTCT of HIV services which would empower them to make decisions or take responsibility for their health.

c. **Socio-cultural factors:** They included variables such as race, ethnicity, acculturation, education and socioeconomic status (Pender 2011:4). Educational status, marital status, religion, occupation and culture are the variables that were used in this study under socio-cultural factors.

- **The educational status:** This might determine the level of knowledge of the respondents as well as their awareness of HIV transmission and PMTCT of HIV services. This stems from the fact that, as an individual moves up the educational ladder, the more knowledgeable the person becomes on issues that would empower him or her to make informed decisions. Also, the educational status of the respondents would determine the kind of employment they are engaged in as well as their financial status which might affect their decision towards the PMTCT of HIV services.
- **Marital status:** This is also another variable that was considered. Marriage is seen as prestigious to Ghanaians. A woman's dignity is seen by her ability to marry and stay in the marriage union or her marital status on which basis she loses her autonomy and independence to make her own decision to her husband, her husband's kinsmen or the head of the household she is residing in irrespective of her economic status, place of residence and educational level. Some of the married respondents would have social support from partners who might encourage or discourage them towards the PMTCT of HIV services. Their decision to participate in the PMTCT of HIV services might also be influenced by their husbands.
- **Religion:** The religious affiliations, beliefs and practices might affect the decisions of some respondents in participating in the PMTCT of HIV services. These religious beliefs might also affect the attitude of some of the pregnant women towards PMTCT of HIV services.
- **Occupation:** The occupational status of some respondents would determine their financial strength which might make them powerful enough to make their own decisions towards health or less powerful to rely on decisions from other support systems towards their health.

- **Culture:** The culture of some of the pregnant women might determine their decision towards PMTCT of HIV services. For instance, some cultures demand that before a woman takes any decision, she must consult the partner or the husband first. This, in essence, might influence the decisions of some respondents towards their health since their partners would have to decide for them.
- d. **Perceived barriers to action:** These involve anticipated, imagined or real blocks and personal costs of understanding a given behaviour (Pender 2011:4).
- **Views or misconceptions:** Some of the respondents might have certain views or misconceptions towards PMTCT of HIV services which might contribute to their participation in the program. Also, the misconception of some respondents might influence their attitude and beliefs about PMTCT of HIV services and vice versa.
- e. **Interpersonal influences/ Normative beliefs and Subjective norm:** Cognition concerning behaviours, beliefs, or attitudes of others. Interpersonal influences include norms, social support and modelling. Primary sources of interpersonal influences are families, peers, and healthcare providers (Pender 2011:4). It is an individual's perception of social normative pressures, or relevant others' beliefs that he or she should or should not perform such behaviour (Ajzen 2014:443) (e.g. parents, spouse, friends, teachers) In this study, attitudes, beliefs, societal pressure, health care providers pressure, families, peers and health care providers (midwives) were the variables considered.
- **Attitudes:** Here, the attitudes of the midwives been negative or positive might influence the attitudes of the antenatal attendees toward the PMTCT of HIV services.
  - **Beliefs:** Aboh (2018:112) defines belief as a mental representation of an attitude positively orientated towards the likelihood of something being true. Therefore, the beliefs of some respondents towards HIV transmission might be a factor that could influence the decision of some respondents. Therefore, embarking on health campaigns to create awareness would change some of these beliefs.

- **Societal pressure:** In this study, pressure from society and significant others such as partners and parents might affect the decisions of some pregnant women in participating in the PMTCT of HIV services. For instance, women below the age of 18 would be affected by pressures and decisions from parents since they are minor and assumed cannot make health decisions for themselves.

**Health care providers pressure:** Pressures from health providers, being positive or negative, might influence some of the pregnant women's decisions toward the PMTCT of HIV services.

- **Family:** Some of the pregnant women would also consider what their family members would think of them or how they would see them when they participate in the PMTCT of HIV services since they might have different beliefs towards the program and this might influence their decision. That is, some respondents might be influenced by the norms and expectations of the family.
- **Health care providers (midwives):** The thoughts of the health care providers about the respondents when they get to know that they know their HIV status of the pregnant women might affect some of the decisions of the respondents to participate.
- **Peers:** Peers might also influence some respondents. Expectations from these significant others as well as their encouragement might be a factor in deciding to participate in the PMTCT of HIV services.
- **Situational influences/ control beliefs and perceived behavioural control:** Personal perceptions and cognitions of any given situation or context that can facilitate or impede behaviour. Situational influences might have direct or indirect influences on health behaviour (Pender 2011:4). It is an individual's beliefs about the presence of factors that might facilitate or hinder the performance of the behaviour (Ajzen 2014:443). It is assumed that perceived behavioural control is determined by the total set of accessible control beliefs (Ajzen 2014:443). The variables that were considered here were the accessibility of health facility, perception of the pregnant women, acceptability, availability of PMTCT of HIV

services which included the equipment and essential drugs, adequate supplies for PMTCT of HIV services as well infrastructure to ensure available space.

- **Availability of health care:** This is the characteristics of a service or other asset used to produce goods and services that meet human needs and want that is committable, operable, or usable upon demand to perform it's designated or required function. It is, however, an aggregate of the services' accessibility, reliability, maintainability, serviceability, and securability (Aboh 2018:113). Some respondents, upon reaching the health facilities or clinics, would not be able to use or obtain the PMTCT of HIV services due to the unavailability of some services expected. Some of the pregnant women might also have the notion that, even if they participate, some logistics and other PMTCT of HIV supports would not be available which might cause some inconveniences and hence, affect their decisions to participate in the PMTCT of HIV services.
- **Acceptability** - Acceptability is the degree to which services rendered by the institution will meet individuals' expectations, personal preferences and societal standards (Aboh 2018:112). Some of the pregnant women might refrain from the PMTCT of HIV services when the services provided do not meet their expectations.
- **Accessibility of health facility:** This is the step to which the institutional care would fit, inhibit or enhance the individual's willingness and ability to gain entry, benefit and get satisfied from outcomes of the services provided (Aboh 2018:113). It is, however, the process of knowing about, seeking, entering, passing through, and getting satisfied with the care and benefiting from the outcome of a service provided but not merely having discussions with a care provider. It also depicts transportation, proximity, the convenience of operationalisation of care and client preferences (Aboh 2018:113). Some of the respondents might found it difficult in reaching the health facilities or getting to a health facility where PMTCT of HIV services were provided as a result of the distance (that is how far the health facility is from where the women live) or transportation. This also might affect the decisions of some of the pregnant women.
- **Perceptions:** Some of the respondents might perceive PMTCT of HIV differently which might affect their participation in the programs.

- **Commitment to plan of action/ Behavioural intention:** The concept of intention and identification of a planned strategy leads to the implementation of health behaviour (Pender 2011:4). It is also an indication of an individual's readiness to perform a given behaviour. It is assumed to be an immediate antecedent of behaviour. It is based on attitudes toward the behaviour, subjective norm, and perceived behavioural control, with each predictor weighted for its importance in relation to the behaviour and population of interest (Ajzen 2014:443). For this study, the strategy was the variable that was considered.
- **Strategies:** The study might result in the development of new strategies which when implemented, would encourage the antenatal attendees to participate in the PMTCT of HIV services.
- **Health-promoting behaviour:** This is an individual's observable response in a given situation for a given target (Pender 2011:4). Ajzen alludes that behaviour is a function of compatible intentions and perceptions of behavioural control. This stems from the fact that perceived behavioural control is expected to moderate the effect of intention on behaviour, such that a favourable intention produces the behaviour only when perceived behavioural control is strong (Ajzen 2014:444). Using the strategies which would be developed would result in HIV free region leading to a positive health outcome. From the discussion so far, it could be concluded that the concepts of both the health promotion model (HPM) and the theory of planned behaviour when used appropriately would result in the development of (new) strategies which, when implemented, might produce a positive health outcome.

## 1.7 RESEARCH DESIGN AND METHOD

### 1.7.1 Research design

A descriptive cross-sectional research design was employed for this study which explored and described antenatal attendees and midwives' perceptions towards PMTCT of HIV and developed strategies used by the midwives to promote PMTCT of HIV (Amedahe & Asamoah-Gyimah 2016:93). The outcomes from the study could guide the development

of strategies to indicate appropriate interventions to improve PMTCT of HIV among pregnant women and consequently reduce HIV vulnerability among their children.

### **1.7.2 Research method**

In this study, the quantitative research method was chosen by the researcher. According to Campbell, Taylor & McGlade (2018:691), a quantitative approach is used to describe, develop or find patterns and averages, make predictions, test causal relationship and generalised results to wider populations. A closed-ended questionnaire was used which helped the researcher to determine typical response on PMTCT of HIV services to promote antenatal attendees' awareness on the PMTCT program and developed new strategies to be used by the midwives (Sharma 2018:4). The study was conducted in two phases: the initial phase (midwives) and the second phase (antenatal attendees). The quantitative method was used to explore and describe the midwives and the antenatal attendees' perceptions towards PMTCT of HIV and developed new strategies to promote awareness of the PMTCT of HIV services among antenatal attendees in the Central Region of Ghana. Both phases comprised of step one (objective 1) and step two (objective 2) of this study. In the initial and second phases, data were collected respectively in steps one and two through an administered questionnaire from a census and convenient sampled midwives and antenatal attendees from the 11 district hospitals in the Central Region of Ghana. The data explored the respondents' perceptions and developed new strategies to promote antenatal attendees' awareness of PMTCT of HIV services in the Central Region of Ghana. The quantitative method was also employed to evaluate the new strategies developed from the results of the initial and the second phases (objectives 1 and 2) which became the third objective for this study.

### **1.7.3 Research setting**

The study was conducted in the Central Region which is one of the 16 regions in Ghana. Located along the coast, the Central Region has 20 administrative districts with 11 of them having district hospitals serving the region. In this study, all the 11 district hospitals in the region were used.

#### **1.7.4 Population**

The population for this study comprised all pregnant women attending ANC in the 11 district hospitals (specifically 11 antenatal clinics since each district hospital has one antenatal clinic) between the ages of 15 to 49 and all the midwives working at the ANCs in the 11 district hospitals between the ages of 21 to 60 from January to December 2019 in the Central Region of Ghana. The total population of the antenatal attendees from the 11 district hospitals in the Central Region was 90905 with a mean age of 28.4 and that of the midwives was 40 with a mean age of 33.8 (DHIMS 2018:56). Since the population of the antenatal attendees was large, it became impossible to use the whole population for the study. Therefore, a sample was drawn from the population and bulk together to form a composite sample.

#### **1.7.5 Sample and sampling procedure**

The antenatal attendees were conveniently sampled using the table for determining sample size for a given population provided by Krejcie and Morgan (1970) cited in Sarantakos (2005:174) (see Table 5.1) and the sample obtained was 450. This was proportionally distributed across the antenatal clinics using the stratified allocation formula (see Table 5.2). The convenient sampling method was applied by stopping randomly antenatal attendees at the ANCs to respond to the questionnaires and continuing the process until the required sample was obtained. The census sampling was used to sample all the 40 midwives because the population was small and according to Isreal (2013:2), the entire population is studied when the population is small.

#### **1.7.6 Data collection**

Ten research assistants with BSc. Nursing degree from the University of Cape Coast, Ghana were employed and trained to assist the researcher in the data collection process. The researcher took them through the objectives of the study and the research instruments to understand the purpose of the study and ensure a uniform understanding of the research items. The training took one day and was done a week prior to the data collection. Data collection started from 1<sup>st</sup> April to 3<sup>rd</sup> June, 2020. In all, the data collection process took ten weeks. Questionnaires were administered by the researcher and the research assistants to the antenatal attendees and the midwives at the ANCs of the 11



district hospitals in the Central Region of Ghana. A detailed procedure has been provided in chapters 3 and 5 of this study (see sections 3.4.5 and 5.4.5).

### **1.7.7 Data management and analysis**

The data were analysed using the Statistical Package for the Social Sciences (SPSS) software version 21.0. Descriptive statistical analysis was used to compute frequencies, percentages, means and standard deviation for the independent and dependent variables while inferential statistical analysis was used to describe antenatal attendees' and midwives' perceptions of PMTCT of HIV services. A detailed procedure has been provided in chapter three of this study (see section 3.4.6).

### **1.7.8 Validity**

The researcher designed data collection instruments to measure what they were supposed to measure. Assessing validity, pre-testing was done as one of the mechanisms to improve the validity of the data collection tools. Principal component factor analysis was also used to measure content validity and any question which scored 0.3 and below was considered irrelevant and removed.

### **1.7.9 Reliability**

The instrument was modified and adjusted based on the feedback from the pre-test exercise. Feedback from supervisor, UNISA Health Studies Research Ethics Committee and Ghana Health Services Ethics Review Committee were also used to improve instruments' reliability.

### **1.7.10 Ethical considerations**

In this study, the researcher made use of different ethical approaches to put ethical issues as the top priority of the study so that the study could sound in all facets of its conduct.

Before the data collection, the researcher sought the consent of the respondents before giving them the research instruments. Respondents were made aware of the type of questions to expect from the questionnaire and the purpose of the study. They were also assured of anonymity and confidentiality of their responses for only the purpose for which

the data were being solicited. The respondents were assured the equal right to withdraw themselves from the study immediately if they felt was necessary and this did not affect the care received from the health facility as well as their relationship with the research team. Benefit, as well as the risk in the study, was made known to all respondents whether they withdraw or respond. Although the data collection process could take some of their time, the respondents were made aware that the information gathered would help prevent innocent children from contracting HIV. They were also assured that the data gathered would be used solely for the purpose for which they were collected and confidentiality would be maintained.

Ethical approval was obtained from the Health Studies Research Ethics Committee (HSREC) of the Department of Health Studies, University of South Africa. Institutional consent was also obtained from the Ghana Health Services Ethics Review Committee after the researcher had applied. On the other hand, permission was obtained from the Regional Health Directorate in the Central Region of Ghana, the district hospitals in the Region as well as the midwives of the various units of the institutions or health facilities. The institutions were assured that the consent of the respondents would be sought before giving them the research instruments. All sources of information were referred to according to the standard and style of the University. Fabrication of data was avoided and all data or information received were kept confidential. A consent form indicating the purpose of the study, assurance of confidentiality and privacy was given to the respondents to sign. In the case of those who could not read and write, the purpose of the study was read and explained to them and a portion on the consent form was provided for thumbprinting to indicate their acceptance. Respondents who were below the age of 18 were considered minors and parental consent was sought on their behalf. Since issues on HIV are associated with stigmatization and negative labelling, all information received were kept strictly confidential.

## **1.8 SCOPE OF THE STUDY**

Perceptions and strategies of midwives towards PMTCT of HIV services information were obtained from midwives between the ages of 21 to 60 working at the antenatal clinics in the 11 selected district hospitals in the Central Region of Ghana. Midwives who were on

leave and those working outside the ANCs were excluded. Hence, implementation of the new strategies by midwives working at the ANCs during the study period would be different and more practicable than those excluded. This would create much awareness and increase antenatal attendees' participation of the PMTCT of HIV services. Data regarding perceptions and strategies of the antenatal attendees were also collected from pregnant women attending antenatal clinics in their reproductive age (15 to 49) in the 11 selected district hospitals in the Central Region of Ghana. Pregnant women in the region who were not attending ANCs were not considered for this study and it was possible that their awareness, participation and understanding of PMTCT of HIV services might be different from those who attended ANC during the study period. Implementation of the new strategies developed in addition to the existing ones by the midwives working at the ANCs during the study period would yield better results hence, promoting PMTCT of HIV awareness among antenatal attendees in the region. This study was carried out in the 11 district hospitals in the Central Region of Ghana.

## **1.9 STRUCTURE OF THE DISSERTATION**

The study was divided into eight chapters:

**Chapter 1:** Orientation to the entire study.

**Chapter 2:** Literature review of the study.

**Chapter 3:** Research design and methods of the initial phase (for the midwives).

**Chapter 4:** Analysis, presentation and description of initial phase results (for midwives)

**Chapter 5:** Research design and methods of the second phase (for antenatal attendees).

**Chapter 6:** Analysis, presentation and description of second phase results (for antenatal attendees).

**Chapter 7:** Strategies for promoting the PMTCT of HIV among antenatal attendees (objective step 2).

**Chapter 8:** Summaries, interpretation of results, recommendation and conclusion.

## **1.10 SUMMARY**

In summary, this chapter gave an orientation to the study. The chapter presented a brief introduction of the research topic. The background to the research problem gave an overview of prevention of mother to child transmission of HIV in the world and African in general and Ghana in particular. The statement of the research problem; aim of the study and research objectives were all explained. These were done in a bid to explore and describe midwives and antenatal attendees' perceptions on PMTCT of HIV services and to develop strategies to promote antenatal attendees' awareness of the services in the Central Region of Ghana. Further, the chapter discussed the significance, the theoretical foundation, research design and method, scope and the structure of the thesis. The next chapter reviewed the literature related to the research topic.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

This chapter presents a review of literature related to the study. This includes an overview of HIV infection, MTCT of HIV, the trend of MTCT of HIV and a brief history of PMTCT. In addition, it also presents strategies used for PMTCT in Ghana and a summary of the chapter.

#### 2.2 Overview of HIV infection

The Acquired Immune Deficiency Syndrome (AIDS) pandemic is caused by Human Immunodeficiency Virus type 1 (HIV-1). There are two main types of HIV: HIV-1 which is more common, tends to cause most AIDS cases and is usually understood when referring to the HIV audience (Nguyen, Chia & Ocran 2016:5). HIV-2 is a less common form of the virus and is concentrated in some countries, especially in West Africa. The viruses turn out much easier than complex shapes because of their simplicity. However, it varies from one individual to the other. It even transforms personally during the illness journey (Nguyen et al 2016:5). The virus contains more mysterious forms in humans and primates, but both are responsible for the outbreak (WHO 2016:23).

AIDS is one of the most serious health crises in the world. There are about 37.7 million people infected worldwide with more than 15.5 million, which constitutes almost half of the population, being women (UNAIDS 2020:1). The growth of AIDS cases among women increases in vertical transmission of HIV infection, making vertical transmission the most common cause of childhood AIDS; almost all AIDS cases in children under the age of 13 are transmitted vertically. Without preventive interventions, about a third of babies born to HIV-positive mothers become infected with HIV during pregnancy, childbirth or breastfeeding. The HIV transmission rate through MTCT without intervention is around 25.5%, however, this can be reduced to a level between 0% and 2% through prevention interventions (Kariuki, Selhorst & Ariën 2017:34).

On the other hand, 95% of vertical transmission of HIV occurs in resource-limited areas. Even though vertical transmission is almost preventable, children are injured every minute, especially because knowledge cannot always be transformed into practice. This has led to a continuous increase in the number of children infected with HIV, making HIV for children an urgent problem for the rapid depletion of already overburdened health systems in some countries (Nguyen et al 2016:6).

### **2.3 Mother- To- Child Transmission of HIV**

MTCT, also called vertical transmission (parent-to-child transmission), is the transmission of HIV from the mother to the child (Nguyen et al 2016:8). As a result, when the child is in contact with blood or other body fluids from the affected mother, the child is more vulnerable to infection. According to the (World Health Organization 2017:67), mothers are said to transmit HIV to infants or young children, and that most HIV-positive people are infected through MTCT during pregnancy (before birth), childbirth (during childbirth) or breastfeeding (after childbirth). Nguyen et al (2016:8), argues that the infection occurred at an estimated rate of 15 – 30% in developed countries and increased to 30 – 45% in developing countries, claiming to be the leading cause of childhood AIDS. Nguyen et al (2016:21) also affirm that transmission can occur at three different times; before birth (in the womb) due to the transfusion of the foetus' blood in the placenta, during delivery when the new-born crosses the birth canal and is in contact with the blood of the affected mother and genital secretions. Further, transmission can occur during breastfeeding which accounts for up to 40% of infant's infections because both cell-free and cell-associated viruses have been detected in breast milk. WHO estimates that without intervention, the total risk of MTCT infection from a mother to her baby is 15 – 45%, which is the most dangerous period for MTCT occurring during labour and delivery (World Health Organization 2017:67).

Destruction of the infant's blood barrier, known as placenta micro transmission, is believed to facilitate MTCT. The exact cause of the transmission through the placenta is still unknown. However, it appears to be associated with contractions during the early

stages of labour when the membrane ruptures and eventually, small amounts of mother and foetus blood are exchanged. This exchange can lead to the transmission of HIV-infected cells from mother to child, increasing the risk of infection for the child (Milligan & Overbaugh 2014:76). Most infections occur on the surface of the child's mucosa, such as the digestive system, on the surface of the nasopharynx. During pregnancy, childbirth, and lactation, the mucous barrier is in constant contact with the HIV fluid of the mother and has the time and opportunity to have the infection occur (Milligan & Overbaugh 2014:76).

The risk of MTCT of HIV is higher at the end of pregnancy and most infections occur during labour and childbirth. In general, the risk of infection is 20% in the prepartum period, ranging from 45 – 50% in the postpartum period. The risk is 15 – 25% in industrialised countries and 25 – 45% in developing countries. This difference is largely due to the transmission of the disease through breastfeeding by HIV-positive women in developing countries (Nguyen et al 2016:8). Another secondary cause is a sexually transmitted disease, which is caused by vaginal ulceration that can increase the number of HIV-infected fluids in the birth canal. (Nguyen et al 2016:9). Malnutrition during pregnancy also leads to a decrease in maternal health in general which reduces the level of the immune response to the presence of HIV. Reducing viral suppression means increasing viral load in the plasma and reducing the effectiveness of antiretroviral therapy and thus increasing the risk of vertical transmission (Nguyen et al 2016:9).

MTCT of HIV can be prevented, when pregnant women have access to PMTCT services during pregnancy, delivery and breastfeeding. With funding, trained personnel, and resources, new infections among thousands of children can be avoided (Vrazo, Sullivan & Ryan-Phelps 2018:249). Breastfeeding is now responsible for most of MTCT (UNICEF, 2016:12). When formula feeding is not a viable option, a woman can significantly reduce the risk of her infants having HIV at this stage if they are only breastfeeding and using ART. However, in 2013, only 79% of women continued to take ARVs during breastfeeding, compared to 72% of women who took ARVs during pregnancy and childbirth. This highlights the urgent need for education on the importance of continuing postpartum care. Without ART, one-third of children infected with HIV as a result of MTCT

will not reach their first birthdays, and half will not reach their second birthdays (UNAIDS 2016:228).

### **2.3.1 HIV Infection in Medical/Healthcare Settings**

Despite today's rarity, HIV infection can occur in a medical environment. For example, through a non-sterile needle or blood transfusion that uses the infected blood (UNICEF 2016:121). In Kyrgyzstan, in the past decade, 270 children in hospitals have contracted HIV because doctors did not follow general precautions during medical procedures (UNICEF 2016:121). It is, therefore, crucial to give premium attention to how blood is handled in medical facilities to avoid further contraction of HIV infection.

### **2.3.2 The Global Situation**

HIV, the virus that causes AIDS, is one of the most serious public health problems in the world. Hence, there is a global effort to prevent new HIV infections and to ensure that every person who is HIV positive can receive HIV treatment. In 2017, about 36.9 million people worldwide were infected with HIV / AIDS, including 1.8 million children under the age of 15. Most of these children were infected by their HIV infected mothers during pregnancy, childbirth or breastfeeding (Joint United Nations Program on HIV/AIDS (UNAIDS 2018:7).

In that same year, 940,000 people died from AIDS-related diseases worldwide, compared to 1.4 million in 2010 and 1.9 million in 2004 (Joint United Nations Program on HIV/AIDS (UNAIDS 2018:10). Although significant progress has been made in preventing new HIV infections and reducing the number of annual AIDS-related deaths, HIV remains a major global public health problem and the number of people living with HIV continues to increase (Granich, Gupta, Hersh, Williams, Montaner & Young 2015:2). Kharsany and Karim (2016:35) support the argument that, despite recent declines in global HIV/AIDS mortality, it was still the fifth principal cause of global death in 2015 specifically among children and the spread of HIV/AIDS burden was not equal across demographics and regions. In addition, HIV/ AIDS was considered the leading cause of death among men and women between 30 and 44 years old and for 21 countries located in four specific blocks in 2015, including Eastern and Southern Africa, Central Africa, the Caribbean and



Thailand (Kharsany & Karim 2016:35). Although most HIV / AIDS deaths occur in countries with a high burden, 20% of the global burden of HIV / AIDS occurred in 2015 in countries where HIV / AIDS did not represent the top 10 leading causes of burden (Kharsany & Karim 2016:35).

The latest data from European countries indicate that the decreases in deaths from AIDS-related illnesses are largely driven by the continuous increase in ART, but not fast enough to reach the milestone of the 2020 General Assembly (Joint United Nations Program on HIV/AIDS (UNAIDS) 2018:3). Therefore, about 150,000 deaths would need to be reduced annually to reach a milestone in 2020 (Joint United Nations Program on HIV/AIDS (UNAIDS) 2018:5). During the same period, there was a continued decline in mortality also continued in Asia and the Pacific (39% decrease), Western and Central Europe and North America (36% decrease) and the Caribbean (23% decrease). In Latin America, where coverage of ARV therapy is relatively high and AIDS-related deaths are relatively low, mortality decreased by 12% in the past seven years (WHO 2017:56). In England, a study by Fish, Judd, Jungmann, O'Leary and Foster (2014:239) on behalf of the HIV-infected youth network found that, among 21 adolescents in an adult clinic who continued to receive transmitted treatment, 11 died of HIV / AIDS in the same year. This indicates that, since 2010, AIDS deaths have not decreased in Eastern Europe and Central Asia, and AIDS deaths have increased by 11% (Joint United Nations Program on HIV/AIDS (UNAIDS) 2018:6).

#### **2.3.4 Sub-Saharan African situation**

In Sub-Saharan Africa, just over 10% of the world's population remains the worst affected area by the HIV / AIDS pandemic (Kharsany & Karim 2016:36). In 2008, the United Nations Program on HIV / AIDS reported that 67% of all infected individuals were found in the region. That year, about 1.9 million people in the region were newly infected, 68% of new infections in adults and 91% of new infections with children. On the other hand, 72% of all AIDS-related deaths in 2008 occurred in sub-Saharan Africa (Kharsany & Karim 2016:36).

Additionally, an estimated 2.6 million people were living with HIV in 2016. This is nearly a fifth (19%) of less than 3.1 million people newly infected in 1999 and more than one fifth

(21%) less than 3.2 million in 1997, the year in which the annual new infections only peaked (UNAIDS 2016:16). In 33 countries, the HIV infection rate decreased by more than 25% between 2001 and 2009, and 22 of these countries are in sub-Saharan Africa. In sub-Saharan Africa, where most of the new HIV infections occur, an estimated 1.8 million people were infected in 2009, which were significantly fewer than 2.2 million people who were infected with HIV in 2001. This trend reflects a range of factors, including the impact of HIV prevention efforts and the natural course of the HIV epidemic (UNAIDS 2016:16).

However, according to the UNAIDS (2020:1), it is estimated that 37.7 million people worldwide are infected with HIV, 53% of them are women and more than two-thirds are from sub-Saharan Africa. Of the 37.7 million people, about 1.7 million are children under 15, with Sub-Saharan Africa reaching 39%. However, the exceptional scope of ARV therapy has set the world on the path to achieving the AIDS-related death goal, which also reduces HIV / AIDS-related deaths in sub-Saharan Africa.

### **2.3.5 The situation in Ghana**

Ghana has also made significant gains in responding to the HIV epidemic for years. The HIV prevalence rate in pregnant women decreased from 3.6% in 2003 to 1.9% in 2013 (National AIDS and STIs Control Program/Ghana Health Service (NACP/GHS) 2015:23). The general population also declined, dropping from 1.6% in 2013 to about 1.3% (Ministry of Health/ Ghana Health Services 2014:3). According to Ali, Amoyaw, Baden, Durand, Bronson, Kim, Grant-Greene, Imtiaz and Swaminathan (2019:40), new HIV infections decreased by 57% between 2000 and 2015, and 33% AIDS-related deaths together, as well as almost twice the number of HIV tests among women since 2008.

Despite these benefits, Ghana recorded a total of 11,000 HIV / AIDS deaths in 2015, with 12,635 new HIV infections. In the same year, 274,562 people were living with HIV in the country, of whom 89,113 were taking ART. This number represents only 32.4% of all HIV-positive people who took ART at the end of 2015 (Ghana AIDS Commission 2016:23). The Commission (2019:24) further stated that, in 2017, about 3,200 new HIV infections were reported in infants and children across the country. According to Dako-Gyeke et al

(2016:54), of the approximately 1,160,000 pregnancies expected in the same year, 71% of HIV-positive women were tested with only 67% receiving ART to prevent MTCT. This means that up to 29% of pregnant women miss the opportunity to take a test to detect HIV cases and that 33% of pregnant women who need ART have not been able to receive treatment that leads to a direct HIV infection in children born to these mothers.

The Ghana AIDS Commission (2019:1) further stated that the prevalence of HIV / AIDS among young people under the age of 24 rose to about 45% in 2017, due to unprotected sex, as well as lack of knowledge of the youth about the infection and estimated that, the national prevalence rate is 1.67%, with about 700 deaths and 19,101 new infections. However, in the same year, the HIV Sentinel Survey (HSS) and Estimates Report, jointly published by the National AIDS and STI Control Program (NACP 2018:67) indicated that HIV prevalence among pregnant women attending antenatal clinic in Ghana has decreased since 2000, with the median prevalence of 2017 increasing by 2.1%. However, the same cannot be said for young people between 15 and 24 years old. The prevalence of new HIV infections among them increased from 1.5% in 2017 to 1.1% in 2016 (NACP 2018:67).

In terms of regional prevalence rates in Ghana, it ranges from 3.2% in Greater Accra and Western regions which is the highest to 0.6% in the Northern Region which also represents the lowest prevalence (NACP 2018:88). Concerning rural towns and cities in Ghana, HIV prevalence varies from 0.2% in rural areas to 5.2% in urban areas (Ghana AIDS Commission 2018:12). This means that the rise in new infections among young people has caused anxiety, which requires an increase in preventive education and the development of effective strategies necessary to radically change the situation (NACP 2018:89). A study by Okawa, Gyapong, Leslie, Shibanuma, Kikuchi, Yeji, Tawiah, Addei, Nanishi, Oduro, Owusu-Agyei, Ansah, Asare, Yasuoka, Hodgson, Jimba & Ghana EMBRACE Implementation Research Project Team (2019:28) also showed that, out of 1.7 million people who tested HIV in 2018, women made up 80% of those who had been diagnosed. This has caused the health services in Ghana to provide ARV drugs as well as to ensure that HIV-positive children are regularly tested so that all HIV-positive mothers

are diagnosed early and put on ARV drugs throughout their lifetime to prevent transmission of the virus to the next generation (Okawa et al 2019:28).

In the Ashanti Region of Ghana, a total of 142,406 pregnant women were tested for HIV as part of PMTCT and out of the projected 58,641 HIV-infected people in the region, 21,828 were treated in various ART and PMTCT centres whilst the remaining were not (Adu, Tenkorang, Banchani, Allison & Mulay 2018:657). It is also clear that ANC coverage decreased from 72.9% in 2017 to 69.1% in 2018 in many regions of Ghana. This indicates that some Ghanaian women have completely dropped out of the PMTCT services (Adu et al 2018:657). Adu et al (2018:657) further stated that the total maternal deaths increased from 162 to 221 in 2017 and 2018 and the number of reviewed maternal deaths increased from 143 to 212 representing 88% and 95% in the same region.

A report from Ghana News Agency (2018:67) indicates that Ghana has a high stigma and general discrimination against women living with HIV / AIDS. This slows the treatment and development processes, and thus ascribes the spread of the infection to the stigmatization of some women infected with the disease. According to the quasi-HIV / AIDS helpers in some parts of the country, they saw from the public that some patients, who could not bear the stigma from friends and relations, also decided to spread the disease and that affected MTCT prevention services in many parts of the country (Ghana News Agency 2018).

Also, there is low condom use among Ghanaian youths. This is evident from research conducted by Agyemang, Newton, Nkrumah, Tsoka-Gwegweni, Cumber (2019:23) at the Kwame Nkrumah University of Science and Technology Ghana, which reviewed that only 33% of sexually active adolescents use condoms. From the same study, it alluded that very few of them knew about sexually transmitted diseases, other than gonorrhoea and syphilis. This means that teens are familiar with lesser-known sexually transmitted infections (STIs) such as chlamydia and genital herpes.

According to the (Ghana AIDS Commission 2014:7), 97 people including six children under the age of 15, died of AIDS in 2017 in the Central Region of Ghana. Five HIV adolescent pregnant girls also tested positive and were monitored closely to protect their unborn babies from getting infected.

Ali, Amoyaw, Baden, Durand, Bronson, Kim, Grant-green, Imtiaz & Swaminathan (2019:53) pays more attention to the fact that, of 940 new infections, 32% are children under 15 years old and this was recorded in the same period.

According to Ali et al (2019:53), available data showed that the HIV prevalence rate in the Central Region is 1.8%, with 394 children from 7,642 infected people under 15 years of age infected with the virus in the region, indicating that, the prevalence of HIV among pregnant women was consistently more than 1%.

Data collected from municipal hospitals indicated a total of 319 teenage pregnancies between January and June 2019, one of which was a positive result of HIV (Ali et al 2019:54).

#### **2.4 PREVENTION OF MOTHER-TO-CHILD TRANSMISSION**

For many countries around the world, PMTCT is a top priority for HIV prevention and success (MOH/GHS 2014:6). PMTCT aims to provide a comprehensive family-centred continuum of promotive, preventive, clinical and supportive services along with other public health interventions to preserve maternal health and prevent MTCT of HIV (MOH /GHS 2014:8). However, there are major gaps in coverage worldwide. In sub-Saharan Africa, condoms cover less than half the need for protective gaps, only 38% of HIV-positive people have been virally suppressed, two-thirds of young adults not having correct and compressive knowledge of HIV, condom use been too low across all population groups placing them at higher risk of infection, 43% of documented injectable drugs are used without needle syringe programs in place and pre-exposure preventive coverage been less than 5% of the 2020 target (UNAIDS 2016:6).

In June 2016, Armenia, Belarus, Cuba and Thailand were certified by the WHO by eliminating MTCT (UNAIDS 2016:12). In 2015, seven countries in Eastern and Southern Africa covered over 90% of PMTCT services. This includes South Africa, which is home to 25% of pregnant women in the HIV-infected region. East and Southern Africa attained the biggest drop in MTCT anywhere in the world, dropping from 18% of infants born to HIV mothers in 2010 to 6% in 2015, a threefold reduction (UNAIDS 2016:76). The Middle East and North Africa is the region with the least progress, with nearly a third of HIV-

positive women transmitting the virus to their children in 2015. The MTCT rates in Asia and the Pacific and western and central Africa were also well above the global average of 10% (UNAIDS 2016:78).

## **2.5 NATIONAL GUIDELINES FOR THE PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HIV IN GHANA**

These recommendations form the basis for training and implementation of PMTCT actions in Ghana. Therefore, the guidelines apply to all levels of services for all health workers, especially those who provide sexual and reproductive services, in the national effort to stop mother-to-child transmission of HIV.

### **2.5.1 Guiding Principles for the Prevention of Mother to Child Transmission of HIV in Ghana**

The guidelines for PMTCT of HIV are principles that provide broad family continuity for promotional, preventive, diagnostic and support services, along with other public health interventions to preserve maternal health and prevent MTCT of HIV to her child (MOH/GHS 2014:9).

### **2.5.2 Strategies for the Prevention of Mother to Child Transmission of HIV in Ghana**

Ghana has developed four main functional strategies that constitute the national agenda. These are primary prevention of HIV infection, prevention of unwanted pregnancy in HIV-infected women, prevention of infection from HIV-positive women to their children and provision of treatment, care and support for HIV-positive women, their children and their families (Providers 2014:2). Ghana's national agenda is an adaptation of the United States' five main strategies / international agenda that reinforce the gains of PMTCT of HIV / AIDS programs and help avoid the already persistent fluctuations. These include advocating greater political and financial commitment, targeting high-risk populations such as adolescent girls and young women, implementing new service delivery models such as community service groups, regular monitoring of viral load during pregnancy and after childbirth to ensure its prenatal and breastfeeding suppression and using technology to monitor, evaluate and diagnose HIV (Vrazo et al 2018:250). These strategies have been supported and accepted by the World Health Organization since both the national

and international agendas are all derived from WHO seven recommendations of PMTCT of HIV. These recommendations are:

- i. In pregnant women with confirmed HIV serostatus, initiation of ART for her own health is recommended for all HIV-infected pregnant women with CD4 cell count <350 cells/mm<sup>3</sup>, irrespective of WHO clinical staging; and for all HIV-infected pregnant women in WHO clinical stage 3 or 4, irrespective of CD4 cell count.
- ii. HIV-infected pregnant women in need of ART for their own health should start ART irrespective of gestational age and continue throughout pregnancy, delivery and thereafter.
- iii. In pregnant women who need ART for their own health, the preferred first-line ART regimen should include an AZT + 3TC backbone: AZT + 3TC + NVP or AZT + 3TC + eFV. Alternative regimens that are recommended include TDF + 3TC (or FTC) + NVP and TDF + 3TC (or FTC) + eFV\*.
- iv. Infants born to HIV-infected women receiving ART for their own health should receive daily NVP from birth until 6 weeks of age (for breastfeeding infants) and daily AZT or NVP from birth until 6 weeks of age (for non-breastfeeding infants).
- v. All HIV-infected pregnant women who are not in need of ART for their own health requires an effective ARV prophylaxis strategy to prevent HIV transmission to the infant. ARV prophylaxis should be started from as early as 14 weeks gestation (second trimester) or as soon as possible when women present late in pregnancy, in labour or at delivery.
- vi. For all HIV-infected pregnant women who are not in need of ART for their own health, ARV prophylaxis option A consists of antepartum daily AZT; sd-NVP at onset of labour ‡; AZT + 3TC during labour and delivery‡; AZT + 3TC for 7 days postpartum‡. ‡sd-NVP and AZT+3TC intra- and post-partum can be omitted if mother receives more than 4 weeks of AZT during pregnancy. In breastfeeding infants, maternal ARV prophylaxis should be coupled with daily administration of NVP to the infant from birth until one week after all exposure to breast milk has ended. In non-breastfeeding infants, maternal ARV prophylaxis should be coupled with daily administration of AZT or NVP from

- birth until 6 weeks of age.
- vii. For all HIV-infected pregnant women who are not eligible for ART, ARV prophylaxis option B consists of triple ARV drugs provided to pregnant women starting from as early as 14 weeks of gestation until one week after all exposure to breast milk has ended. The recommended regimens include AZT + 3TC + IPV/r\*, AZT + 3TC + AbC, AZT +3TC + Efv and TDF + 3TC (or FTC) + eFV. In breastfeeding infants, the maternal triple ARV prophylaxis should be coupled with the daily administration of NVP to the infant from birth until 6 weeks of age. In non-breastfeeding infants, the maternal triple ARV prophylaxis should be coupled with the daily administration of AZT or NVP to the infant from birth until 6 weeks of age (WHO 2012:12-14).

### **2.5.3 Approach for the provision of Prevention of Mother to Child Transmission of HIV Services in Ghana**

National strategies to provide PMTCT services have two main approaches, such as facility-based care and outreach or community-based services (NACP/GHS 2015:11).

#### **2.5.3.1 Facility-based care**

Facility-based care includes clinical and public health interventions in public and private healthcare settings that reduce HIV transmission from pregnant women to newborns. This consists of providing information, education and counselling on the transmission of HIV and STIs, customer-initiated and provider-initiated counselling tests and strategies, antiretroviral treatment, and ongoing counselling to support all HIV-positive mothers and counselling and support for infant feeding (NACP/GHS 2015:11).

#### **2.5.3.2 Outreach/community-based services**

This includes psychosocial care, community support, maternity care services, child care clinics, nutritional counselling and support for safe child feeding practices, home visits to community health workers and others, and calls from families and family members to care and support mothers' groups (NACP/GHS 2015:11).



#### **2.5.4 Cost of Care**

On the other hand, subject to any policy directive or legislation to be enacted or enacted at a later time, services are provided free of charge to all mothers who have access to intervention in PMTC of HIV services which includes antenatal care, labour, and intrapartum, as well as postpartum care up to 18 months (Ministry of Health Ghana/Ghana Health Services 2014:12).

#### **2.5.5 Guiding Principles for HIV Testing for Prevention of Mother to Child Transmission of HIV in Ghana**

The guiding principles for HIV testing in PMTCT are confidentiality, informed consent and post-test counselling and support services (WHO 2017:60).

##### **2.5.5.1 Confidentiality**

Maintaining confidentiality is an important responsibility for all health professionals. However, clients should be informed that their HIV test results can be shared with other health professionals to ensure they receive adequate medical care (WHO 2017:60).

##### **2.5.5.2 Informed consent**

In the context of PMTCT, written approval is not required, but it is the provider's responsibility to ensure that the client understands the purpose and benefits of the test and respects the client's decision to reject the test (WHO 2017:60).

##### **2.5.5.3 Post-test Counselling and Support services**

HIV test results should always be provided to a person with appropriate prior information to tests, counselling or referrals after the test (WHO 2017:60).

#### **2.5.6 Framework for Testing**

In the context of preventing MTCT, HIV testing has been integrated into Reproductive and Child Health (RCH) services. All pregnant women receiving RCH services receive information about HIV testing. All HIV tests and counselling are conducted by trained counsellors and nurses (WHO 2015b:45).

## **2.6 HIV TESTING STRATEGIES FOR PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HIV**

These are actions employed to explain positive and negative HIV test results and the strategies recommended for HIV testing and counselling in the ANC setting (NACP 2015:12).

These comprise the following:

### **2.6.1 Advantages of Testing and Counselling for Prevention of Mother to Child Transmission of HIV**

After the test, HIV-negative pregnant women are counselled to stay without infection (Chi, Rosenberg, Mweemba, Powers, Zimba, Maman, Kasaro, Mollan, Stringera & Mutaleb 2018:69). For pregnant women with positive outcomes, counselling is given to make informed decisions about pregnancy and help them receive appropriate and timely interventions to reduce MTCT, including follow-up and ongoing health care for themselves, their HIV-positive children and families, and antiretroviral treatment. Information on baby food, counselling, support and family planning are also given (WHO 2015b:13).

### **2.6.2 Types of HIV Testing strategies for Prevention of Mother to Child Transmission of HIV**

The types of PMTCT HIV testing strategies are Client-Initiated HIV Testing and Counselling (CITC), and Provider Initiated HIV Testing and Counselling (PITC) which include HIV systematic proposals for counselling and testing, and clinical testing for HIV (MOH/GHS 2014:13). The main testing method for PMTCT in Ghana is the testing strategy initiated by the provider. As a result, HIV testing and counselling is routinely offered to all pregnant women as part of the primary and subsequent ANC services (Rogers, Weke, Kwena, Bukusi, Oyaro, Cohen & Turan 2016:2). After the initial negative HIV test result, all women are encouraged to repeat the test in the third trimester. The minimum information provided to clients includes clinical and experimental preventative benefits, the provision of follow-up services and the need to notify other partners and

family members who may be at risk of contracting HIV if the test proves positive (MOH/GHS 2014:13).

### **2.6.3 When a Client Declines to Test**

Some concerns may lead to a refusal to test for HIV on the part of some women. It can be accepted later, especially if the reasons for refusal are discussed and addressed. Therefore, it is important to continue to show regular testing during subsequent visits. Women who continue to reject testing must be respected and decisions recorded in the medical records. Their refusal will not affect the quality of the care they receive (WHO 2016:30).

### **2.6.4 Other Opportunities for HIV Testing and Counselling during Labour**

HIV testing and counselling are provided to any woman with undocumented HIV status during labour. The test will not be performed when delivery is in the second stage of labour. Immediate initiation of appropriate antiretroviral therapy is recommended for women in labour in the event of a positive test (WHO 2017:58). Also, all HIV-positive women are directed to attend labour and delivery services immediately after rupture of membranes or regular contractions, so that measures can be taken to reduce the risk of vertical virus transmission (Money, Tulloch, Pharm, Boucoiran, Caddy & Edmonton 2015:729).

### **2.6.5 Post-partum and New-born Testing**

HIV testing and counselling are provided to a postpartum woman whose HIV status is unknown (Providers 2014:22). In the case where the mother's HIV status is unknown after birth and is not available for counselling and testing, it is recommended that a rapid neonatal test be conducted as soon as possible after birth (within 48 hours of birth) (Providers 2014:22). This shows that a positive HIV test indicates that the child is HIV exposed and is provided with preventive treatment and recommended antiretroviral care until his condition is confirmed by a polymerase chain reaction (PCR) test when the child is six weeks old. In the event of unconfirmed results, preventive treatment for the child is put in place and follow up test is done to confirm the child's condition (Providers 2014:22).

## **2.6.6 Couple and Partner HIV Counseling and Testing**

Testing and counselling for spouses and partners, including disclosure are encouraged, supported and accessible. Partner approval is not mandatory for HIV testing and counselling (NACP/GHS 2016:14).

## **2.7 RECOMMENDATION FOR THE USE OF ANTIRETROVIRAL DRUGS**

This is about the preferred ART regimen for PMTCT services. All HIV positive pregnant women are put on ART (Siemieniuk, Lytvyn, Ming, Mullen, Anam, Otieno, Guyatt, Taylor, Beltrán-Arroyave, Okwen, Nduati, Kinuthia, Luma, Kirpalani, Merglen, Lesi, Vandvik, Agoritsas & Bewley 2017:4) and all HIV exposed babies despite feeding option receives six-week antiretroviral treatment every 12 hours within 48 hours after birth. Breastfeeding should last for 12 months with the first six months being exclusive breastfeeding. Women receive active follow-up and support services to facilitate acceptance of HIV status, treatment and care services. Women with an unknown HIV status routinely receive HIV testing and counselling whenever they receive maternity services and receive the care and intervention necessary to reduce the potential risks of vertical transmission (MOH/GHS 2014:22).

## **2.8 CARE FOR HIV INFECTED WOMEN AND WOMEN OF UNKNOWN STATUS**

This comprises special care given to HIV positive women and women of unknown status during pregnancy, labour and delivery.

### **2.8.1 During Pregnancy**

Antenatal care packages include, but are not limited to the following:

### **2.8.2 Health Information and Education**

This includes preparation for childbirth and complications, maternal nutrition, health problems in pregnancy associated with HIV, safe sexual practices, and family planning (MOH/GHS 2014:17).

### **2.8.3 HIV Testing and Counselling**

This includes regular screenings for HIV Testing and Counselling (HTC) and repetition of HIV TC in the third trimester for women who have tested negative in the early stages of pregnancy (MOH/GHS 2014:17). Regularly, on all ANC visits (after counselling on subsequent visits) for women who have an unknown cause of HIV, intermittent preventive treatment (IPT) for malaria, anaemia, and vaccination against tetanus, de-worming, examination, prevention and screening treatment is provided. Managing sexually transmitted infections (STIs) (including syphilis) and providing information related to early detection and treatment of STIs is also provided (MOH/GHS 2014:17). Nutritional support for HIV-infected women includes nutritional counselling, initiation and counselling for maternal micronutrient supplementation (vitamins, folic acid and iron), and support for infant feeding options are also provided. HIV-positive women are supported to make an informed decision between breastfeeding and alternative breastfeeding (UNICEF 2018:2).

### **2.8.2 During Labor and Delivery**

Safe birth services are observed and vaginal delivery is the suitable mode of delivery (Aho, Kaijomaa, Kivela, Surcel, Sutinen & Heikinheimo 2018:1). A caesarean section is established on an obstetric basis only to prevent MTCT (Tenthani, Oosterhout, Haas, Msukwa, Phiri, Chimbwandira, Tal, Aebi-Popp Estill & Keiser 2018:1) and is performed instantly as it is indicated.

The risk of bleeding after childbirth is reduced by active management of the third stage of labour and the use of safe blood transfusion practices is also being considered (Immunodeficiency & Infection 2018:74). Interventions that can help reduce MTCT include the administration of ARV treatment under national protocols, routinely offering early work testing and advice for unknown women with HIV status, good infection prevention practices for the care of all customers, performing vaginal exams in accordance with partograph protocols and/or with appropriate clinical procedures where necessary (Immunodeficiency & Infection 2018:74).

## **2.9 POSTPARTUM CARE OF HIV INFECTED WOMEN, WOMEN OF UNKNOWN STATUS AND THE NEWBORN**

This is the special care given to the HIV infected mother after delivery, the new-born child as well as women who do not know their status after delivery to make sure they received the comprehensive care to prevent MTCT of HIV.

### **2.9.1 Care for Mother**

Maternal care after childbirth includes, but is not limited to, providing routine screening and counselling for women with unknown HIV, information about risk signs, education, counselling, self-care, nutrition and care in postpartum clinics, screening for health problems such as puerperal sepsis and anaemia associated with postpartum HIV infection, examination and treatment of STIs (MOH/GHS 2014:18). Also, the provision of medical and psychosocial supportive care, Co-trimoxazole prevention and treatment of opportunistic infections (OIs) and other diseases in HIV-infected mothers and all HIV-positive mothers and exposed infants are associated with ART clinical care and follow up (MOH/GHS 2014:18).

### **2.9.2 New-born Care**

Caring for a new-born baby from a mother with HIV requires standard new-born care. This includes the initiation and support of infants feeding option, initiation of ARV prevention in children of HIV-positive mothers and Bacillus Calmette-Guerin (BCG) / Pentavalent Oral Vaccine (OPV) Immunization (WHO 2017:34).

### **2.9.3 Discharge after Delivery**

Maternal and child postpartum monitoring is ensured for continuous postpartum care which started in the antenatal period (Vrazo et al 2018:250). Mother and child appointments are synchronized as much as possible. Counselling and support for maternal nutrition, including maternal selection for infant feeding and micronutrient supplementation are given (Sint, Lovich, Hammond, Kim, Melillo, Lu, Ching, Marcy, Rollins, Koumans, Heap & Brewinski-Isaacs 2015:3). A general physical examination of the child is carried out to exclude birth injuries and birth defects, as well as a physical examination of the mother for signs of anaemia, sepsis or other opportunistic diseases.

The dosage, timing, adherence, and duration of ARV therapy for the mother and ARV prophylaxis for the child are also explained (WHO 2017:34).

Appropriate educational measures are taken to educate the mother and the newborn about the disease (WHO 2017:35). Counselling and support on preventive measures such as hygiene practices, malaria prevention and vaccination for children with BCG / OPV are provided. The child's head circumference, weight and height are recorded in the Child's Health Records booklet. Psychosocial /Community support is given to the mother and the newborn. Appointment for the first post-natal clinic visit is given between the periods of 3-7 days (WHO 2017:36).

#### **2.9.4 Post-Natal Follow-up (Clinic Visit)**

HIV-positive mother and child are referred to both the Reproductive and Child Health (RCH)/Child Care and ART clinics for monitoring. Mothers with HIV-related complications are often seen as needed (WHO 2017:15).

#### **2.9.5 First post-natal clinic visit (Mother)**

Emphasize is placed on ART adherence as well as the provision of an adequate supply of ART until six weeks of the visit. The mother receives six-weeks counselling at the postpartum clinic, where assessments of nutritional, psychological and social support and community support are made. Regularly, HTC is offered to women who are not HIV positive (WHO 2017:15).

#### **2.9.6 New-born**

Adherence to feeding choice is assessed and the mother is provided with counselling and support on how to care for the new-born. Onubogu, Ugochukwu, Egbonu and Onyeka (2015:180) recommended this to be critical for the HIV-free survival of infants of HIV-infected women. Infant compliance is evaluated for ART and adequate supply is guaranteed until the next scheduled visit after six weeks (Decker, Rempis, Schnack, Braun, Rubaihayo & Busingye 2017:2). Where the mother is not available for testing and counselling, a serological test is offered to determine whether the child is exposed to HIV or not (WHO 2017:34).

### **2.9.7 Antiretroviral Therapy Clinic**

This is a special clinic designed for infants and mothers where ART is given and supervised.

### **2.9.8 All Infants**

The duration of the follow-up depends on when HIV infection status is verified and on the feeding method. Each visit is followed by the following activities: DNA-PCR test if not yet done, evaluation and initiation of ART with a CD4 count in all confirmed HIV infected babies and children under five or WHO staging (MOH Ghana/GHS 2014:62). In addition, history and physical examination are collected, including assessment of pallor, weight, height, head circumference, growth and characteristics of HIV-related diseases. Counselling and support are provided for food, and vaccination is carried out according to the national immunization schedule. With symptomatic children, vaccination against yellow fever is not given, but prevention with co-trimoxazole occurs daily in all children who are at risk of contracting HIV or are HIV positive, early and aggressive treatment of OIs, nutritional interventions, vitamin A supplements and regular six-monthly de-worming are carried out (NACP/GHS 2014:23).

### **2.9.9 Breastfed infant**

HIV status is determined over six weeks with a DNA-PCR test. If the child has positive results, the child is infected with HIV and is referred for comprehensive care, including initiation of ART (MOH/GHS 2014:23). If the initial DNA-PCR test is negative, it is repeated six weeks after the complete discontinuance of breastfeeding. If the DNA-PCR test is negative six weeks after discontinuing breastfeeding, the child is discharged from follow-up and referred to the child welfare clinic to continue child care (MOH/GHS 2014:23).

For children under 18 months who have been diagnosed with the previous serological test, the serological test will be repeated at 18 months. A child whose serological test is still positive at the age of 18 months and who has HIV infection continues to receive lifelong care and comprehensive treatment (MOH/GHS 2014:24).



### **2.9.10 Infant Feeding**

HIV-positive mothers are counselled on infant feeding during several prenatal sessions. Post-test counselling is followed by at least three counselling sessions during ANC. Specifically, mothers are advised to breastfeed their babies during the first six months, to provide appropriate complementary foods and to continue breastfeeding during the first twelve months of life (WHO 2016:44). This was confirmed by Hazemba, Ncama and Sithole (2016:1) that exclusive breastfeeding for the first six months after birth reduces the risk of HIV transmission from an infected mother to her baby. They are counselled to stop only when eating a nutritious diet. The focus is on avoiding mixed feeding in the first six months and mothers and their children are seen regularly to monitor the safety and progress of baby feeding (WHO 2016:45).

HIV-positive mothers should only provide commercial infant formula powder as a replacement for infants exposed or HIV-positive infants (WHO 2016:46) when drinking water and sanitation at home level and in society is guaranteed. They must provide an appropriate formula for infants to support the natural growth and development of infants. Mothers are encouraged to prepare and clean them often so that they remain safe and less prone to diarrhoea and malnutrition. In the first six months, it should be a special practice of giving baby formula and family support. Mothers are encouraged to use health care that provides comprehensive child health services (WHO 2015b:24).

If infants and young children are infected with HIV, mothers are encouraged to breastfeed exclusively during the first six months of life and to continue breastfeeding as recommended by the general population, that is for two years or more (MOH/GHS 2014:24).

Counselling should emphasize the risk of HIV transmission through breastfeeding, the risk for HIV transmission by breast milk via ARV, breastfeeding advantages and disadvantages, local customs and customs and beliefs in supporting the mother to make babies feeding choices for six months as well as infant weaknesses that will suffer from mixed feeding. Effective counselling and support for optimal baby nutrition and ARV intervention must be offered to all pregnant women and mothers. However, it should always be avoided in the first six months (WHO 2015:25).

### **2.9.11 Evaluation of Child at 18 Months**

The final case of HIV infection must be determined for every 18-month-old child. Some may have been shown to have a negative infection by DNA-PCR testing at least 12 weeks after breastfeeding or with negative serological tests. As part of the evaluation process, all children with HIV must undergo serological testing at the age of 18 months, and a seropositive child is to receive comprehensive treatment for HIV and ART for life (Collins, Cairns, Ngo-Giang-Huong, Sirirungsi & Leechanachai 2014:2). Cotrimoxazole prophylaxis is prohibited in unaffected children, and children should be discharged from follow-up and back to the Maternal, Newborn and Child Health (MNCH) clinic (MOHGHS 2014:25).

### **2.9.12 Psychosocial and Community Support**

This support encourages them to undergo pre-marital counselling and testing. Follow-up counselling and support are provided to women who become positive and are encouraged to disclose test results to their partners and families (NACP 2015:26). By revealing the HIV status of her partner and her family, a woman may be in a better position to use PMTCT intervention and receive support from her partner and family (MOH/GHS 2014:27).

Also, this includes encouraging the partner(s) to undergo HIV testing and counselling and prevent the spread of HIV among her partner(s). For testing other children in the family, it is recommended to help the woman choose and feed her child with what is best for her. Every effort is made to link mothers and new-borns to comprehensive health care and social support systems (MOH/GHS 2014:29). After birth and before discharge, the mother, partner and/or family receive specific information about care and support. This includes the names of the social support organisation, addresses, type of service they provide, and their working hours (MOH/GHS 2014:29).

Midwives and other caregivers caring for HIV-positive mothers can help mothers identify trusted people and other supportive individuals by giving these clients ongoing support throughout pregnancy, birth, postpartum and postnatal periods, helping mothers identify confidants and other support persons, counsellors identified confidants/support persons on their expected roles and responsibilities and linking them to other support groups and

institutions such as social welfare and people living with HIV (PLHIV) (Joint United Nations Program on HIV/AIDS (UNAIDS) 2015:41).

All ARV drugs and other logistics services are only purchased by the Ghana MOH Ghana. All PMTCT recognized facilities are equipped with ARV in line with the supply chain management section of the MOH (Joint United Nations Program on HIV/AIDS (UNAIDS) 2015:42).

## **2.10 SUMMARY**

The chapter presented existing knowledge in the study field. Both new and old literature were used to help the researcher position this study. To focus on specific aspects of the study, the chapter was divided into sub-sections as follows: introduction to the chapter, an overview of HIV infection, mother- to- child transmission of HIV, prevention of mother-to- child transmission of HIV, national guidelines for PMTCT of HIV in Ghana, HIV testing strategies of PMTCT of HIV in Ghana (the national agenda), international agenda, WHO recommendations, recommendations for the use of antiretroviral drugs, care for HIV infected women and women of unknown status and post-partum care of HIV infected women, women of unknown status and the new born. Each sub-section presented evidence based on available literature. The chapter explained the two main types of HIV with the most common one been the HIV-1 which causes most serious health crises in the world. It also discussed how HIV among women is on the increase with the vertical transmission being the most common cause in children. The existing strategies to curb the spread of MTCT of HIV were well explained and the literature brought it out clearly that, these strategies have not been able to meet the WHO MTCT HIV prevention target because of high rate of stigma and discrimination toward women with HIV and low condom use among the youth, specifically the Ghanaian youth. The study, however, developed new strategies in addition to the existing ones to promote awareness of PMTCT of HIV among antenatal attendees in the Central Region of Ghana. Finally, the chapter ended with a summary of its content.

The next chapter will present the research design and method for the initial phase of this study.

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHOD OF INITIAL PHASE (MIDWIVES)**

#### **3.1 INTRODUCTION**

This chapter explained the research design, research methods, data management, internal and external validity, and ethical considerations undertaken during the study.

#### **3.2 RESEARCH DESIGN**

Research design is an overall plan for obtaining answers to the research questions (Amedahe & Gyimah 2016:92). A descriptive cross-sectional research design was employed for this study to explore and describe antenatal attendees' perceptions towards PMTCT of HIV services in the Central Region of Ghana. It was also used to develop new strategies in addition to the existing ones to promote antenatal attendees' awareness of PMTCT of HIV services in the Central Region of Ghana. This design allowed the researcher to gather data on PMTCT of HIV services at a point in time when there was an intention of describing the nature of existing PMTCT of HIV strategies that involved collecting data to answer research questions concerning PMTCT of HIV (Amedahe & Gyimah 2016:93).

#### **3.3 RESEARCH METHOD**

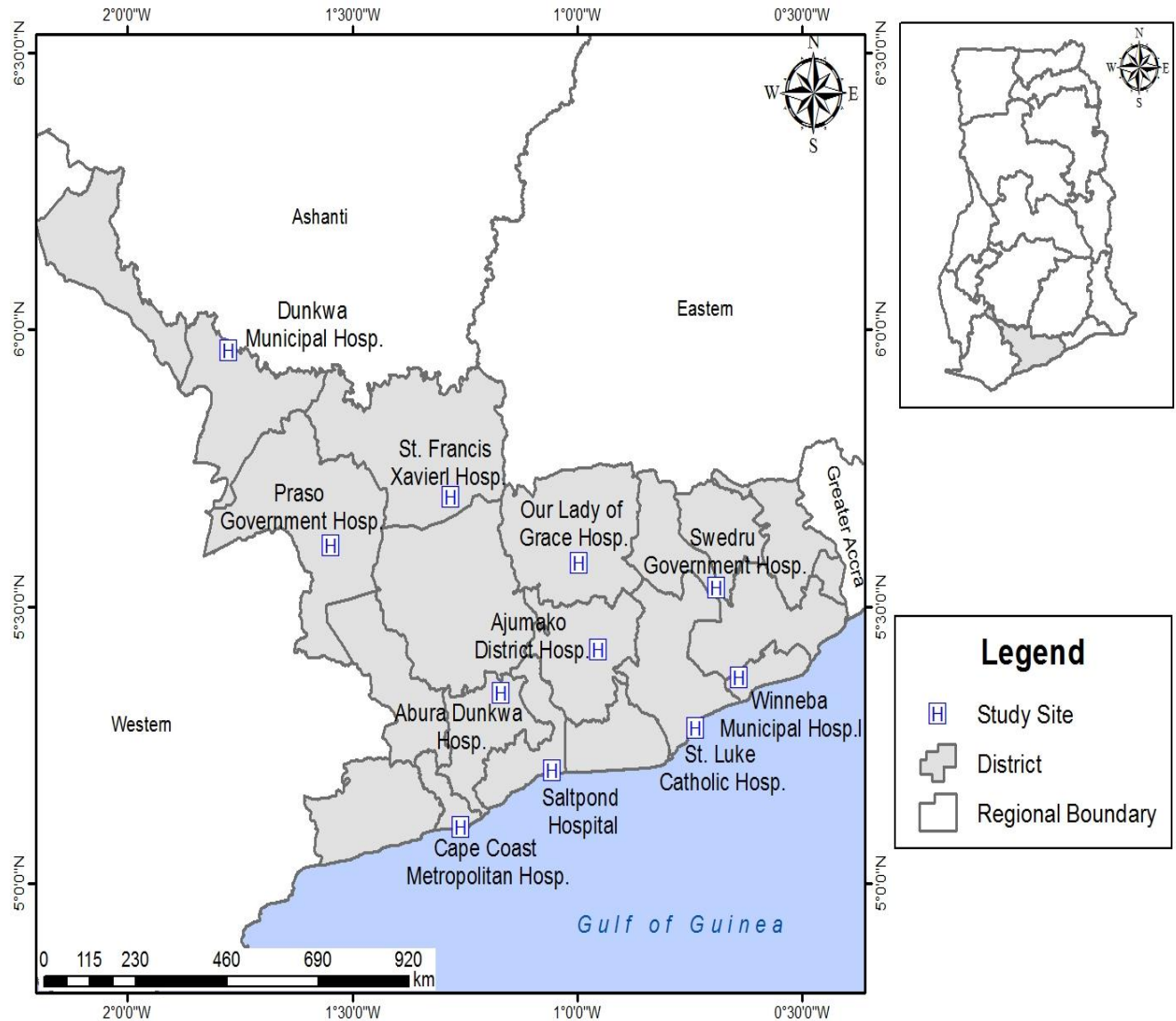
This section includes the study setting, population, sampling, data collection and analysis, internal and external validity and ethical consideration. This section consists of a quantitative research approach to address objectives, specific population, sampling, data collection and analysis. Validity and ethical considerations are also addressed.

##### **3.3.1 Quantitative research approach**

A quantitative research approach was chosen for the study. This refers to the systematic empirical investigation of social phenomena using mathematical and statistical methods which includes collecting data in digital form and analysing it in a statistical way (Fei Ma 2015: 571). This method allowed the researcher to eliminate factors that interfered with

the purpose of the research. In quantitative research approach, the researcher measured the responses of several respondents on PMTCT of HIV services to a limited set of questions to facilitate comparison and statistical aggregation of the data (Gatta 2015:57). A closed-ended questionnaire was used which aided the researcher to identify a general pattern of respondents' reactions to the PMTCT of HIV program. This was used to obtain a comprehensive and generalisable set of results which were presented briefly and meanly (Sharma 2018:4). The study was conducted in two phases, that is the initial phase (midwives) and the second phase (antenatal attendees). The quantitative method was used for both phases and each phase comprised of objectives one and two of this study. In the initial phase, data were collected in step one (objective 1) and step two (objective 2) through an administered questionnaire from a census sampled midwives of the ANCs in the 11 district hospitals in the Central Region of Ghana. This explored and described the midwives' perceptions towards PMTCT of HIV services (objective one) and developed new strategies to be used by the midwives to promote antenatal attendees' awareness of the PMTCT of HIV services provided (objective two). The objective three was conducted when the developed new strategies were presented to experts in the field for evaluation to promote awareness of PMTCT of HIV among antenatal attendees.

### 3.3.2 Study setting



**Figure 3.1: A map showing district hospitals in the Central Region of Ghana**

Source: University of Cape Coast Geography Department, 2019

The study was conducted in the Central Region which is one of the 16 regions in Ghana located along the coast. It shares borders with the Greater Accra Region on the east, Ashanti Region on the north, Eastern Region on the north-east and the Gulf of Guinea on the south. The Region has 20 administrative districts with the historical city of Cape Coast as the capital. These are made up of one metropolitan, six municipal, and 13 ordinary districts. Out of the 20 districts, 11 of them have district hospitals that serve the region

and these 11 district hospitals were the focus of the study. These are Abura Dunkwa District Hospital, Ajumako District Hospital, Cape Coast Metropolitan Hospital, Dunkwa Municipal Hospital, Our lady of Grace Hospital, Praso Hospital, Saltpond Hospital, St. Francis Xavier Hospital, St. Luke Catholic Hospital Apam, Swedru Government Hospital, and Winneba Municipal Hospital. These 11 district hospitals also have well-structured antenatal clinics (ANCs) with PMTCT of HIV services in their activities. The prevalence of HIV among antenatal attendees in the region was 1.4% (Ghana AIDS Commission 2014:15). Questionnaires were distributed to the respondents in the various ANCs in the 11 district hospitals within the region.

### **3.3.3 Population**

A research population is a target group about which the researcher is interested in obtaining information and drawing conclusions (Amedahe & Asamoah-Gyimah 2016:98). The population universum is the largest group of potential respondents of a study, which is defined as an entire group about which some information is required to be ascertained (Asiamah, Mensah & Oteng-Abayie 2017:1610). In this study, it consists of all the midwives managing the ANCs in the Central Region of Ghana.

Apart from the population universum, the accessible population is also relevant in research which needs to be explicated. The accessible population is the population that researchers can apply their findings. This population group is a subset of the target population and is also known as the study population. It is from the accessible population that researchers draw their samples (Asiamah et al 2017:1611-12). On the other hand, it is the final group of respondents from which data is collected by surveying either all its members or a sample drawn from it. It represents the sampling frame if the intention is to draw a sample from it (Asiamah et al 2017:1613).

A target population refers to a group of individuals with specific interest and related characteristics. The target population is more complex than the general population based on containing no attribute that interferes with a research assumption, context, or goal (Asiamah et al 2017:1612). In this study, this consist of all midwives at the ANCs in the 11 district hospitals in the Central Regional of Ghana from January to December 2019.

The midwives of the 11 district hospitals were contacted to answer questions on perceptions and strategies for promoting awareness of PMTCT of HIV among antenatal attendees in the Central Region of Ghana. The information received from the health facilities records of the 11 district hospitals in 2019 indicated that the number of midwives in the ANCs between the period of January to December 2019 are given in Table 3.1. The population of midwives from the 11 district hospitals was 40 and the age category was 21 to 60. Since the population was small, census sampling was used to select all the 40 midwives because according to Israel (2013:2), the entire population will be studied when the population is small.

**Table 3.1: Population of Midwives at the ANCs across District Hospitals in the Central Region**

District hospitals	Population of midwives
Abura Dunkwa Hospital	3
Ajumako District Hospital	3
Cape Coast Metropolitan Hospital	4
Dunkwa Municipal Hospital	4
St. Francis Xavier	4
St. Luke Catholic Hospital	3
Swedru Government Hospital	4
Praso Government Hospital	4
Saltpond Hospital	3
Our Lady of Grace	4
Winneba Municipal Hospital	4
<b>Total</b>	<b>40</b>

Source: Health Facilities Records, 2019



### 3.3.4 Sample and Sampling Procedure

Census sampling procedure was used for the midwives. This procedure was employed for the midwives because their number was small and the researcher was interested in respondents who had adequate information needed to help meet the objectives set for the study or who meet the eligibility criteria. This refers to a quantitative research method that counts all members (Amedahe & Asamoah-Gyimah 2016:103). Census sampling was used to select all the 40 midwives because according to Israel (2013:2), the entire population is studied when the population is small. Therefore, all the midwives in the 11 district hospitals added up to 40. But during the actual data collection, 48 midwives responded to the questionnaires. The additional eight was as a result of the transfer of some midwives to the ANCs where the study was conducted. The affected ANCs were the Swedru Government Hospital (2), Cape Coast Metropolitan Hospital (2), Praso Government Hospital (2), Saltpond Hospital (1) and Dunkwa Municipal Hospital (1) and this has been indicated in Table 3.2.

**Table 3.2: Population of midwives at the ANCs across district hospitals in the Central Region during the actual data collection.**

District hospitals	Population of midwives
Abura Dunkwa Hospital	3
Ajumako District Hospital	3
Cape Coast Metropolitan Hospital	6
Dunkwa Municipal Hospital	5
St. Francis Xavier	4
St. Luke Catholic Hospital	3
Swedru Government Hospital	6
Praso Government Hospital	6
Saltpond Hospital	4
Our Lady of Grace	4

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Winneba Municipal Hospital	4
Total	48

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Source: Health Facilities Records, 2019

The contact details of the midwives were obtained from the administrators of the selected district hospitals which included information regarding places of residence, phone numbers, and other contact details that could be obtained to ensure contact with them when there was the need. The midwives were recruited by having one on one contact regarding individual midwives and explaining to them the purpose of the study and the need to take part. This was done by giving the participant information sheet (PIS) to the midwives since they could read and understand (see Annexure F). A consent form was also given to the midwives to sign after they had read and understood the PIS before the questionnaires were administered (see Annexure G).

### **3.3.5 Sample size**

On a whole, 48 midwives were contacted to enrol in the study. Since census sampling was employed and each district hospital already had the number of midwives in the ANCs, the same numbers in the district hospitals were used for the distribution of the questionnaires.

#### **3.3.5.1 Inclusion criteria**

Inclusion criteria are the main features of the target population that researchers use to answer research questions (Patino & Ferreira 2018:84). This was used to select respondents who were supposed to be part of the study which included:

- All midwives working at the ANCs of the selected institutions aged between 21 to 60 years.

#### **3.3.5.2 Exclusion criteria**

Exclusion criteria refer to characteristics of potential study respondents who meet the inclusion criteria but have other characteristics that could interfere with the outcome of the study, hence exempted from the study (Patino & Ferreira 2018:84).

The exclusion criteria used to separate those who were not supposed to be part of the study included:

- i. Midwives not working in the ANCs.
- ii. Midwives on pension. This is because pensioners are employed in Ghana on a contract basis and their appointment can be terminated at any time.
- iii. Rotation midwives.
- iv. Students' midwives.

### 3.4 DATA COLLECTION METHODS AND PROCEDURES

Data collection is the process of gathering information from all relevant sources to find answers to research questions, test hypotheses, and evaluate results (Dudovskiy 2018:87). According to Kabir (2016:202), it is the process of gathering and measuring information on variables of interest, in a simplified and systematic manner that enables people to answer perceived research questions, test hypotheses, and evaluate results.

Primary data was the main source of data for this study. That is the researcher used the questionnaire to collect data from the midwives to promote awareness of PMTCT of HIV services among antenatal attendees (Gatta 2015:40).

Regardless of the field of research, accurate data collection is essential to maintaining research integrity. Choosing the right data collection tools and clearly defined correct usage guidelines can reduce the likelihood of errors (Kabir 2016:202). Therefore, the researcher used a carefully structured survey questionnaire to answer the objectives of the study with its high-level objectivity to the study.

#### 3.4.1 Data Collection Instrument

Data collection instrument is a tool used to obtain accurate, valid, and meaningful data which can effectively answer research questions that require much time and effort to achieve (Ahmad 2019:188).

The main data collection tool for this study was a structured questionnaire with mostly close-ended questions extracted from experts' opinion, research work in related areas (Opoku-Danso & Ampofo 2017:1098) and the Ministry of Health Ghana /Ghana Health

Service handbook for PMTCT of HIV (Providers 2014). These were modified to make them more suitable for this study. According to Adu et al (2016:71), close-ended items are very easy to code, thus, making analysis easy. However, they are quite difficult to construct and there is the likelihood that individual respondents may have other responses either than the options provided.

For this specific study, the aim of the data collection tool was to explore and describe perceptions of midwives and to develop strategies to promote antenatal attendees' awareness of PMTCT of HIV services in the Central Region of Ghana. The data collection tool was prepared to assess the knowledge and awareness levels, attitudes, strategies and views of midwives to promote awareness of PMTCT of HIV services among antenatal attendees. The structured questionnaire was developed in the English language and divided into five sections/ scales (scales 1, 2, 3, 4 and 5). Scale 1 addressed socio-demographic information of the midwives with 4 items, scale 2 assessed the knowledge and awareness levels of the midwives on PMTCT services with 6 items, scale 3 assessed the midwives' attitudes towards PMTCT of HIV services with 10 items, scale 4 assessed the implementation of the existing strategies for PMTCT of HIV services with 22 items and finally, scale 5 examined the views of the midwives on the PMTCT of HIV services with 18 items.

The questionnaire started with an introductory statement, which specified the purpose of the research and assured the respondents of confidentiality of their responses. The questionnaire was sent to my supervisor for her comments and suggestions after the design and feedback were integrated into the questionnaire. Before validity and reliability tests were carried out, the researcher refined the questionnaire by administering them to a small group of antenatal attendees similar in characteristics to the intended respondents. This was because researchers are professionals whose language and culture can be different from those of the potential respondents in their study. This may influence the meaning and the content of the questionnaire (Gatta 2015:42).

The administered questionnaires were carefully checked by my statistician who analysed to report the reliability coefficient (Cronbach alpha coefficient reliability) for each of the

items of the instrument and gave an overall Cronbach alpha for the midwives as .718 which indicated that the instrument was reliable for the study.

### **3.4.2 Pre-testing of the data collection instruments**

The questionnaire was pre-tested before collecting the main data for the study. This was done to authenticate the research instruments. According to Priest (2015:64), pre-tests are small tests of single elements of the research instruments, which are mainly used to check the ultimate mechanical problems of these instruments. Also, when an instrument is modified or combined in a study, the unique validity and reliability may be distorted, and it becomes important to re-establish validity and reliability.

The validity and reliability of the instruments were pre-tested at the University of Cape Coast Hospital and the University of Education Winneba Hospital which were not part of the study centres but helped to evaluate and refine the statements. These hospitals were chosen for the pre-testing because they are the two main university hospitals in the region with the same category of nurses and performs the same activities at the antenatal clinic as well as provide PMTCT of HIV services. Also, they are of the same level as the selected district hospitals for this study in terms of their facility and staff strength. This enabled the researcher to clarify all ambiguous questions, identify possible challenges likely to be encountered in the actual exercise and how to address them.

The pre-test also provided data for the researcher to determine the reliability of the instrument. After pre-testing, questionnaires were analysed to report the reliability coefficient (Cronbach alpha coefficient reliability) for the instrument which measures the internal consistency.

The prepared items were tested on four midwives. This enabled the researcher to clarify all ambiguous questions, identified possible challenges likely to be encountered in the actual exercise and how to address them. The Cronbach's alphas for the various scale were generated using Statistical Package for the Social Sciences (SPSS) version 21.0. The data from the pre-testing were entered into SPSS. Reliability analyses were performed on the overall questionnaire and sub-scales in the questionnaire to generate

the Cronbach's alphas. The Cronbach alpha reliability coefficients obtained for the midwives' instrument is indicated in Table 3.4.

**Table 3.4: Midwives Reliability Statistics**

<b>Sections</b>	<b>N of Items</b>	<b>Cases</b>	<b>Cronbach's Alpha</b>
Attitude scale	10	4	0.126
View scale	17	4	0.211
Strategy scale	22	4	0.381
<b>Overall Cronbach's Alpha</b>	<b>49</b>	<b>4</b>	<b>0.718</b>

From the analyses of the pre-test data, Cronbach alpha scores of 0.718 showed that the scale could explain about 71.8 per cent of the variables being measured in the research instruments for midwives, which further implied that they were reliable because, according to Mohajan (2017:11), a Cronbach alpha value of 0.7 and above is considered reliable. The detailed results of the Cronbach Alpha Reliability Analysis for midwives have been explained with questions considered for this statistical test (see Annexure N).

### **3.4.3 Reliability of data collection instrument**

Reliability is the degree to which the research method produces stable and consistent results (Middleton 2019:76). Questionnaire reliability refers to settling respondents in the same manner with enough clarity to understand, answer and explain all questions in the same way (Gatta 2015:44). Regarding the responses from the pre-testing, the instruments were modified and attuned. In addition to that, feedback from the supervisor, UNISA Health Studies Research Ethics Committee and Ghana Health Services Ethics Review Committee was used to improve instruments' reliability.

### **3.4.4 Validity of data collection instrument**

The extent to which the results measures what they are supposed to measure is termed as the validity of an instrument (Middleton 2019:78). For this study, the researcher designed data collection instruments so that they could measure what they were supposed to measure. Assessing validity, pre-testing was done as one of the mechanisms to improve the validity of the data collection tools. In this study, the principal component factor analysis was used to measure content validity and any question which scored 0.3 and below was considered irrelevant and removed.

#### **3.4.4.1 Content validity**

Content validity refers to the degree to which the assessment tool or the instrument is relevant to, and representative of, the targeted construct it is designed to measure (Rusticus 2014:4). Concerning this research, the researcher made sure to have an adequate representation of the problem of the studied phenomenon. The researcher, the supervisor and the statistician closely examined the items in the questionnaire to ensure that they measured the intended variables. Comments and suggestions from the supervisor and the statistician were incorporated to improve the validity of the instrument. Obviously, after pre-testing the questionnaire, this process was completed because some irrelevant questions were removed and revised.

#### **3.4.4.2 Face validity**

Face validity refers to the degree to which the instrument can objectively measure the variable expected to be measured (Gatta 2015:45). The researcher carefully designed the items in the questionnaire to appear that it measures what it claims to measure.

#### **3.4.4.3 Construct validity**

Construct validity indicates whether the operational definition of variables reflects the true theoretical meaning of the concept. This corresponds to the conceptual relationships underlying some theory (Rusticus 2014:1). In this study, all concepts which were used were in line with the theory employed to guide the study. Table 3.5 shows the alignment of the theory and model used to guide the study with the items in the questionnaires.

**Table 3.5: The alignment of the theory and model used to guide the study**

Objectives	Research questions	Theory construct	Questionnaire item number
<p>1. To explore and describe the antenatal attendees' and midwives' perceptions to promote antenatal attendees' awareness of PMTCT of HIV services.</p>	<p>1. What are the antenatal attendees' and midwives' perceptions to promote antenatal attendees' awareness of PMTCT of HIV services?</p>	<p>1. Interpersonal influence/ subjective norm</p> <p>2. Situational influence/ Perceived behavioral control</p> <p>3. Prior related behavior</p> <p>4. Perceived barriers to actions</p> <p>5. Personal factors</p>	<p>Q. 5.3 – 5.11 (antenatal attendees)</p> <p>Q. 3.1 – 3.10 (midwives)</p> <p>Q. 7.1 – 7.12, Q. 6.1 – 6.15, Q.5.6 – 5.11 (antenatal attendees)</p> <p>Q.5.1 – 5.17, Q. 4.1 -4.2, Q. 4.4 -4.11, Q. 4.17 – 4.20 (midwives)</p> <p>Q. 6.1 – 6.15 (antenatal attendees)</p> <p>Q. 3.7 – 3.10 (midwives)</p> <p>Q. 6.1 – 6.15 (antenatal attendees)</p> <p>Q. 3.1 – 3.10 (midwives)</p> <p>Q. 1.1 – 1.9, Q. 3.1 -3.6, Q. 2.1 – 2.9, Q. 5.12 – 5.16 (antenatal attendees)</p> <p>Q. 1.1 -1.4, Q. 2.1 – 2.6 (midwives)</p>



		6. Attitudes and beliefs	Q. 4.1 – 4.10 (antenatal attendees)
2. To develop and describe strategies for midwives to promote antenatal attendees' awareness of PMTCT of HIV services.	2. How can strategies for midwives to promote antenatal attendees' awareness of PMTCT of HIV services be developed?	1. Personal factors  2. Perceived barriers to actions  3. Interpersonal influences/ subjective norm  4. Commitment to a plan of action/ behavioral intention	Q. 1.1 (antenatal attendees)  Q. 1.1 – 1.4, Q. 2.1 – 2.6 (midwives)  Q. 6.1 – 6.15 (antenatal attendees)  Q. 5.1 – 5.17 (midwives)  Q. 5.6 – 5.11 (antenatal attendees)  Q. 3.1 – 3.10 (midwives)  Q. 7.1 – 7.12 (antenatal attendees)  Q. 4.1 – 4.22 (midwives)
3. To evaluate the developed strategies for the promotion of antenatal attendees' awareness of PMTCT of HIV services.	3. What are the strategies for the promotion of antenatal attendees' awareness of PMTCT of HIV services?	1. Personal factors  2. Health promotion behavior/ behavior	Table 7.8 (biographic information of experts)  Table 7.7 (criteria for validating strategies)

### **3.4.5 Data Collection**

The gathering of data to solve a research problem is called data collection (Polit & Beck 2017:488). This was done with the help of some research assistants who hold B.Sc. in Nursing degree from the University of Cape Coast, Ghana, who were trained by the researcher at the university's research library to assist the researcher in the data collection. Ten research assistants were employed and trained for this exercise. The training included observing office protocol, the introduction of the researcher and the purpose of the study. They were also taken through the objectives of the study to understand the purpose and the need for the exercise. In addition, the research assistants were taken through the research instruments by the researcher to ensure uniform understanding of the research items. This was done one week prior to the data collection (26<sup>th</sup> March, 2020) and all the research assistants were taken through each item of the instrument and what they should expect from the respondents.

Data collection started from 1<sup>st</sup> April to 3<sup>rd</sup> June, 2020. This period was when the COVID-19 pandemic was at its peak, therefore, the researcher and the research assistants adhered to all the COVID-19 protocols which included hand washing, social distancing, wearing of face mask and using the hand sanitizers. This was done in order not to infect the respondents as well as the researcher and the research assistants. The researcher and the ten research assistants were all involved in the administration of the questionnaires after consent had been obtained from the respondents.

Data collection was done on any other day between Mondays and Fridays during working hours and the questionnaires were given to the midwives for collection the next day due the nature of their work. The duration for the data collection was ten weeks and the COVID-19 pandemic was the reason for the long duration since the researcher and the research assistants needed to maintain social distance whilst administering the questionnaires. It was clear that ANC data were collected from midwives who were at post only, so it could not represent midwives on leave. Each day, a meeting was held by the researcher to check data collection procedures and challenges and to give feedback as necessary.

### **3.4.6 Data Analysis**

Pilot and Beck (2017:557) define data analysis as the process of collecting data, clarifying the invisible, linking and attributing previous results, as well as the process of inference, verification, correction, modification, suggestion and defence. Excel was used to capture the data and Statistical Package for the Social Sciences (SPSS) version 21.0 was used for statistical analysis. Designing of labels was done for identification of variables that could be examined. Descriptive statistics and inferential statistics were used in analysing the data. The descriptive statistics analysis was used to compute frequencies, percentages, means, and standard deviation for the independent and dependent variables while the inferential statistics analysis was used to describe the respondents' perceptions of PMTCT of HIV services.

Demographic characteristics, knowledge level, awareness level, beliefs, attitudes, perceptions and strategies were summarized using the descriptive statistics. Respondents provided "yes" or "no" responses for knowledge and awareness levels. A score of one was awarded for "yes" and zero for "no". The scores were added to obtain the total scores for each respondent. Level of knowledge was categorized into inadequate or poor for those who scored 50% and below and adequate or good for those who scored 51% and above. Awareness level was also categorized bad for respondents who scored 50% and below and good for those who scored 51% and above. "Strongly agreed", "agreed", "disagreed" "strongly disagreed" and "don't know" were the responses for attitudes, beliefs, views and perceptions while that of strategies were "always", "often", "sometimes" and "never". The scores awarded for each response were one, two, three, four and five respectively. The total score of each respondent was obtained by the addition of all the scores. Attitudes, beliefs, views and perceptions were categorized into negative or poor for respondents who scored 50% and below and positive or good for those who scored 51% and above. In analysing the strategies of this study, scores awarded for each of the responses were one for "always", two for "often", three for "sometimes" and four for "never". The scores were added to obtain the total scores for each respondent which aided in the development of the new strategies to promote awareness of PMTCT of HIV services in the Central Region of Ghana.

The Pearson correlation statistics was used to analyse the perceptions of midwives and to find the relationship among the various variables and the subjecting variables such as attitudes, strategies and views to the various test of differences in relation to the demographic data. This was done with a correlation significant at the 0.01 level (2-tailed). ANOVA was also used to assess the statistical significance of the differences between attitudes, strategies and views of midwives and their designations to promote PMTCT of HIV awareness in the Central Region of Ghana.

### **3.4.7 External and Internal validity of the research design**

Validity which refers to the accuracy of the research data was considered (Yilmaz 2013:318). For external validity, the results of the study cannot be generalized to the entire population in the region and Ghana. This is because the study focused on only one region out of the 16 regions in Ghana as well as only the district hospitals within the central region. Hence, there was bias and the results could not be generalized to the entire population of Ghana.

According to Baldwin (2018:31), internal validity which is the extent to which observed difference in the dependent variables are directly related to the independent variables was also considered. The pre-test was done in the two main university hospitals located in the same region (central region) which was not part of the study centres. These are the University of Cape Coast hospital and the University of Education Winneba hospital (A detailed description of the pre-test centres has been provided in section 3.4.2). Also, an equal period was given for both pre-test and actual data collection exercises and data collection was done by the researcher and the research assistants.

### **3.5 RESEARCH METHODS FOR OBJECTIVE STEP 3 (DEVELOPED STRATEGIES)**

#### **3.5.1 Objective**

The objective was to evaluate the developed strategies for the promotion of antenatal attendees' awareness of PMTCT of HIV services.

#### **3.5.2 Methodology**

Objective step two focused on the development of the new strategies which comprised of both the initial phase and the second phase of this study. The strategies were developed to guide the operations of health professionals and policymakers such as the Regional Health Directorate and the Ghana Health Service in implementing specific actions to promote awareness of antenatal attendees on PMTCT of HIV services. The strategies focused on the operational strategies of the healthcare system in providing PMTCT of HIV services. The interim strategies were operationalised and revised to be reviewed by experts in the field. The final strategies were developed following the revision and validation from experts. These were developed from the results of the initial phase and the second phase of this study (the strategies are discussed in detail in chapter 7).

In the initial and the second phases, after exploring and describing the midwives and the antenatal attendees' perceptions on PMTCT of HIV services and describing the existing strategies used in PMTCT of HIV services, themes were identified and described which later helped in the development of interim strategies, formulated based on validated themes. The interim strategies were operationalised on the various themes in Pender's model and the theory of planned behaviour and were submitted to health experts for validation to ascertain the feasibility, practicality, acceptability and importance of the various strategies in addressing the identified results from the study. The strategies were drafted, validated and put together with a questionnaire for rating using a Likert scale. The final strategies were developed following the revision and validation from experts. Biographic information of the experts has been well presented in chapter 7 (see Table 7.7).

### **3.5.3 Setting and population**

The settings for the step 3 were the Regional Health Directorate in the Cape Coast municipality, the District Health Directorate in the Komenda Edina Eguafo Abirem district, public health facilities and the University of Cape Coast in the Central Region of Ghana. The target population of the experts were university lecturers, health care providers working in health facilities and program officers working on PMTCT of HIV programs in the Central Region of Ghana specifically Cape Coast.

### **3.5.4 Sample and sampling method**

Purposive sampling method was used to select a sample of six experts who had better knowledge on PMTCT of HIV services. To be included in the study, they had to be health facility staff who had the experience on PMTCT of HIV services, HIV/AIDS coordinator responsible for policymaking in PMTCT of HIV services, PMTCT of HIV services program managers or officers in the Regional Health Directorate and physicians under the Ghana Health Services in the Region and lecturers from the School of Nursing, University of Cape Coast who were experts in PMTCT of HIV programs. Those who did not want to participate in the review of strategies were excluded from the study.

### **3.5.5 Data collection method and process**

The researcher employed self-administered structured quantitative data collection method. The structured questionnaire contained the interim strategies that were developed from the results of the initial and the second phases of this study. These interim strategies were structured and developed, and a Likert scale was designed to evaluate them. The Likert scale had four alternatives to evaluate the strategies; namely, strongly disagree (1), disagree (2), agree (3) and strongly agree (4). The questionnaire was developed in English as the experts are believed to communicate in English language proficiently. Self-administered questionnaires containing the interim strategies and consent forms were sent to each expert through personal delivery after they had been contacted on phones to seek their consent and the purpose of the study explained to them. This was done on 1<sup>st</sup> and 2<sup>nd</sup> December 2020 during working hours when most of them were in their offices. The experts were given two days to complete the questionnaires and provide a score for each strategy and evaluate their applicability. They

were also requested to complete the consent form together with the questionnaires. After two days, the researcher contacted the experts to collect the completed questionnaires. The feedback from the experts is compiled in Table 7.9.

### **3.5.6 Data analysis**

Data were checked for completeness before entry by the researcher. The researcher entered and analysed the data manually. All the scores provided for each strategy were summed up using a simple calculator. Considering the fact that there were nine criteria and four points on the Likert scale, it implies that the highest score for a strategy would be 36 while the lowest would be 9. A cut point of 50% was an acceptable level for each strategy. When a strategy scored less than 50%, the researcher went back and re-assessed that specific strategy. The criteria used to evaluate the strategies were adopted from a study by Matlakala (2012:87) who developed strategies to overcome challenges for the management of larger critical care units. These criteria were contextualised for this study. The final evaluated strategies are described in chapter 7 of this study.

## **3.6 ETHICAL CONSIDERATIONS**

For any research investigation involving human subjects, the researcher must carefully consider some ethical issues that may arise in the planning, conduct, and reporting of the study (Smith, Morrow & Ross 2015:99). In this study, the researcher used a variety of ethical approaches to put ethical issues a top priority of the study so that the study could be reasonable in all aspects of its behaviour.

### **3.6.1 Respondents**

#### **3.6.1.1 *Autonomy***

Before the data collection, the respondents were willing to respond to every question on the instruments asked by the researcher. The researcher and the research assistants introduced themselves, and the purpose of the study was explained to the respondents. The research assistants sought the consent of the respondents before giving them the research instruments. Respondents were made aware of the type of questions to expect from the questionnaire and the purpose of the study. Respondents were also assured of

anonymity and confidentiality of their responses for only the purpose for which the data were being solicited.

### **3.6.1.2      *Justice***

Justice is another ethical principle that includes the right to fair or equal treatment and privacy (Damtew 2019:1). All respondents in the study were equally respected and were given similar information on the study. In this study, respondents who were not emotionally ready to discuss MTCT of HIV with the research team were assured the equal right to withdraw herself from the study immediately if she feels is necessary and this did not affect the care received from the health facility as well as her relationship with the research team. Benefit, as well as the risk in the study, was made known to all respondents whether they withdraw or respond.

### **3.6.1.3      *Anonymity and confidentiality***

Respondents were assured of anonymity and confidentiality of their responses for only the purpose for which the data were being solicited. As such, the names of respondents were not recorded nor collected. This was done to reduce non-response and to ensure that respondents provide reliable data. The biographic data of the respondents were kept secure and only the researcher and supervisor had access to it to maintain confidentiality.

### **3.6.1.4      *Beneficence***

The benefits of the study were maximized against the risks to the respondents. The respondents were made aware of how the information provided could make an impact on the development of strategies for the promotion of antenatal attendees' awareness of the prevention of mother-to-child transmission of human immunodeficiency virus services.

Although the data collection process could take some of their time, the respondents were made aware that, the information gathered would help free the innocent children from getting infected with HIV. The respondents were also assured that the data gathered would be used solely for the purpose for which they were collected and confidentiality would be maintained.



### **3.6.2 Institution**

Ethical approval was obtained from the Health Studies Research Ethics Committee (HSREC) of the Department of Health Studies, University of South Africa. Institutional consent was also obtained from the Ghana Health Services Ethics Review Committee after the researcher had applied. On the other hand, permission was obtained from the Regional Health Directorate in the Central Region of Ghana, the district hospitals in the Region as well as the respondents of the antennal clinics or health facilities. The institutions were assured that the consent of the respondents would be sought before giving them the research instruments.

Respondents were made aware of the type of questions to expect from the questionnaires as well as the purpose of the study. Respondents were also assured of anonymity and confidentiality of their responses for only the purpose for which the data were being solicited.

### **3.6.3 Scientific integrity**

All sources of information were referred to according to the university standard and style. Fabrication of data was avoided and all data or information received were kept confidential. A consent form indicating the purpose of the study and assurance of confidentiality and privacy was given to the respondents to sign. Since issues on HIV are associated with stigmatization and negative labelling, all information received was kept strictly confidential.

## **3.7 SUMMARY**

The chapter expanded on the research design and methods used for the midwives of this study (initial phase) and the objective step 3. Quantitative study with descriptive cross-sectional design was explained in detail. The setting, population, sampling and sampling methods, data collection, the research tool used, and data analysis undertaken were outlined. In addition, methodology for the development of strategies was presented. It also emphasised the ethical behaviour of the study so that scientifically, complete results could be attained. The next chapter will present the research results of the initial phase of this study.

## **CHAPTER 4**

### **PRESENTATION AND DISCUSSION OF RESULTS FOR INITIAL PHASE (MIDWIVES)**

#### **4.1 INTRODUCTION**

In this chapter, the results and discussion of the data gathered from the sampled midwives were presented. The chapter is organised under the demographic characteristics of midwives, the concept perception refers to or has a similar meaning as the knowledge and awareness of midwives on PMTCT of HIV services, the attitude of midwives on PMTCT of HIV services, perceptions of midwives on PMTCT of HIV services, and the strategies for midwives to promote antenatal attendees' awareness of PMTCT of HIV services. The organization of the chapter was to ensure that the research objectives were clearly and adequately addressed by the results and discussion.

#### **4.2 DEMOGRAPHIC CHARACTERISTICS OF MIDWIVES**

This section presents the demographic characteristics of the midwives in charge of providing PMTCT of HIV services to antenatal attendees at the District Hospitals in the Central Region of Ghana. This was imperative to explain some of the reasons behind their perceptions about PMTCT of HIV services. Vuksanovic, Kalenjuk, Knezevic, Tesanovic and Portic (2017:361) posits that demographic characteristics of respondents are essential as they provide useful insights to explaining trends in substantive issues in research exercises. Some of the demographic characteristics examined under the study were age, professional qualification, designation, and the number of years in service. The results are presented in Table 4.1.

**Table 4.1: Demographic characteristics of midwives**

Characteristics	Categories	Frequency	Percentage
Age (in years)	21 – 30	23	47.9
	31 – 40	18	37.5
	41 – 50	5	10.4
	51 – 60	2	4.2
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Professional qualification	Diploma in Midwifery	14	29.2
	Degree in Midwifery	34	70.8
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Designation	Staff Midwife	21	43.8
	Senior Staff Midwife	7	14.6
	Midwifery Officer	8	16.7
	Senior Midwifery Officer	11	22.9
	Principal Midwifery Officer	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Number years working as a Midwife	1 – 3	23	47.9
	4 – 5	9	18.8
	6 – 9	7	14.6
	10 years and more	9	18.8
	<b>Total</b>	<b>48</b>	<b>100.0</b>

Source: Field survey (2020)

Table 4.1 shows that 47.9% of the midwives were within 21-30 years of age, while 37.5% were aged within 31-40 years. The mean age of the midwives was 33.8 years with a standard deviation of 6.3. The majority (70.8%) of the respondents had a degree in midwifery, while 29.2% had a diploma in midwifery. The results showed that all the midwives were having professional certification in midwifery to perform their roles in the PMTCT of HIV services. In other words, the professional midwives were expected to be committed to the procedural roles in the provision of PMTCT of HIV services to antenatal

attendees because they appreciate the importance of such protocols in protecting foetus and babies against the transmission of HIV. Bank (2015:782), asserts that professionals always have their licenses and certificates to protect their membership's guarantee and continuous operations and as such will always want to stick to operational standards and guidelines as well as their professional ethics and procedures.

The Table further showed that 37.5% of the sampled midwives were staff midwives, whereas 22.9% were senior midwifery officers. The results showed that the midwives responsible for providing PMTCT of HIV services in the District Hospitals of the Central Region of Ghana were across various levels of designation. This was important as each designation of midwifery category had critical roles to play in PMTCT of HIV services during antenatal visits and delivery. Thus, the midwives at the lower rungs (staff and senior staff midwives) were usually in charge of the routine education of antenatal mothers, while those at the higher rungs provided supervision, developed educational strategies, based on their contextual factors, to educate the mothers to ensure their compliance to the preventive guidelines as well as provide technical services to ensure safe delivery for mothers, babies and health workers. The diversity in the designation of the midwives was also imperative as it helps to ensure the transfer of knowledge and experience from midwives at the top of the rungs to those at the lower rungs. This could help to promote the sustainability of the PMTCT of HIV services in the Region as the knowledge is retained and continues to be shared among workers.

Table 4.1 also showed that 47.9% of the sampled midwives had worked within 1-3 years, whereas 18.8% each had worked as midwives for within 4-5 years, and 10 years and above. The mean number of years the respondents had worked as midwives was 3.8 with a standard deviation of 0.71. The result showed that the sampled midwives from the 11 District Hospitals had provided PMTCT of HIV services to antenatal attendees for multiple years, which could contribute to building their skills, capacity and experience. The multiple numbers of years operated by the respondents as midwives could also enable them to give critical information about their assessment on the PMTCT of HIV services.

### 4.3 PERCEPTIONS OF MIDWIVES ON PMTCT OF HIV SERVICES

Under this section, the study explored and described the perceptions of midwives on PMTCT of HIV services in the Central Region of Ghana. This was important because Meilani, Barasa and Setiyawati (2019:90) posited that the perceptions and understanding of midwives on PMTCT of HIV services influence their actions and mode of engagement towards HIV-positive pregnant mothers. The section was organised under knowledge and awareness, attitudes of the midwives, strategies of the midwives, and views of the midwives.

#### 4.3.1 Knowledge and awareness of midwives on PMTCT of HIV services

This section explored the knowledge and awareness levels of the sampled midwives on PMTCT of HIV services in the Central Region of Ghana. The issues considered under the section included screening for HIV during pregnancy, taking HIV/AIDS medications, and bringing infants for HIV testing. The results under the section are presented in Table 4.2.

**Table 4.2: Knowledge and awareness of midwives on PMTCT of HIV services**

<b>Awareness</b>	<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Screening for HIV during pregnancy	Yes	48	100.0
	No	-	-
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Taking HIV/AIDS medications	Yes	44	91.7
	No	4	8.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Delivery with skilled attendant	Yes	45	93.8
	No	3	6.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Bringing infant for HIV testing	Yes	42	87.5
	No	6	12.5
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Using family planning	Yes	27	56.3

	No	21	43.8
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Counselling and support on feeding	Yes	42	87.5
	No	6	12.5
	<b>Total</b>	<b>48</b>	<b>100.0</b>

Source: Field survey (2020)

Results from Table 4.2 showed that all (100%) the midwives had knowledge or were aware of screening for HIV during pregnancy. This could be attributed to the opt-out HIV testing policy in Ghana since 2003 (Yawson, Dako-Gyeke, Ayisi-Addo, Dornoo & Akwei-Addo 2014:145), where health officials initiate the process through counselling for antenatal attendees to appreciate the need to know their status to protect their babies against possible HIV infections, and test them to inform PMTCT of HIV services or otherwise. The policy offers routinely test for HIV to all pregnant women unless they decline to test. Over one and half decades’ the practice of this important exercise under the PMTCT of HIV services has therefore become a standard practice in the maternal care system of Ghana as well as part of the training curricula for midwives in Ghana, (Yawson et al 2014:145) hence, the high level of awareness on HIV screening among pregnant women. It could therefore be deduced from the result that HIV screening during pregnancy is common knowledge among midwives in the Central Region of Ghana. This high level of awareness is very critical for the promotion of antenatal attendees’ awareness on PMTCT of HIV services in the Region. It was also important to identify pregnant women who required PMTCT of HIV services to help reduce the transmission of HIV. Thus, Ministry of Health Ghana (2020:34) posited that the knowledge level of health officials on national policies is essential to enhance their promotion and compliance. According to Owoo and Lambon-Quayefio (2013:2), antenatal services become critical points for disseminating important health information to cause significant changes in the traditional mode of practice and as such, the knowledge level of health professionals on national policies and strategies are imperative to support the achievement of the ultimate goals.

From Table 4.2, the majority (91.7%) of the midwives admitted to knowing how to take HIV/AIDS medications among HIV-positive pregnant women to prevent MTCT. This was important to promote the prevention of MTCT during pregnancy as the midwives were aware of the medications in terms of types and dosage to be administered to the patients. Further, with such a high level of awareness among the midwives, they are more likely to encourage HIV-positive pregnant women or mothers to take their medicines through counselling and checking their records during antenatal and post-natal visits. This will help to protect foetus and infants from contracting the infection. Even though the majority of the midwives were aware of taking HIV/AIDS medications among pregnant women, about 8.3% denied knowing it. The study conducted further analysis on the calibre of midwives who did not know about HIV/AIDS medication. This was essential once all the midwives were aware of the need to screen for HIV during pregnancy, any lapses in medication could defeat the entire purpose for PMTCT of HIV services and cause people to lose confidence in the system. From the further analysis, it was found that all of such midwives were staff midwives, who had practised midwifery for within one year. Staff midwives were the newly placed midwives following their National Service duties. The low level of practical experience among midwives at the lower rungs could explain their lack of knowledge or awareness on HIV/AIDS medications as described by Mulenga and Naidoo (2017:7) that the knowledge, attitude and experience of health professionals influence their treatment strategies in the prevention of MTCT.

Another issue presented in Table 4.2 was knowledge on delivery with a skilled attendant. The results showed that the majority (93.8%) of the midwives were aware that delivery of HIV-positive pregnant mothers should be performed by skilled birth attendants as part of the PMTCT of HIV services. This was essential to protect both delivery attendants and newly-born babies against contracting HIV during the delivery process as such knowledge will enable the midwives to adopt strategies and mechanisms to prevent accidental transmissions. According to Gamell, Luwanda, Kalinjuma, Samson, Ntamatungiro and Weisser (2017:2), one of the critical goals in PMTCT of HIV services is to ensure safe delivery for HIV-positive pregnant women, newly-born babies and health professionals to prevent further transmission of the disease.

The study also found that the majority (87.5%) of the midwives were aware that infants had to be brought back for HIV testing, while 12.5% denied having such knowledge (refer to Table 4.2). The high knowledge among the midwives on HIV testing of infants whose mothers were HIV-positive during pregnancy was imperative to continue with the process of ensuring the safety of children to halt the transmission of the infection. The occasional HIV testing for such infants was aimed at monitoring their health progress to ensure they do not contract the infection. In other words, the more the HIV testing of the infants proved to be negative, it showed a high level of compliance of mothers to safety protocols and also demonstrated the success of the PMTCT of HIV services. According to Gamell et al (2017:2), bringing infants for occasional HIV testing in PMTCT of HIV services allows midwives and other health professionals to monitor progress in the PMTCT of HIV services.

Table 4.2 further showed that the majority (56.3%) of the sampled midwives admitted to their knowledge on the need for HIV-positive mothers to continuously use family planning, whereas 43.8% denied such knowledge. Even though the majority of the midwives were aware of the need for family planning for HIV-positive mothers, quite a significant proportion was not aware, which raises serious concerns about the knowledge level and services provided under PMTCT. In other words, the lack of awareness on family planning about HIV-positive mothers will not enable them to encourage such mothers to explore family planning outlets for other PMTCT of HIV services with respect to the spacing of their births to protect their children from getting infected with the virus. This is a massive deficiency in the knowledge level of midwives in PMTCT of HIV services in the Region. Thus, a quite significant proportion of the midwives perceived that PMTCT of HIV services end at delivery. However, Wapmuk, Gbajabiamila, Ohihoin, Ezechi and Wapmuk (2017:16) posited that post-natal family planning services for HIV-positive mothers help to provide further protection to mothers, infants and subsequent pregnancies.

Results from Table 4.2 further showed that the majority (87.5%) of the midwives knew about counselling and support on feeding for HIV-positive mothers. This was necessary to avoid the transmission of the infection through breastfeeding. According to the Centre for Disease Control and Prevention (2020:1), breastfeeding presents a critical avenue



through which HIV-positive mothers could transmit the infection to their infants. Thus, breastfeeding of infants creates epidemiological conditions for HIV/AIDS, where the virus could easily be transmitted to the infant to cause the infection. The provision of counselling support on feeding, therefore, allows HIV-positive lactating mothers to adopt measures and strategies to break the epidemiological process of the infection between them and their infants.

A critical assessment of the knowledge and awareness of midwives on PMTCT of HIV services in the Central Region of Ghana showed that they generally had a level of awareness. This was partly due to the high level of experience among the midwives as they had multiple years of working experience in midwifery. This has enabled them to go through full cycles of the PMTCT of HIV services. In other words, continuous practising of PMTCT of HIV services enabled the midwives to gain much experience and knowledge in providing the necessary care and support to HIV-positive pregnant women. This aligned with the assertion of Mulenga and Naidoo (2017:7), that the knowledge level of midwives on PTMCT of HIV services significantly depended on the years of practice and administering the services to patients.

#### **4.3.2 Attitudes of midwives on PMTCT of HIV services**

This section assesses the attitudes of midwives on PMTCT of HIV services in the Central Region of Ghana. According to Mulenga and Naidoo (2017:7), the attitudes of health professionals towards PMTCT of HIV services influence their service provision strategies and their commitment towards the adoption of the various elements or practices under the services. This was important because Mulenga and Naidoo (2017:7) indicated that one's knowledge in health care service provider may not translate to their adoption, and that appreciation of the attitudes of health professionals are quintessential to explain the reasons behind their level of adoption of some health practices. Some of the issues considered under the section were screening for HIV, referring HIV-positive pregnant women to institutions where they could be monitored, and views on retesting HIV pregnant women throughout their pregnancy. The results are presented in Table 4.3.

**Table 4.3: Attitude of midwives on PMTCT of HIV services**

<b>Attitude</b>	<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Pregnant women should be screened for HIV	Strongly agree	44	91.7
	Agree	4	8.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Referral of HIV positive pregnant women to institutions where they can be monitored	Strongly agree	33	68.8
	Agree	11	22.2
	Disagree	1	2.1
	Strongly disagree	3	6.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
HIV infected pregnant women must deliver with skilled personnel	Strongly agree	31	64.5
	Agree	14	29.2
	Disagree	2	4.2
	Don't know	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
HIV infected women may not breastfeed their children if there is a risk of infection	Strongly agree	18	37.5
	Agree	19	39.6
	Disagree	4	8.3
	Strongly disagree	6	12.5
	Don't know	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Pregnancy should be terminated if a mother is HIV infected	Strongly agree	1	2.1
	Disagree	7	14.6
	Strongly disagree	36	75.0
	Don't know	4	8.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Post-test counselling takes so much of my time	Strongly agree	2	4.2
	Agree	10	20.8
	Disagree	16	33.3
	Strongly disagree	18	37.5

	Don't know	2	4.2
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Retesting for HIV is not necessary	Strongly agree	3	6.3
	Agree	3	6.3
	Disagree	13	27.1
	Strongly disagree	28	58.3
	Don't know	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>

Source: Field survey (2020)

Results from Table 4.3 showed that all (100%) of the midwives strongly agreed and agreed that pregnant women should be screened for HIV. This showed that the midwives had a positive attitude towards HIV screening. This was important to help identify pregnant women who are HIV positive to administer PMTCT of HIV services to them. This positive attitude could encourage them to screen all pregnant women during antenatal visits on HIV as described by Mariwah, Kumi-Kyereme, Tanle, Esia-Donkoh, Owusu and Atuahene (2017:5) that the attitudes and level of acceptability of health professionals towards various aspects of the PMTCT of HIV services determine their level of adoption. The results could also be attributed to the fact that all the sampled midwives were aware of this protocol in antenatal services in Ghana. According to Mariwah et al (2017:5), there is generally a positive association between knowledge and attitudes of health professionals on health safety protocols. The positive attitude of the midwives on the need to screen pregnant women for HIV could also be a mechanism to protect themselves against accidental contraction of the infection as such information allows them to fully protect themselves in the various stages of the antenatal, delivery and postnatal interactions with mothers. This is also in consonance with the assertion of the theory of planned behaviour that individual's behavioural intends and attitudes are shaped by their knowledge and beliefs (Ajzen 2014). In other words, the midwives knew the possible consequences of their quest not to screen the pregnant women, and as such have developed positive attitudes as the personal protective measures.

Table 4.3 further showed that 68.8% of the midwives strongly agreed that there is a need for HIV positive pregnant women to be referred to institutions and departments, where they can be properly monitored, while 6.3% strongly disagreed. The results showed that the majority (91%) of the midwives had positive attitudes toward the referral of HIV positive pregnant women to designated departments for critical PMTCT of HIV services. These positive attitudes were important for the promotion of PMTCT of HIV services as the midwives are more likely to refer HIV positive pregnant women to the appropriate departments on time for special attention to protect the newly born from contracting the infection. Oleribe, Enenche, Udofia, Ekom, Osita-Oleribe and Taylor-Robinson (2018:258) posited the early provision of PMTCT of HIV services for HIV positive pregnant women is critical in protecting babies from contracting the infection and also serve as an important step in curbing the generational spread of HIV.

The study examined the attitudes of the midwives on the need for HIV positive pregnant women to deliver with skilled health personnel. The table showed that the majority (93.7%) of the midwives agreed that HIV infected pregnant women should be delivered by skilled personnel. According to Anaba, Ukwenga and Sam-Agudu (2018:1), delivering HIV positive pregnant women by skilled health personnel, with prior knowledge about the HIV status of the mothers, enables the health professionals to follow strict protocols to protect babies from contracting the infection, while preventing accidental infections on birth attendants. Anaba et al (2018:1) posited that measures to prevent mother to child transmission of HIV and also protecting health professionals from accidental infections are critical in the PMTCT of HIV services to curb the spread and transmission of the infection. It is part of this reason that the Ghana Health Service has made HIV screening part of the safety protocols in antenatal services. Thus, such knowledge enables health professionals to provide critical care services to enhance safe delivery. The positive attitudes of the majority of the midwives on the need for HIV infected pregnant women to be delivered by skilled health professionals is therefore an attestation of the high level of understanding and acceptability of the need to ensure optimum protection for babies and birth attendants. In other words, poor attitudes towards this protocol in PMTCT of HIV services could expose health professionals and babies to high risks of getting infected with the virus. According to Littlewood and Greenfield (2018:5), the motivation behind

positive attitudes on safety protocols are partly informed by their knowledge on the risk of exposure, the severity of the threat of breaking safety protocols, and their capacity to cope with contracting diseases associated with their exposures. This is also in consonance with the conceptual framework about the role of situational influence on health promotion behaviour, where people's attitudes and actions are influenced by perceptions and knowledge (Pender's Health Promotion Model 2011).

Another issue considered under the section was the attitudes of the midwives on HIV infected women not breastfeeding their children if there is a risk of infection. From Table 4.3, the majority (77.1%) of the midwives agreed that HIV infected women should not breastfeed their children if there is a risk of infection, while 12.5% strongly disagreed. The Centre for Disease Control and Prevention (CDC 2020:1) of the United States of America reported that breastfeeding substantially increases the risk of HIV transmission from mother to child. As a result, the CDC recommended that HIV infected mothers should not breastfeed their infants. The positive attitudes of the majority of the midwives towards breastfeeding of infants born to HIV infected mothers could enable them to educate such mothers to resort to alternative means to prevent mother to child transmission. This was imperative because health professionals played a critical role in disseminating health information during antenatal and postnatal sessions to mothers. Thus, antenatal and postnatal lessons in Ghana are used to shape the beliefs and activities of women to conform to national public health goals and objectives.

The study further examined the attitudes of the sampled midwives on the termination of pregnancy of HIV infected mother. From Table 4.3, about three-quarters (75%) of the midwives strongly disagreed that pregnancy should be terminated if a mother is HIV infected. These positive attitudes towards the termination of pregnancy are the indications of the level of confidence that the majority of the midwives had in the PMTCT of HIV services to ensure safe delivery for both mothers and babies. Thus, the majority of the midwives had confidence in their skills and systems in place to provide critical PMTCT of HIV services to protect HIV positive pregnant mothers and their babies during pregnancy, delivery and postnatal services against further transmissions. The high positive attitudes towards allowing HIV positive pregnant mother to continue with the pregnancy could be

attributed to structures, systems and protocols instituted by the Ghana Health Service to guide such pregnancies. The fourth strategy on the PMTCT handbook of Ghana by Providers 2014 stipulated the need for the provision of treatment, care and support to women infected with HIV, their infants and families (Providers 2014:9). As a result of this provision, designated health facilities (mostly district hospitals) and departments have been established to provide unique and specific support to HIV positive pregnant mothers to ensure safe pregnancy, delivery and postnatal activities.

In addition, the study examined the attitudes of the sampled midwives on post-test counselling taking too much of their time. From Table 4.3, the majority (70.8%) of the midwives disagreed that post-test counselling takes so much of their time, one-quarter (25%) agreed. This is in contrast with the assertion by Rogers et al (2016:6) that, post-test counselling involves prolong counselling session which is a waste of time. The results showed that the majority of the midwives had positive attitudes towards post-test counselling in the PMTCT of HIV services. This was important because post-test counselling helps to manage the shock, anxiety, fear, and misconceptions surrounding the infection (Meilani et al 2019:92). According to Bell, Delpech, Raben, Casabona, Tsereteli and De Wit (2016:97), post-test counselling on HIV affords HIV pregnant women the opportunity to learn management strategies available to them to live their normal lives. Bell et al (2016:92) also indicated that post-test counselling for HIV pregnant women helps to manage some of the post-traumatic stress disorders developed by people as they are confirmed of being HIV positive. The positive attitudes of the majority of the midwives suggest that they are more likely to provide such important PMTCT of HIV services to HIV positive pregnant mothers to avoid further health complications. Even though the majority of the midwives had positive attitudes on post-test counselling, the one-quarter of them that had negative attitudes were quite significant as such attitudes could have serious implications on the HIV positive pregnant mothers. In other words, such midwives are more likely to deny their HIV pregnant mothers the opportunity to learn some basic skills to live their normal lives as HIV patients. This was according to the conceptual framework which suggested that people's attitudes influence their health promotion behaviour. The denial of such critical information could pose serious threats to

pregnant mothers who test positive for HIV and their babies and significantly affects the gains made by the PMTCT of HIV services.

Another attitudinal issue examined under the section was the importance of retesting for HIV in PMTCT of HIV services. This was important because the PMTCT guidelines in Ghana requires that HIV testing is done three times across the pregnancy period (Providers 2014:13). The aim is to optimise protection against babies from the generational transmission of the infection to curb its spread as well as promote safe delivery from skilled personnel. Results from table 4.3 showed that the majority (85.4%) of the midwives disagreed that retesting for HIV is not necessary. The results suggest that the majority of the midwives understand and have accepted the need for retesting HIV among pregnant mothers. This was important because Mandala, Kasonde, Badru, Dirks and Torpey (2019:4) reported that retesting of HIV during pregnancy enables both mothers and babies to receive early care to prevent further transmissions.

#### **4.3.3 Strategies adopted by midwives to promote awareness of PMTCT of HIV services**

This section examined the strategies adopted by midwives to promote awareness of PMTCT of HIV services. It involves the specific activities adopted by the midwives at various stages in the PMTCT of HIV services. This was important to ascertain how well the knowledge and attitudes on PMTCT of HIV services were being actualised to protect babies against HIV transmission. Some of the issues considered under the section were the provision of care, treatment and support for HIV women and children, counselling and support on maternal nutrition and infant feeding, early and aggressive treatment of opportunistic infections of children, and availability and accessibility of replacement feeding. The results are presented in Table 4.4.

**Table 4.4: Strategies adopted by midwives to promote PMTCT of HIV services**

<b>Strategies</b>	<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Facility provides care, treatment and support for HIV infected woman, her exposed child, including her infected children from other pregnancies and her sexual partner	Always	39	81.3
	Often	5	10.4
	Sometimes	3	6.3
	Never	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
ARV prophylaxis for PMTCT to both mother and infant is provided	Always	38	79.2
	Often	6	12.5
	Sometimes	4	8.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
ART is initiated regardless of CD4 count	Always	21	43.8
	Often	10	20.8
	Sometimes	12	25.0
	Never	5	10.4
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Counselling and support on maternal nutrition and infant feeding is provided	Always	31	64.6
	Often	8	16.6
	Sometimes	7	14.6
	Never	2	4.2
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Early and aggressive treatment of opportunistic infections (OIs) the child	Always	28	58.3
	Often	11	22.9
	Sometimes	8	16.7
	Never	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Regular administration of vitamin A supplement for the child	Always	32	66.7
	Often	13	27.1
	Sometimes	3	6.3



	<b>Total</b>	<b>48</b>	<b>100.0</b>
Routine HIV testing and counselling is available	Always	45	93.8
	Often	2	4.2
	Sometimes	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
The clinic provides a user-friendly environment for women living with HIV to avoid the fear of discrimination and stigma	Always	40	83.3
	Often	6	12.5
	Sometimes	2	4.2
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Replacement feeding is available and accessible to patient	Always	15	31.3
	Often	12	25.0
	Sometimes	18	37.5
	Never	3	6.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
The health provider ensures compliance to treatment for HIV positive mothers	Always	34	70.8
	Often	7	14.6
	Sometimes	7	14.6
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Health provider ensures partner's involvement	Always	27	56.3
	Often	10	20.8
	Sometimes	10	20.8
	Never	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>

Source: Field survey (2020)

Table 4.4 shows that the majority (81.3%) of the midwives always had their facilities providing care, treatment and support for HIV infected women, children and sexual partners. The study found that the facilities provided care and treatment for the exposed children of the HIV infected women and also for their other children from other pregnancies. This strategy was important to provide comprehensive HIV care and support

to all persons who may have been exposed or have their system compromised through transmission. It helps to improve people's awareness about their HIV status and encouraged them to lead responsible lives to reduce the spread of the infection as well as reducing the health complications that may be associated with the it. The study found that the health professionals encouraged the infected women to bring their sexual partners for testing, counselling and treatment if their tests prove positive.

The table also showed that the majority (79.2%) of the midwives indicated that they always administered ARV prophylaxis in PMTCT to both mother and infant. This was important to ensure maximum protection of the infants against possible transmission of the infection. In other words, the administration of the ARV prophylaxis was done as a precautionary measure to prevent mother to child transmission of the virus. Such precautionary measures are imperative in controlling HIV due to the strong social and physical bonds between mothers and their infants. The practice was part of the PMTCT protocols established by the Ghana Health Service for health professionals in curbing the spread of HIV. The implication is that health policies are important in providing a critical sense of directions to guide the operations of health professionals in controlling the spread of HIV. According to the WHO (2018:8), health policies provide clear goals and directions to help reduce ambiguities surrounding operations and decisions over particular actions to be taken by health professionals.

Further, it was found that 43.8% of the midwives always initiated ART administration regardless of the CD4 count of pregnant women. This aligns with the assertion by Ying, Granich, Gupta and Williams (2016:1027) that, ART should be provided to people living with HIV irrespective of CD4 cell count level. This is a serious issue that needs to be properly looked at since more than half (56.2%) of the midwives providing PMTCT of HIV services at the ANCs in the Central Region of Ghana were not certain whether to initiate ART regardless of CD4 cell count or not. The implication is that some pregnant women who test positive for HIV infect their unborn babies before they start treatment which poses a barrier to scaling up HIV care. This could be due to inadequate knowledge of the midwives on ART administration which is a flaw to the strategies employed to curb the spread of HIV since Ghana has adopted the WHO Strategy 90-90-90 ambitious treatment

target which states that, by 2020, 90% of all HIV positive patients should receive sustained ART (UNAIDS 2014:1).

This was in variance with the HIV treatment guidelines for government treatment services in Ghana. The current treatment guidelines in Ghana specify ART eligibility at CD4<sup>+</sup> cell counts of 350 cell/ $\mu$ l or less (Mikkelsen, Hontelez, Nonvignon, Amon, Asante, Aikins, Van de Haterd & Baltussena 2017:2279). Thus, one has to have a CD4 cell count within the stated eligibility range to qualify for the government-supported or sponsored treatment for HIV.

Another issue considered under the section was the provision of counselling and support on maternal nutrition and infant feeding. This was essential because the CDC (2020:1) reported that breastfeeding is a critical avenue for the transmission of HIV from mothers to infants. The provision of such counselling services could help equip mothers with the necessary skills, strategies and alternative feeding system to protect infants against contracting HIV. From Table 4.4, a majority (64.6%) of the midwives reported that they always provide counselling and support on maternal nutrition and infant feeding for HIV infected mothers. The provision of counselling support on nutrition could increase the knowledge and awareness levels of mothers on various sources of nutrition to support the feeding of their infants, especially in cases where they have to avoid breastfeeding. Even though the majority of the midwives admitted to being providing such critical service always, a quite significant proportion (35.4%) of the midwives did not always provide such important PMTCT of HIV services to HIV infected mothers. This was likely to compromise on the gains and successes of the PMTCT of HIV services in the Central Region of Ghana. This was because the failure of midwives to provide such services to some HIV positive mothers could have adverse effects on their children as the virus could easily be transmitted through breastfeeding.

The majority (58.3%) of the midwives reported that they always provided early and aggressive treatment of OIs to children of HIV infected mothers (see Table 4.4). This was necessary to slow down the development of health complications associated with the infection among such children. Thus, children relatively have weaker immune system than adults and as such, any less stringent approach in treating OIs at the early stages could

have serious health implications on their growth and development. The World Health Organisation (2015:1) indicated that children infected with HIV have slim chances of survival and as such, requires early and aggressive treatment of the OIs to manage their growth and development. Considering the important nature of such services in PMTCT of HIV services, the situation where some of the midwives did not always (41.7%) administer OIs services was a major cause for concern, which could lead to the health deterioration and possible death of such infants. The study, however, found that the occasional shortage of some of the essential medicines at the hospitals, causes the mothers to resort to herbal medicines and prayer activities which contributed to the situation where the midwives were unable to always administer early and aggressive treatment of OIs of children. Thus, the metaphysical beliefs of the parents played an essential role in the administration of early and aggressive treatment of OIs of children in the Central Region of Ghana. It was also found that long distances to district hospitals, which have been designated for the provision of care and treatment for HIV infected pregnant women, mothers and children, discouraged some of the mothers from pursuing early and aggressive treatment for their children. Further, some of the mothers complained of depression following their awareness of their HIV status and their children, HIV associated marital problems and stigmatisation as reasons they shun away from hospitals and resort to prayer camps and herbal medicines for treatment.

The study inquired from the midwives about the extent of administration of vitamin A supplements to HIV infected children in their facilities. This was important because the WHO (2019:1) reported that vitamin A supplementation in HIV-infected infants and children is safe and effective in reducing illness and death. From Table 4.4, the majority (66.7%) of the midwives indicated that they always administer vitamin A supplements to HIV-infected children in the PMTCT of HIV services. This was essential to reduce health complications associated with the infection as stipulated by the WHO.

Another issue considered under the section was the provision of routine HIV testing and counselling. Table 4.4 showed that the majority (93.8%) of the midwives indicated that routine HIV testing and counselling is always available to HIV-infected mothers and their children. Such routine testing and counselling system enable the health professionals to

track the progress being made in the treatment process. It also informs them about the need to change drugs for the patients to enhance the effectiveness of the treatment process. The counselling aspect of the routine service process allows the mothers to learn more strategies of living with the infection as well as address part of their psychological needs associated with the infection. This was important as posited by Wani and Sankar (2017:88) that HIV-infected persons go through immense psychological stress that contributes significantly to deteriorate their health.

The study requested the midwives to indicate the extent to which their clinics provided a user-friendly environment for women living with HIV to avoid the fear of discrimination. The study found that the majority (83.3%) of the midwives reported that their clinics always provided a user-friendly environment for women living with HIV to avoid the fear of discrimination (see Table 4.4). According to Wani and Sankar (2017:87), HIV-infected persons suffer many forms of discrimination and stigmatisation from society and as such, the provision of a user-friendly atmosphere during PMTCT of HIV services is imperative in encouraging patients to regularly attend the PMTCT clinics for care and treatment to curb the spread of the infection. Indian Network for People Living with HIV/AIDS (2020:7) asserted that the provision of a user-friendly environment for HIV infected persons should partly seek to protect the identities and health information to help reduce unnecessary attention, discrimination and stigmatisation. In other words, efforts to increase the participation of HIV-infected women in PMTCT of HIV services should create user-friendly and user-identity protection strategies for patients.

The study inquired from the midwives about the availability and accessibility of replacement feeding to HIV-infected lactating mothers. This was essential because of the high risk associated with breastfeeding infants by HIV-infected mothers. From the study, 31.3% of the midwives reported that replacement feeding was always available and accessible to patients in their facilities, while 37.5% indicated that they sometimes have them in their facilities. The results showed that replacement feeding was not always available and accessible in most of the health facilities for HIV-infected mothers. This was very serious as it could compromise the willingness and capacity of HIV-infected mothers to avoid breastfeeding and securing the needed nutrition levels for their infants. The

situation could pose a serious threat and risk to the health, protection and survival of infants born to HIV-infected mothers. The study found that occasional delays in the supply of replacement feeding sometimes creates shortages in the health facilities. It was also found that some of the midwives recommend local food sources with similarly high levels of nutrition as those in the replacement feeding formula to HIV-infected mothers during shortage periods. Some of the midwives further indicated that they encourage HIV-infected mothers to use local sources of replacement feeding to reduce the cost associated with feeding their infants. This was also necessary to encourage the mothers to avoid breastfeeding as such food items are readily available in the communities and economically accessible to them as well. The implication is that cost of replacement feeding could play a crucial role in people's adherence to avoid the risk of transmitting HIV from mothers to their infants.

Results from Table 4.4 further show that the majority (70.8%) of the midwives indicated that they always ensured compliance of HIV positive mothers to treatment. This was done through the counselling and testing processes as well as tracking progress through records. The study found that proper records on interactions with HIV-infected mothers and test results were critical for health professionals in monitoring their compliance to treatment guidelines. It is expected that the interrogation of the majority of the midwives about compliance to treatment for HIV positive mothers anytime they visited the health facilities will compel them to adhere to the treatment guidelines to improve their health conditions and reduce the risk of transmission of the infection to their infants or people around them.

Another issue considered under the section was health providers ensuring partners' involvement in the HIV care and treatment processes. From the study, the majority (56.3%) of the midwives indicated that they always ensured the involvement of partners in the care and treatment of HIV-infected mothers (see Table 4.4). This was important to enhance comprehensive treatment and support to HIV-infected mothers to control the spread of the infection. However, a quite significant proportion (43.7%) of the midwives did not always ensure the involvement of partners in PMTCT of HIV services, which could have serious implications on the fight against the spread of the infection among sexual

partners. Considering the proportion of midwives who do not always ensure the involvement of partners in PMTCT of HIV services, new strategy 3 of this study was developed (see Table 7.1). This was to increase family consent for participating in PMTCT of HIV services thereby, promoting antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana. However, the study found that some of the HIV positive mothers did not have husbands and found it difficult to inform their sexual partners about their status due to the social stigma associated with the infection. In other words, stigmatisation against persons living with HIV makes it difficult to provide comprehensive care and treatment for persons who may be at risk of getting the infection due to their sexual encounters with HIV positive mothers. This aligns with the assertion of Wani and Sankar (2017:87) that addressing the societal stigma associated with HIV/AIDS is one of the key pre-requisites for addressing the spread of the infection as well as ensuring the provision of effective care and support to patients.

#### **4.3.4 Views of midwives regarding PMTCT of HIV service administration**

The study also examined the views of the midwives regarding PMTCT service administration in the Central Region of Ghana. This was important because Mariwah et al (2017:5) stipulated that the perceptions of health professionals have a significant influence on their attitudes and practices. The implication is that the perceptions of the midwives could influence their attitudes and practices of PMTCT of HIV services. Some of the issues considered under the section were mothers lacking knowledge on HIV and PMTCT of HIV services, few infrastructures for PMTCT of HIV services, CD4 count levels hindering access to the eligibility of government treatment, and inadequate voluntary and counselling centres.

**Table 4.5: Views of midwives on PMTCT of HIV service administration**

<b>Views</b>	<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Some mothers lack knowledge of HIV and PMTCT	Strongly agree	16	33.3
	Agree	22	45.8
	Disagree	6	12.5
	Strongly disagree	3	6.3
	Don't know	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
There are less infrastructure for PMTCT services	Strongly agree	17	35.4
	Agree	15	31.3
	Disagree	10	20.8
	Strongly disagree	6	12.5
	<b>Total</b>	<b>48</b>	<b>100.0</b>
CD4 count level hinders access to the eligibility of government treatment	Strongly agree	7	14.6
	Agree	17	35.4
	Disagree	12	25.0
	Strongly disagree	7	14.6
	Don't know	5	10.4
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Pregnant teens lack self-care knowledge	Strongly agree	21	43.8
	Agree	25	52.1
	Strongly disagree	2	4.2
	<b>Total</b>	<b>48</b>	<b>100.0</b>
The nurses lack adequate PMTCT training	Strongly agree	8	16.7
	Agree	10	20.8
	Disagree	10	20.8
	Strongly disagree	20	41.7
	<b>Total</b>	<b>48</b>	<b>100.0</b>
	Strongly agree	6	12.5
	Agree	7	14.6



The hospital is short of ARV drugs	Disagree	26	54.2
	Strongly disagree	9	18.8
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Some religions do not support visiting health facilities	Strongly agree	13	27.1
	Agree	10	20.8
	Disagree	14	29.2
	Strongly disagree	8	16.7
	Don't know	3	6.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Partners need to give consent before testing HIV	Strongly agree	14	29.2
	Agree	13	27.1
	Disagree	5	10.4
	Strongly disagree	16	33.3
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Midwives not enough at the ANC	Strongly agree	12	25.0
	Agree	17	35.4
	Disagree	10	20.8
	Strongly disagree	8	16.7
	Don't know	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Some religions do not support condom use	Strongly agree	25	52.1
	Agree	20	41.7
	Disagree	2	4.2
	Strongly disagree	1	2.1
	<b>Total</b>	<b>48</b>	<b>100.0</b>
Hospitals short of HIV testing kits	Strongly agree	13	27.1
	Agree	21	43.8
	Disagree	9	18.8
	Strongly disagree	4	8.3
	Don't know	1	2.1

	<b>Total</b>	<b>48</b>	<b>100.0</b>
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Source: Field survey (2020)

Table 4.5 shows that the majority (79.1%) of the midwives agreed that some mothers lack knowledge of HIV and PMTCT services in the various districts. This was more likely to affect the effectiveness of PMTCT of HIV services in the Region as some of the mothers may delay in reporting to the designated health facilities. The poor knowledge of some mothers on HIV and PMTCT services was partly attributed to the centralisation of the HIV-designated facilities at the district hospitals. Thus, Ghana’s system for the treatment of HIV and the provision of PMTCT of HIV services has been centralised to the district hospitals in the district capitals. This was however proven to be posing some challenges to people at the sub-district level as some could not afford to travel regularly to the district hospitals in the district capitals for PMTCT of HIV services. In addition, health professionals in some of the sub-district level health facilities did not educate the mothers about such services on time. The implication is that efforts to further decentralise HIV care and treatment services at the sub-district level could help improve knowledge on PMTCT of HIV services and enhance the effectiveness of the services in addressing complications associated with the infection, hence, the development of new strategy 10 of this study (see Table 7.6).

Table 4.5 further shows that the majority (66.7%) of the midwives admitted that there was less infrastructure for PMTCT of HIV services in the various designated hospitals. This could have serious implications on the quality of PMTCT of HIV services to be provided by the midwives from the designated hospitals. According to Du, Li, Jin, Huang, Gu, Zhu and Xu (2019:1), infrastructural facilities and protection equipment are critical for the effective provision of PMTCT of HIV services as they help to protect the health status and conditions of patients as well as ensure the safety of health workers. The study found that some of the hospitals did not have designated areas with proper offices and enclosed areas to have critical engagements with HIV patients while protecting their identities and health statuses to avoid stigmatisations. Some of the designated hospitals also did not have voluntary counselling and testing centres. The lack of such critical infrastructure could also discourage some HIV positive patients from reporting to the designated

facilities to seek care and support. This perception could also discourage some midwives and health professionals from fully committing themselves to the provision of PMTCT of HIV services as it could expose them to the risks associated with the provision, care and support to HIV patients.

Another issue considered under the section was CD4 count level hindering access to the eligibility for government treatment. The study found that the majority (60.4%) of the midwives disagreed that CD4 count level hindered access of some HIV pregnant women to the eligibility of government treatment under the PMTCT of HIV services in the Region. This means that ART is initiated irrespective of the CD4 cell count level. The finding agrees with the assertion by Ying et al (2016:1027) that, CD4 cell count should not be a priority to ART initiation and should be provided to people living with HIV irrespective of CD4 count. This is also in consonance with the assertion by Haffejee, Ports and Mosavel (2016:174) that, 5% of women on ART reported that, their CD4 cell count is above the required level for receiving ART. This implies that no matter the level of CD4 cell count, ART is initiated. The finding is also in consonance with the assertion by Ford, Meintjes, Marco, Greg and Chiller (2017:124) which addressed that, treatment of people living with HIV/AIDS should start regardless of CD4 cell count.

The study found that the majority (95.9%) of the midwives indicated that pregnant teens lack self-care knowledge (see Table 4.5). This could have negative implications on the provision of PMTCT of HIV services to HIV positive pregnant teens. The result also suggests that the midwives had to teach them basic self-care during pregnancy before educating them on proper PMTCT of HIV services to ensure the maximum protection for their babies. Considering the proportion of midwives who indicated that pregnant teens lack self-care knowledge, new strategy 7 of this study was developed (see Table 7.3). This was to help contextualise PMTCT of HIV services to groups of pregnant mothers for easy understanding, hence, promoting awareness of PMTCT of HIV services among antenatal attendees. From the study, the problems associated with pregnant teens were compounded by the non-support given by some religions towards the use of condoms. The study found that the majority (93.9%) of the midwives agreed that some religions did not support the use of condoms, which has contributed to the contraction of HIV and

pregnancy among them (refer to Table 4.5). This is in contrast with the assertion by Gatta (2015:61) that, Christian women were able to say no to sexual intercourse without condoms. This means that religious views of the people have implications on the control of HIV and the provision of care and support for HIV pregnant mothers. This calls for collaboration between the health sector and religious institutions to help control the spread of HIV among the teenage cohorts. The finding is also in contrast with the assertion by Haffejee et al (2016:174) that, majority of HIV positive women uses condoms to protect their babies and maintain their viral load. The study also inquired from the midwives about their perceptions of PMTCT training. The results as presented in table 4.5 showed that the majority (62.5%) disagreed that the midwives lack adequate PMTCT training to provide the needed care and support to HIV patients. The implication is that the majority of the sampled midwives had confidence in the kind of training programs they had received for the provision of PMTCT of HIV services. This agrees with the assertion by Panford (2018:43) that, midwives lack training on PMTCT services. This could encourage them to provide critical PMTCT of HIV services to HIV positive pregnant mothers. Even though the majority of the midwives had confidence in the adequacy of the PMTCT training they had received, a quite significant proportion (37.5%) admitted that the midwives lacked adequate PMTCT training. This is likely to affect the quality of service as well as the confidence of such midwives in the provision of PMTCT of HIV services in the Central Region of Ghana. This means that the provision of on-the-job training programs on PMTCT of HIV services could help boost the capacity of some of the health professionals in the provision of care and support to HIV patients in the Region. This is in contrast with the assertion by Panford (2018:43) that, the midwives' knowledge-based on-the-job training is not adequate for administering PMTCT of HIV services.

Another issue considered under the section was the shortage of ARV drugs at the hospitals. This was important because adequate provision and access to ARV drugs are important in the treatment of HIV as well as the prevention of mother-to-child transmission of the infection. Table 4.5 shows that the majority (73%) of the midwives disagreed that the hospitals get a shortage of ARV drugs. This suggests that HIV pregnant mothers could receive an adequate supply of ARV drugs to treat themselves. This agrees with the conceptual framework about the role of situational influence and perceived behavioural

control, where availability of health services or health care which may include essential drugs can affect the decision to participate in health-promoting activities (Pender 2011, Ajzen 2014). The finding is also in consonance with the assertion by Aboh (2018:113) that, accessibility, reliability, maintainability, serviceability and secureability when operationalised in health service delivery, increase participation. In contrast, Asiyanbola et al (2016:1), argued that inadequate ARV is common among health facilities. This is positive for adherence to PMTCT of HIV services and care and management of HIV cases in the Region as those who tested positive and could receive adequate quantities of ARV drugs to suppress the case counts and other opportunistic infections associated with the infection. The result also implies that the government has a high commitment towards PMTCT services and the provision of care and treatment for HIV patients as reflected in the making of adequate budgetary allocation for the provision of ARVs in the hospitals.

Table 4.5 further shows that 47.9% of the midwives agreed that some religions did not support visiting health facilities. This could have a negative implication on PMTCT of HIV services in the Region as some of the HIV infected women may respond to the health facilities at the advanced stages in their infection. This aligns with the conceptual framework about the role of personal factors where religion can affect the attitude and beliefs of individuals towards health promotion (Pender 2011). According to Iwelunmor, Ezeanolue, Airhihenbuwa, Obiefune, Ezeabolue and Ogedegbe (2014:6), religious beliefs sometimes prevent HIV infected persons from seeking regular PMTCT of HIV services to enhance the efficacy of the treatment process. This may require collaboration between health institutions and religious organisations to educate the masses to accept regular attendance to health facilities to promote PMTCT of HIV services among HIV pregnant mothers.

The study found that the majority (56.3%) of the midwives agreed that partners needed to give consent before testing HIV. This agrees with the assertion by Rogers, Weke, Kwena, Bukusi, Oyaro, Cohen and Turan (2016:4) that, unsupported male partners could also affect pregnant women's participation in the PMTCT of HIV services. This was found

to be causing delays in the testing and counselling process during PMTCT of HIV services as some of the patients were reluctant in informing the partners about their HIV status, while some partners proved difficulty in given their consent for HIV testing. The study found that such delays critically affected the provision of comprehensive care and support for HIV infected families (Rogers et al 2016:4).

The study also examined the adequacy of midwives at the ANC. Results from table 4.5 showed that the majority (60.4%) of the midwives agreed that there were not enough midwives at the ANC. This agrees with the assertion by Rogers et al (2016:3) and Panford (2018:43) that, shortage of midwives combined with a high workload could have serious implications on the administration of PMTCT of HIV services as midwives are responsible for all maternal care issues. In other words, inadequate midwives at the ANC implies that there will not be enough midwives to provide education programs during ANC as well as provide regular checks on the conditions of the foetus to prevent mother-to-child transmissions in the Region (Rogers et al 2016:3). In contrast, Asiyanbola et al (2016:1), argued that inadequate HIV test is common among health facilities. The study however found that the majority (70.9%) of the midwives agreed that the hospitals sometimes run short of HIV testing kits. This could have serious negative implications on the PMTCT of HIV services as testing for HIV among pregnant mothers could delay.

This shortage of testing kits could also be a barrier that could further delay the extension of PMTCT of HIV services to other family members of HIV infected persons. This agrees with the assertion of Lumbantoruan, Kermode, Giyai, Ang and Kelaher (2018:7) that lack of infrastructure is also a barrier that causes a delay in administering PMTCT of HIV services. It should be noted that HIV testing forms part of the initial activities in the PMTCT of HIV services. As a result, anything that could cause delays in testing could also have rippling effects on the other activities in the PMTCT of HIV services. It must, however, be noted that any delays in determining the HIV statuses of pregnant women could result in the deterioration of health of those that will test positive and their babies while posing risk to their sexual partners and other family members (Lumbantoruan et al 2018:7).

#### **4.4 Inferential Analyses on Perceptions of Midwives on PMTCT of HIV Services**

This section conducted inferential analyses on various aspects of the perceptions of midwives on PMTCT of HIV services. The aim was to ascertain the statistical significance of various issues under investigations. In the process of conducting the inferential analyses, the researcher created composite variables for attitudes, strategies and views of midwives on PMTCT of HIV services. The aim was to help simplify the analysis in terms of finding relationships among the various variables and subjecting variables such as attitudes, strategies and views to the various test of differences in relation to the demographic or background data. The calculations of the composite variables were made possible for these variables because of the Likert scale measurements. In other words, the Likert scale types of questions for attitudes, strategies and views made them continuous variables, which allowed for the calculation of averages for each question under them.

In the calculation of the composite variables, strongly agree ranged from 1.00 to 1.99, agree ranged from 2.00 to 2.99, disagree ranged from 3.00 to 3.99, strongly disagree ranged from 4.00 to 4.99, while don't know ranged from 5.00 to 5.99. In addition, always ranged from 1.00 to 1.99, often ranged from 2.00 to 2.99, sometimes ranged from 3.00 to 3.99, while never ranged from 4.00 to 4.99. A composite variable was not calculated for knowledge because of the nominal scale used for its measurement. Thus, a nominal scale does not permit the calculations of averages because there is no order. In the case of this study, the nominal scale was categorical (yes or no), which could not be ordered in terms of high or low.

With the composite variables, the study calculated the averages of each question under each category of variables (attitudes, strategies and views) across the 48 sampled midwives. This enabled the researcher to obtain the average position of the midwives on each question under the three variables. Based on the composite variables, the study conducted a correlation matrix to determine the nature and strength of relationship among attitudes, strategies and views of the midwives concerning PMTCT of HIV services. Correlation analysis was performed because all the variables involved were continuous or interval scale variables. The results are presented in Table 4.6.

**Table 4.6: Correlation matrix for perceptions of midwives on PMTCT of HIV services**

Perceptions	Statistics	Attitudes	Strategies	Views
Attitudes	Pearson correlation	1	0.182	0.392**
	Sig. (2-tailed)	-	0.215	0.006
	N	48	48	48
Strategies	Pearson correlation	0.182	1	0.109
	Sig. (2-tailed)	0.215	-	0.460
	N	48	48	48
Views	Pearson correlation	0.392**	0.109	1
	Sig. (2-tailed)	0.006	0.460	-
	N	48	48	48

Source: Field survey (2020)

\*\* Correlation is significant at the 0.01 level (2-tailed)

Table 4.6 shows that there was a weak positive correlation between the attitudes and strategies of the midwives in relation to PMTCT of HIV services. This is reported statistically as ( $r$  (statistics) = 0.182;  $n$  (sample) = 48;  $p$ -value = 0.215:  $p < 0.05$ ). The implication is that as the attitudes of the midwives on PMTCT improved, their adoption of the strategies for PMTCT services also improved and vice versa. The  $p$ -value of 0.215 showed that there was no statistically significant relationship between attitudes and strategies of the midwives in relation to PMTCT of HIV services. This was because the  $p$ -value was higher than the acceptable margin of error of 0.05.

The table also showed that there was a positive correlation between attitudes and views of midwives on PMTCT of HIV services. This is reported statistically as ( $r$  (statistics) = 0.392;  $n$  (sample) = 48;  $p$ -value = 0.006:  $p < 0.05$ ). This means that as the attitudes of the midwives on PMTCT of HIV services improved, their views on PMTCT services also improved and vice versa. The  $p$ -value of 0.006 showed that there was a statistically significant relationship between attitudes and views of the midwives in relation to PMTCT of HIV services. This was because the  $p$ -value of 0.006 was within the error margin of 0.05.



Results from Table 4.6 further showed that there was a positive correlation between strategies and views of the midwives in relation to PMTCT of HIV services. This is reported statistically as ( $r$  (statistics) = 0.109;  $n$  (sample) = 48;  $p$  = 0.460:  $p < 0.05$ ). This implies that as the views of the midwives on PMTCT services improved, their level of adoption of the strategies on PMTCT of HIV services also improved and vice versa. The  $p$ -value of 0.460 showed that there was no statistically significant relationship between strategies and views of midwives on PMTCT of HIV services. This was because the  $p$ -value of 0.460 was higher than the error margin of 0.05.

The results showed that there were positive correlations among attitudes, strategies and views of the midwives on PMTCT of HIV services. The implication is that efforts to improve the level of adoption of the PMTCT strategies should also focus on improving the attitudes and views of the midwives on PMTCT of HIV services. The results agree with the findings of Mariwah et al (2017:5) that the attitudes and level of acceptability of health professionals towards various aspects of the PMTCT of HIV services determine their level of adoption.

The study also conducted a test of the difference between attitudes, strategies and views of the midwives on PMTCT of HIV services, and the designation of the midwives. This was imperative because the attitudes, strategies and views of the midwives are expected to improve as they gain much experience in PMTCT of HIV services over their period of service and movement on the promotional rungs of midwives. A one-way analysis of variance (ANOVA) was used to assess the statistical significance of the difference between attitudes, strategies and views of midwives, and their designations. ANOVA was used because the independent or categorical variable (designation of midwives) involved had more than two variables. In addition, the study conducted a normality test on the continuous variable (attitudes, strategies and views of midwives) involved in the test. Skewness values of 0.53, 0.49 and 0.58 show that the distributions were normally distributed. This permitted the use of ANOVA, which is a parametric test for testing for significance of difference among three or more sub-categories of a single variable. The results are presented in Table 4.7.

**Table 4.7: Anova on perceptions on PMTCT of HIV services and designation of midwives**

Perceptions	Statistics	Sum of squares	df	Mean square	F	Sig.
Attitudes	Between groups	1.370	4	0.342	2.297	0.074
	Within groups	6.410	43	0.149		
	Total	7.779	47			
Strategies	Between groups	0.955	4	0.239	2.728	0.041
	Within groups	3.763	43	0.088		
	Total	4.718	47			
Views	Between groups	0.602	4	0.150	0.644	0.634
	Within groups	10.041	43	0.234		
	Total	10.643	47			

Source: Field survey (2020)

Table 4.7 shows that there were no statistically significant differences between attitudes of the midwives on PMTCT of HIV services across the various designations. This is reported statistically as [F (degree of freedom of the groups) = F-statistic 2.297 and the p-value = 0.074:  $p < 0.05$ ], and views [F (degree of freedom of the groups) = F-statistic 0.6444 and the p-value = 0.634:  $p < 0.05$ ]. This was because the p-values were higher than the error margin of 0.05. The implication is that the errors associated with the test were higher than the acceptable margin of error. The result could be attributed to the fact that PMTCT of HIV services has been part of the curricula training of midwives in Ghana for over a decade, which had contributed to improving their perceptions about PMTCT of HIV services. Further, the results could be attributed to the fact that the operations of PMTCT of HIV services are regulated by policy guidelines and supervised by the senior midwives to ensure that everyone complies with the regulations. The table however found that there was a statistically significant difference in strategies for PMTCT of HIV services across the various levels of designations. This is reported statistically as [F (degree of freedom of the groups) = F-statistic 2.728 and the p-value = 0.041:  $p < 0.05$ ]. This was because the associated p-value was within the acceptable error margin of 0.05.

## **4.5 SUMMARY**

This chapter expanded on the results and discussion of the data gathered from the midwives. It also presented the demographic characteristics of the midwives and their perceptions on PMTCT of HIV services. This was very important because the perceptions and understanding of midwives on PMTCT of HIV services influence their actions and participation towards HIV-positive pregnant mothers. The chapter also assessed the attitudes of the midwives which also helped to explain the reasons behind their level of adoption of some health practices. Further, the chapter examined the strategies adopted by midwives to promote awareness of PMTCT of HIV services. It involved the specific activities adopted by the midwives at various stages in the PMTCT of HIV services. This was important to ascertain how well the knowledge and attitudes on PMTCT of HIV services were being actualised to protect babies against HIV transmission. Finally, some of the new strategies of this study were developed from this chapter. The next chapter will present the research design and methods used for the antenatal attendees of this study (second phase).

## **CHAPTER 5**

### **RESEARCH DESIGN AND METHOD OF SECOND PHASE (ANTENATAL ATTENDEES)**

#### **5.1 INTRODUCTION**

This chapter explained the research design, research methods, data management, internal and external validity and ethical considerations undertaken during the study for the antenatal attendees.

#### **5.2 RESEARCH DESIGN**

The descriptive cross-sectional design was employed for this study. The descriptive cross-sectional design has been described in chapter 3 of this study (see section 3.2).

#### **5.3 RESEARCH METHODS**

##### **5.3.1 Research approach**

The quantitative research approach was used for this study. The quantitative approach was also used for the second phase which comprised of both step one (objective 1) and step two (objective 2). In the second phase, data were collected in steps one and two through an administered questionnaire from convenient sampled antenatal attendees attending ANCs in the 11 district hospitals in the Central Region of Ghana. This explored the antenatal attendees' perceptions towards PMTCT of HIV services (objective one) and developed new strategies to promote antenatal attendees' awareness of the PMTCT of HIV services provided (objective two). The objective 3 was conducted when the developed new strategies were presented to experts in the field for evaluation to promote awareness of PMTCT of HIV among antenatal attendees. The quantitative approach was used for the evaluation of the new strategies.

### **5.3.2 Study setting**

A vivid description of the study setting has been provided in chapter 3 of this study (see section 3.3.2).

### **5.3.3 Population**

In this study, the population universum consist of all antenatal attendees attending ANC in the Central Region of Ghana. The target population, on the other hand, consist of all antenatal attendees attending ANC in the 11 district hospitals in the Central Regional of Ghana from January to December 2019. The information received from the DHIMS (2018:56) indicated that the number of women who attended ANC between January 2019 to December 2019 are Abura Dunkwa District Hospital 3696, Ajumako District Hospital 5448, Cape Coast Metropolitan Hospital 6289, Dunkwa Municipal Hospital 10286, St. Francis Xavier Hospital 10279, St. Luke Catholic Hospital Apam 4676, Swedru Government Hospital 14093, Praso Hospital 10803, Saltpond Hospital 5485, Our Lady of Grace hospital 9388 and Winneba Municipal Hospital 10462. Therefore, the population of the antenatal attendees from the 11 district hospitals was 90905 and the age category was 15 to 49 years, that is women in their reproductive age. Since the population is large and was not possible to use the whole population for the study, the sample was drawn from the population of the 11 district hospitals and bulk together to form a composite sample.

### **5.3.4 Sample and Sampling Procedure**

To draw inferences from the sample about the population, attention was paid to the selection of the sample that reflects the population of the study. Due to the nature of the population, the non-probability sampling procedure was used. This method is less complicated and does not claim representativeness (Amedahe & Gyimah 2016:101). The convenient sampling method was applied by stopping random antenatal attendees at the ANCs to respond to the questionnaires and continuing the process until the required sample was obtained (Amedahe & Gyimah 2016:102). That is, every antenatal attendee in the selected district hospitals that the researcher accidentally came across or in contact with during the period of data collection was considered.

The convenience sampling was used because, considering a population like pregnant women who are already exhausted and stressed, they were not comfortable spending more time at the ANC after being through a long process of receiving care. Also, pregnant women mostly attend ANC at their own convenient time as normal pregnancy is not a sickness that demands emergency attention hence, the attendance is not the same every day. Convenience sampling was also employed since pregnant women are homogenous. Therefore, any antenatal attendee that the researcher came into contact with was selected. Similarly, as a result of the Focus ANC, the pregnant women mostly attend ANC only four times within the nine months hence, the attendance declines and not the same throughout the week. Furthermore, since the ANC activities run from Monday to Friday, there is no specific day for a massive attendance. As a result, generalization was within the context of the study to help minimize the bias that comes with a convenience sampling procedure.

The contact details of the antenatal attendees were obtained based on the records of their information regarding places of residence, phone numbers and other contact details that could be obtained to ensure contact with them when there was the need to do so. This was obtained from the hospitals' antenatal attendance register. The respondents were recruited by having one on one contact regarding individual antenatal attendee by explaining to them the purpose of the study and why they need to take part in the study. This was done by giving the participant information sheet (PIS) to respondents who could read and understand English (see annexure H). For those who could not read, the PIS was read and explained to them in detail in the local language (Fante); the purpose of the study, what is expected from them as respondents in the study and the consent they need to give after fully understanding the purpose of the study. Also, the risks and discomforts, benefits associated with the study either directly or indirectly, their right to refuse or withdraw and the confidentiality of their information were all explained (see Annexure H). Those who agreed to be part constituted the sample for the study and were made to sign or thumbprint a consent form after they had read or the researcher explained to them before the questionnaires were administered (see Annexure K). Pregnant women who were minors, that is between 15 to 17 years, were made to sign an assent form after their parents' consent had been officially sought on their behalf (see Annexure I). The parents

of the minors were given a parental consent form to sign or thumbprint after they have read and understood it or it has been read and interpreted to them in the local language by the research team (Fante) (see Annexure J).

In determining the sample size for the study, a table for determining sample size from a given population provided by Krejcie and Morgan (1970), cited in Sarantakos (2005:174), was used and a sample size of 384 was obtained. This is indicated in Table 5.1 below.

**Table 5.1: Table for Determining Sample Size for a given Population**

<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	264	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

**Note** – N is population size

S is sample size

**Source:** Krejcie & Morgan, 1970

An experience extended from the pre-test exercise indicated that the researcher was unable to contact some of the antenatal attendees needed for the study, hence leading to a non-response to some of the questionnaires. Assuming a 10% non-response rate of the sample size was:

$$N = 384 + 10\% \text{ of } 384 = 384 + 38 = 422.$$

This is because, according to Taherdoost (2017:239), up to 50% of the sample size is added to the sample size to compensate for non-response.

This brought the estimated sample size to 422 and was rounded up to a sample size of 450 because, as the sample size increases, the results become more accurate and reduces sample error (Taherdoost 2017:237).

This number, 450 antenatal attendees were contacted to enrol in the study. The sample size 450 was further distributed proportionally across the antenatal clinics using stratified proportional allocation formula stated below:

$$n_h = \left[ \frac{N_h}{N} \right] n$$

Where

$n_h$  = stratum sample size for a particular health facility

$N_h$  = population size for a particular health facility

$N$  = Total population size

$n$  = total sample size for the study



For example, the stratified sample size for Abura Dunkwa was calculated as:

$$nh = \left[ \frac{3696}{90905} \right] 450$$

Table 5.2 shows the population and distribution of the sample size across the 11 district hospitals based on the proportional allocation.

**Table 5.2: Population and Sample Size across district hospitals in the Central Region**

District hospitals	Population of pregnant women	Sample size
Abura Dunkwa Hospital	3696	18
Ajumako District Hospital	5448	26
Cape Coast Metropolitan Hospital	6289	31
Dunkwa Municipal Hospital	10286	51
St. Francis Xavier	10279	51
St. Luke Catholic Hospital	4676	23
Swedru Government Hospital	14093	71
Praso Government Hospital	10803	54
Saltpond Hospital	5485	27
Our Lady of Grace	9388	46
Winneba Municipal Hospital	10462	52
<b>Total</b>	<b>90905</b>	<b>450</b>

Source: District Health Information Management System (DHIMS), 2018

After the actual data collection, the non-response rate was still experienced since 447 questionnaires were received instead of 450. Therefore, these 447 questionnaires were used for the analysis since a non-response rate of 10% has already been catered for.

#### **5.3.4.1 Inclusion criteria**

Inclusion criteria were used to select respondents who were supposed to be part of the study. These included:

- Pregnant women between 15 to 49 years.
- Pregnant women who were not involved during pre-testing of data collection instrument.
- Pregnant women who agreed to respond and signed the consent form.
- Pregnant women between 15 and 17 years whose parents agreed and signed the consent form on their behalf to respond in the study.

#### **5.3.4.2 Exclusion criteria**

The exclusion criteria were used to separate those who were not supposed to be part of the study which included:

- Pregnant women below 15 years and above 49 years.
- Pregnant women were ill during the data collection period since they were unable to give accurate responses to questions relating to attitudes.

### **5.4 DATA COLLECTION METHODS AND PROCEDURES**

Data collection is a process of collecting information from all the relevant sources to find answers to the research problem, test the hypothesis and evaluate the outcomes (Dudovskty 2018:87). Irrespective of the field of study, accurate data collection is essential to maintaining the integrity of research. Both the selection of appropriate data collection instruments and clearly defined instructions for their correct use reduce the likelihood of errors occurring (Kabir 2018:202). Therefore, the researcher used a carefully structured survey questionnaire to answer the objectives of the study with its high-level objectivity to the study.

#### **5.4.1 Data Collection Instrument**

The main data collection tool for the initial phase of this study was a structured questionnaire with mostly close-ended questions extracted from experts' opinion, research work in related areas (Opoku-Danso & Ampofo 2017:1098) and the Ministry of Health Ghana/Ghana Health Service handbook for PMTCT of HIV (Providers 2014). These were modified to make them more suitable for this study. In this phase, the aim of the data collection tool was to explore and describe perceptions of antenatal attendees and to develop strategies to promote their awareness of PMTCT of HIV services. As a result, the data collection tool was prepared to assess the knowledge level, awareness, attitudes, beliefs, perceptions and strategies to promote awareness of PMTCT of HIV services among antenatal attendees in the Central Region of Ghana. The structured questionnaire was developed in the English language and divided into seven sections/scales (scale 1, 2, 3, 4, 5, 6 and 7). Scale 1 addressed socio-demographic information of the antenatal attendees with 9 items, scale 2 assessed the knowledge level of the antenatal attendees of HIV, MTCT and PMTCT with 9 items, scale 3 assessed the antenatal attendees' awareness of MTCT and PMTCT with 7 items, scale 4 examined the beliefs of the antenatal attendees towards PMTCT of HIV with 10 items, scale 5 examined the attitudes of the antenatal attendees towards PMTCT of HIV services with 19 items, scale 6 identify the perceptions of the attendees with 15 items and finally scale 7 assessed the implementation of the existing strategies for the PMTCT of HIV services with 12 items.

The questionnaire started with an introductory statement, which specified the purpose of the research and assured the respondents of confidentiality of their responses. The questionnaire was sent to my supervisor for her comments and suggestions after the design and feedback were integrated into the questionnaire. Before validity and reliability tests were carried out, the researcher refined the questions after administering the questionnaires to a small group of antenatal attendees similar in characteristics to the intended respondents. This was because researchers are professionals whose language and culture can be different from those of the potential respondents in their study which may influence the meaning and the content of the questionnaire (Gatta 2015:42).

The administered questionnaires were carefully checked by my statistician who analysed to report the reliability coefficient (Cronbach alpha coefficient reliability) for each of the items of the instrument and gave an overall Cronbach alpha for the antenatal attendees as .754 which indicated that the instrument was reliable for the study.

#### **5.4.2 Pre-testing of the data collection instruments**

Pre-testing was conducted in the two main university hospitals in the Central Region of Ghana, thus the University of Cape Coast and the University of Education Winneba hospitals. A detailed description of these facilities has been discussed in chapter 3 of this study (see section 3.4.2).

The prepared items were then tested on 40 antenatal attendees. This enabled the researcher to clarify all ambiguous questions, identified possible challenges likely to be encountered in the actual exercise and how to address them.

The Cronbach's alphas for the various sections/ scales were generated using the Statistical Package for the Social Sciences (SPSS) version 21.0. The data from the pre-testing were entered into SPSS. Reliability analyses were performed on the overall questionnaire and sub-scales in the questionnaire to generate the Cronbach's alphas. The Cronbach alpha reliability coefficients obtained for the antenatal attendees' instrument are well outline in Table 5.4.

**Table 5.4: Antenatal attendees reliability statistics**

<b>Sections</b>	<b>N of Items</b>	<b>Cases</b>	<b>Cronbach's Alpha</b>
Knowledge scale	9	40	0.111
Awareness scale	6	40	0.101
Belief scale	10	40	0.126
Attitude scale	16	40	0.152
Perception scale	15	40	0.142
Strategy scale	12	40	0.122
<b>Overall Cronbach's Alpha</b>	<b>68</b>	<b>40</b>	<b>0.754</b>

From the analyses of the pre-test data, Cronbach alpha scores of 0.754 showed that the scale could explain about 75.4 per cent of the variables being measured in the research instruments for antenatal attendees, which further implied that they were reliable because according to Mohajan (2017:11), a Cronbach alpha value of 0.7 and above is considered reliable. A detailed results of the Cronbach Alpha Reliability Analysis for antenatal attendees have been provided with the questions items considered for the statistical test in this study (see Annexure O).

#### **5.4.3 Reliability of data collection instrument**

This section has been adequately explained in chapter 3 of this study (see section 3.4.3).

#### **5.4.4 Validity of data collection instrument**

Validity of data collection instrument has been described in chapter 3 of this study (see section 3.4.4).

#### **5.4.4.1**      ***Content validity***

In relation to this study, the researcher ensured adequate representation of the question on the phenomenon being studied. This was done after pre-testing the questionnaires as some irrelevant questions were removed and modified. The researcher, the supervisor and the statistician closely examined the items in the questionnaire to ensure that they can measure the intended variables. Moreover, the researcher incorporated comments and suggestions from the supervisor and the statistician to improve the validity of the instrument that reflected the concept it was supposed to measure.

#### **5.4.4.2**      ***Face validity***

The researcher carefully designed the items in the questionnaire to appear in a way that they measured what they were intended to measure.

#### **5.4.4.3**      ***Construct validity***

In this study, all concepts which were used were in line with the theory employed to guide the study.

The table showing the alignment of the theory and model used to guide the study with the items in the questionnaire to ensure validity as stated in this study has been well presented in chapter three of this study (see Table 3.5).

#### **5.4.5 Data Collection**

This was done on any other day between Mondays and Fridays during working hours since there was no specific day with massive attendance because of the Focus ANC which comprised of segregating antenatal attendees into those eligible to receive routine ANC care and those who needed specialized care for specific health conditions. This has resulted in the antenatal attendees attending the ANC at most four times within the nine months, hence the attendance declining and not the same throughout the week. The process took place during the ANC sessions after the antenatal attendees have gone through all the various activities. A detailed description of the remaining data collection procedures was well explained in chapter 3 of this study (see section 3.4.5).

#### **5.4.6 Data Analysis**

The multiple regression analysis was used to test attitudinal factors among antenatal attendees to find out the factors that can predict antenatal attendees' decision to test for HIV among antenatal attendees in the Central Region of Ghana. ANOVA was used to perform a test of difference between perceptions, beliefs and views of the antenatal attendees on PMTCT of HIV services across the gestation period. A detailed description of the data analysis process has been provided in chapter 3 of this study (see section 3.4.6).

#### **5.4.7 External and Internal validity of the research design**

The results of the study could not be generalized to the entire population in the region and Ghana. This is because based on the sampling procedure selected, that is the convenience sampling, it did not give every antenatal attendee the chance to be part of the study since it falls under the non-probability sampling technique (see section 3.4.7 for a further discussion).

### **5.5 RESEARCH DESIGN AND METHOD OBJECTIVE STEP 3**

This section has been well articulated in chapter 3 of this study (see section 3.5).

### **5.6 ETHICAL CONSIDERATIONS**

In this study, the researcher used different ethical approaches to put ethical issues as the top priorities of the study so that the study could sound in all facets of its conduct.

#### **5.6.1 Respondents**

##### **5.6.1.1 *Autonomy***

Autonomy of the respondents were adequately ensured. This section has been discussed in detail in chapter 3 of this study (see section 3.6.1.1).

#### **5.6.1.2 Justice**

This was highly ensured in this study and a detailed discussion has been provided in chapter 3 of this study (see section 3.6.1.2).

#### **5.6.1.3 Anonymity and confidentiality**

This has been well been discussed in chapter 3 of this study (see section 3.6.1.3).

#### **5.6.1.4 Beneficence**

Beneficence was ensured in this study. This has been well articulated in chapter 3 of this study (see section 3.6.1.4).

#### **5.6.2 Institution**

This section has been clearly discussed in chapter 3 of this study (see section 3.6.2).

#### **5.6.3 Scientific integrity**

All sources of information were referred according to the standard and style of the University of South Africa (UNISA). Fabrication of data was avoided, and all data or information received were kept confidential. A consent form indicating the purpose of the study, assurance of confidentiality and privacy was given to the respondents to sign (see annexure K). In the case of those who could not read and write, the purpose of the study was read and explained to them and a portion on the consent form was provided for thumbprinting to indicate their acceptance. Respondents who were below the age of 18 were considered minors and parental consent was sought on their behalf (see annexure J). Since issues on HIV are associated with stigmatization and negative labelling, all information received were kept strictly confidential.



## **5.7 SUMMARY**

The chapter expanded on the research design and methods used for the second phase (antenatal attendees) of the study. Quantitative study with descriptive cross-sectional design was explained in detail. The setting, population, sampling and sampling methods, data collection, the research tool used, and data analysis undertaken were explained in detail. In addition, methodology for the development of the new strategies was presented. It also highlighted the ethical behaviour of the study for the attainment of scientifically complete results. The next chapter will present research results for the second phase of the study.

## CHAPTER 6

### PRESENTATION AND DISCUSSION OF RESULTS FOR SECOND PHASE (ANTENATAL ATTENDEES)

#### 6.1 INTRODUCTION

This chapter presents the results and discussion of the data gathered from the antenatal attendees about their awareness to promote PMTCT of HIV services. The chapter is organised under the demographic characteristics of antenatal attendees, the concept perception refers to or has a similar meaning as the knowledge and awareness of antenatal attendees on PMTCT of HIV services, the attitude of antenatal attendees on PMTCT of HIV services, perceptions of antenatal attendees on PMTCT of HIV services, and the strategies for midwives to promote antenatal attendees' awareness of PMTCT of HIV services were presented.

#### 6.2 Demographic Characteristics of Antenatal Attendees on PMTCT

This section presents the demographic characteristics of the antenatal attendees. This was important to help explain some of the differences and trends in the perceptions of antenatal attendees regarding PMTCT of HIV services in the Central Region of Ghana. Some of the demographic characteristics presented in the chapter are age, religious affiliation, marital status, occupation, and level of education. The results are presented in Table 6.1.

**Table 6.1: Demographic characteristics of Antenatal Attendees on PMTCT**

Characteristics	Categories	Frequency	Percentage
Age (in years)	15 – 17	60	13.4
	18 – 29	201	44.9
	30 – 39	165	36.8
	40 – 49	22	4.9
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Religious affiliation	Charismatic	113	25.2
	Orthodox	132	29.5
	Pentecostal	121	27.0
	Islam	67	15.0
	Traditional	12	2.7
	Other	3	0.7
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Marital status	Married	257	57.4
	Divorced	17	3.8
	Single	173	38.6
	Co-habitation	1	0.2
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Occupation of respondents	Civil servant	97	21.7
	Self employed	214	47.8
	Student	44	9.8
	Unemployed	93	20.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Partner's occupation	Civil servant	126	28.1
	Self-employed	270	60.3
	Student	13	2.9
	Unemployed	39	8.7
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Educational level of respondents	No formal education	40	8.9
	Basic/Junior High School	215	48.0
	Senior Secondary School	76	17.0
	Tertiary	117	26.1
	<b>Total</b>	<b>448</b>	<b>100.0</b>
	No formal education	36	8.0

Partner's level of education	Basic/Junior High School	151	33.7
	Senior Secondary School	103	23.0
	Tertiary	158	35.3
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Gestation age	First trimester	36	8.0
	Second trimester	180	40.2
	Third trimester	232	51.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Number of ANC visits	1 – 4	229	51.1
	5 – 8	204	45.5
	9 – 12	15	3.3
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Taking any medication	Yes	231	51.6
	No	217	48.4
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

Table 6.1 shows that 13.4% of the antenatal attendees were minors (aged below 18 years), while the majority (86.6%) were adults (aged 18 years and above). The age of the antenatal attendees ranged from 15 to 49 years. The mean age of the antenatal attendees was 28.4 with a standard deviation of 11.9. The results showed that some of the antenatal attendees are not competent to decide for themselves towards PMTCT services as they were below the age of consent in Ghana. This aligns with the conceptual framework about the personal factors on health promotion behaviour where age can affect the decision of antenatal attendees' participation in the PMTCT of HIV services (Pender 2011:4 cited in Travis 2020:7). For instance, antenatal attendees who were below 18 years were not matured enough to decide when to start ANC and participate in the PMTCT services. Also, they were not financially sound to attend ANC regularly when it involves transportation. Therefore, any decision by their parents affected their participation in the

PMTCT of HIV services. Since they were minors, they lacked selfcare management and were not able to care for themselves as well as to care for their babies through the PMTCT activities.

The domination of the antenatal attendees by adults is important for PMTCT of HIV services as they may have had previous experiences with pregnancies or might have gone through the PMTCT processes in their previous pregnancies. The prior related behaviour in the conceptual framework supports this argument since previous experience being positive or negative can affect some women participation in the PMTCT of HIV services (Pender 2011:4 cited in Travis 2020:7). In addition, the domination of the antenatal attendees by adults was imperative as it could afford them the opportunity to learn methods and strategies to protect other children who may not have contracted HIV. According to Rogers et al (2016:3), maternal age can affect participation in PMTCT of HIV services.

The study also explored the religious affiliation of the antenatal attendees (see Table 6.1). This was important because some religions have radical views on the use of contraceptives which in some jurisdictions contribute to increasing the spread of HIV (Gatta 2015:66). These strong views shared by some of the religious groups do not encourage members to learn and protect themselves during sexual encounters, which sometimes results in unplanned pregnancies and contraction of sexually transmitted infections, including HIV. Results from table 6.1 showed that about a quarter (25.2%) of the antenatal attendees were Charismatic Christians, 29.5% were Orthodox Christians, while 0.7% belonged to other religious affiliations. The results showed that the majority (96.6%) of the antenatal attendees were affiliated with the Christian religion.

Another issue considered under the section was the marital status of the antenatal attendees. This was essential to show how well the pregnant women could be influenced negatively or positively by their partners or family members to participate in the PMTCT of HIV services as well as the social support system they could have when they participate. According to the conceptual framework from the health promotion model and the theory of planned behaviour, family's attitudes and beliefs have a greater influence on the individual's perception of whether or not to perform a behaviour (Pender 2011;

Ajzen 2014). From table 6.1, the majority (57.4%) of the antenatal attendees were married, while 38.6% were single. The implication is that the married pregnant women have a greater influence on whether to participate in the PMTCT of HIV services. They are financially supported and assisted by their partners as they participate in the PMTCT of HIV services. According to Damian, Hgahatilwa, Fadhilli, Mkiza, Mahande, Ngocho and Msuya (2019:3) married women who disclose their HIV status to their partners when tested positive are encouraged by their partners to enrol more into the PMTCT of HIV services than the unmarried women. In other words, single antenatal and postnatal attendees mostly feel reluctant to disclose their HIV statuses to their sexual partners for fear of experiencing stigma in the society, which contributes to the spread of the infection in a population (Obiri-Yeboah, Amoako-Sakyi, Adu-Oppong, Baidoo & Rheinlander 2015:2). Obiri-Yeboah et al (2015:2) therefore suggested the need for health professionals to devise strategies to help increase the enrolment of sexual partners of HIV-positive antenatal and postnatal attendees in PMTCT of HIV services to enhance its effectiveness in protecting children against the infection as well as helping to halt its spread. Considering the proportion of antenatal attendees unmarried and not able to disclose their HIV status because of fear of stigma, the strategy 3 of the new strategies of this study was developed (see Table 7.1). This was done to increase family consent for participating in PMTCT of HIV services, hence, promoting antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

The study further examined the occupational characteristics of the antenatal attendees and their partners. This was important because Travis (2020:7) reported that a persons' occupational status determines the financial strength and how powerful the person can make a decision to influence his or her health and vice versa. From Table 6.1, 47.8% of the antenatal attendees were self-employed, while 21.7% were civil servants. In addition, the majority (60.3%) of the antenatal attendees had self-employed partners, whereas 28.1% had their partners being civil servants. Most of the self-employed antenatal attendees were engaged in farming activities on a small scale, while others were into artisanry businesses (carpentry, masonry, and electronics) and trading activities. This implied that some of the antenatal attendees' partners were not financially strong enough

to support them in the PMTCT of HIV services. This agrees with the assertion by Haffejee et al (2016:175) that, insufficient funds affect participation in PMTCT of HIV services.

Table 6.1 also presented results on the educational characteristics of the antenatal attendees and their partners. This was necessary because Kei, Ndwiga, Okong'o and Njoroge (2014:45) and Health Promotion Model (Pender 2011:4 cited in Travis 2020:7) reported that persons with high levels of education are more knowledgeable on PMTCT of HIV services and mostly hold positive perceptions about such services than those with a low level of education. According to Kei et al (2014:45), women with high levels of education easily access information regarding HIV transmission and are more willing to adopt PMTCT of HIV services than those with low levels of education. The results showed that 48% of the sampled antenatal attendees had basic education as their highest level of educational attainment, while 26.1% had completed tertiary education. The results showed that the majority (91.1%) of the antenatal attendees had attained some levels of formal education. This was important to have exposed them to accept and encourage them to adopt care and treatment protocols from the PMTCT of HIV services instead of resorting to metaphysical solutions. With reference to the level of education of the partners of the antenatal attendees, results from table 6.1 showed that 35.3% had completed tertiary education, while 33.7% had a basic level of education as their highest level of educational attainment.

Another issue considered under the section was the gestational age. This was necessary to enable the study to relate the gestational age with the PMTCT of HIV services received by the antenatal attendees. From the study, a little over half (51.8%) of the antenatal attendees were in their third trimester (27 weeks and above), while 40.2% were in their second trimester (13-26 weeks) (see Table 6.1). The gestational age ranged from three weeks to 41 weeks. This showed that PMTCT of HIV services were provided for antenatal attendees with different gestational ages. The mean gestational age was 17.3 weeks with a standard deviation of 5.8. The provision of PMTCT of HIV services for antenatal attendees in the first trimester (1-12 weeks) was critical as it helps to increase the protection of babies against the transmission of the infection from their mothers.

The sampled antenatal attendees were also asked to indicate their number of ANC visits. This was important to ascertain the commitment of the antenatal attendees towards the PMTCT of HIV services to ensure maximum protection of their babies from HIV. The study found that a little over half (51.1%) of the antenatal attendees reported that they attended between one and four ANC visits, whereas 45.5% had attended between five and eight times (see Table 6.1). The number of ANC visits ranged from one to 12. The mean number of ANC visits was 4.5 with a standard deviation of 2.2. Comparing the mean gestational age of the antenatal attendees of 17.3 weeks with the mean number of ANC visits of 4.5 times suggested that the mothers were more committed to such visits. This is because it shows that the antenatal attendees were attending ANC visits at least once a month, which was critical for the provision of PMTCT of HIV services. According to Islam and Masud (2018:3), one of the fundamental elements to the success and effectiveness of PMTCT of HIV services is the regularity of ANC visits. This allows midwives to monitor progress in the care and treatment processes. The results also implied that the pregnant mothers in the Central Region had understood and accepted the need for ANC and PMTCT of HIV services to protect themselves and their babies. This also implied that the ANCs as well as the antenatal attendees were not adhering to the Focus ANC four times clinic schedule adopted by the Ghana Health Services in Ghana (Asah-Opoku, Ameme, Yawson, Guure, Aduama, Mumuni, Samba & Maya 2019:6).

The study further inquired from the antenatal attendees about their medications. From the study, a little over half (51.6%) of the antenatal attendees reported taking medication, while 48.4% denied taking any medication. Some of the medications were vitamin B complex, folic acid, multivitamins, calcium, vitamin C, paracetamol and blood tonics. The results showed that the antenatal attendees were taking medicines to boost the growth and development of their babies before delivery as well as promote their health and safety during the pregnancy and delivery. Also, none of them was on mood-altering disorder drugs which can affect their responses in the study.

### **6.3 Perceptions of Antenatal Attendees on PMTCT of HIV Services**

This section explores and describes the perceptions of antenatal attendees on PMTCT of HIV services. This was imperative because Chukwukaodinaka (2014:14), the Health



Promotion Model (Pender 2011) and the Theory of Planned Behaviour (Ajzen 2014) (conceptual framework) indicated that the perceptions of people on behavioural intention partly determine their seriousness and commitment towards the behaviour. Chukwukaodinaka (2014:14) also reported that antenatal attendees with positive perceptions of PMTCT of HIV services are more committed to adopting the teachings and lessons acquired from their interactions with midwives during ANC visits. The implication is that the perceptions of antenatal attendees on PMTCT of HIV services are important in determining the effectiveness of the PMTCT of HIV services. The section is organised under knowledge, awareness, beliefs, attitudes, and perceptions of antenatal attendees on PMTCT services as well as strategies for promoting PMTCT of HIV services.

### **6.3.1 Knowledge of antenatal attendees on HIV and MTCT**

Under this section, the study assessed the knowledge of the antenatal attendees on the transmission and prevention of HIV. This was important to ascertain the level of understanding of the antenatal attendees on HIV which was important in the performance of their roles in promoting PMTCT. Thus, the level of knowledge expressed by the antenatal attendees was partly an evaluation of the effectiveness of the ANC and PMTCT of HIV services in terms of the lessons they were taught. Nkwabong, Meboulou and Kamgaing (2018:8) found a positive correlation between knowledge of HIV-positive pregnant mothers and PMTCT of HIV. This was because increased knowledge on HIV prevention and transmission among HIV-positive pregnant mothers helps to empower them to adopt strategies to prevent their babies and other family members from contracting the disease. Table 6.2 presents results on the knowledge of antenatal attendees on HIV and MTCT. The table organises the knowledge level of the antenatal attendees on HIV and MTCT into transmission and prevention.

**Table 6.2: Knowledge of antenatal attendees on HIV and MTCT**

Knowledge	Categories	Frequency	Percentage
<b>Transmission</b>			
HIV can be transmitted through mosquito bite	No	321	71.7
	Yes	127	28.3
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV positive women can transmit the virus to their unborn children	No	123	27.5
	Yes	325	72.5
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV positive women can transmit the virus through breastfeeding	No	108	24.1
	Yes	340	75.9
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV positive women can transmit the virus when the baby is passing through the birth canal	No	153	34.2
	Yes	295	65.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
<b>Prevention</b>			
Condom use can reduce the risk of contracting HIV	No	51	11.4
	Yes	397	88.6
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Sexual abstinence can reduce the risk of contracting HIV	No	57	12.7
	Yes	391	87.3
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Being faithful to one uninfected partner can reduce the risk of contracting HIV infection	No	91	20.3
	Yes	357	79.7
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Reducing the number of sexual partners can prevent HIV	No	120	26.8
	Yes	328	73.2
	<b>Total</b>	<b>448</b>	<b>100.0</b>

ART can prevent AIDS in an HIV infected person	No	126	28.1
	Yes	322	71.9
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

**6.3.1.1 Knowledge of antenatal attendees on MTCT of HIV**

The study explored the level of knowledge of the antenatal attendees on the transmission of HIV and MTCT. This was imperative because the level of understanding of the antenatal attendees about the transmission of HIV and MTCT was critical in the prevention of the infection. It is also an indirect assessment of the effectiveness of the PMTCT of HIV services provided by the midwives in the Central Region of Ghana to raise the awareness level about the transmission mechanisms and processes among HIV-positive pregnant mothers. From table 6.2, the antenatal attendees were asked to indicate whether HIV can be transmitted through a mosquito bite. The majority (71.7%) of the antenatal attendees denied that HIV can be transmitted through a mosquito bite. This is an indication that the majority of the antenatal attendees knew the modes of transmission of HIV. Even though the majority of the antenatal attendees denied that HIV can be transmitted through a mosquito bite, quite a significant (28.3%) proportion of them admitted HIV could be transmitted through such means. This wrong perception could cause such antenatal attendees to focus their efforts to avoid PMTCT of HIV in the wrong areas which could increase the transmission of the infection. It is, therefore, necessary for the midwives to help educate such antenatal attendees about the various modes of transmission of HIV. Thus, Kei et al (2014:47) posited that poor knowledge and perception about HIV transmission mechanisms have been the bane of increased transmission of the infection in some parts of Africa over the years.

The study inquired from the antenatal attendees about the possibility of HIV positive women transmitting the virus to their unborn children. Results from table 6.2 showed that the majority (72.5%) of the antenatal attendees admitted that HIV positive women can transmit the virus to their unborn children. This knowledge was important to encourage HIV-positive pregnant mothers to attend antenatal classes and seek early PMTCT of HIV services to help prevent the transmission of the virus to their unborn children. According

to Nkwabong et al (2018:1), knowledge on the transmission mechanisms of HIV informs the decisions and actions of HIV-positive pregnant mothers to avoid transmitting the virus to their unborn children. The denial of the minority (27.5%) about the possibility of HIV positive women transmitting the virus to their unborn children is however quite disturbing as such persons may not be fully committed to the adoption of lessons from the PMTCT services to help prevent MTCT of HIV.

Another issue considered under the transmission of HIV among the antenatal attendees was the possibility of HIV positive women transmitting the virus through breastfeeding to their children. Table 6.2 showed that about three-quarters (75.9%) of the antenatal attendees indicated that HIV positive women can transmit the virus through breastfeeding. The awareness of the majority of the antenatal attendees about the possibility of transmitting the virus to their children through breastfeeding could encourage them to take all the various precautions and feeding alternatives to prevent further transmission of the infection across generations. Thus, Nkwabong et al (2018:1) reported that the knowledge level of HIV-positive mother about the transmission processes of the infection informs their practices and care processes to help prevent MTCT. As a result, Nkwabong et al (2018:2) posited that the knowledge level of HIV-positive parents on the transmission of the infection is very critical towards the quest to reduce the incidence rate of the infection within a given population. Early detection and provision of PMTCT services for HIV-positive mothers are therefore pivotal in the drive to reduce the generational spread of the infection.

The antenatal attendees were further requested to indicate whether HIV-positive women could transmit the virus when the baby is passing through the birth canal. From the study, the majority (65.8%) of the antenatal attendees admitted that HIV-positive women could transmit the virus when the baby is passing through the birth canal, while 34.2% denied it (see Table 6.2). The results are important as they could influence HIV-positive pregnant women about places or facilities to go for delivery. In other words, the knowledge of the majority of the antenatal attendees that HIV-positive women can transmit the virus to their babies through the birth canal could cause them to use hospitals and trained midwives for delivery to reduce the risk of transmitting the virus to their babies in the process of

delivery. This is important as indicated by Renfrew (2018:4) that using professional midwives and improve hospitals and health facilities to deliver babies from HIV-positive pregnant mothers is a necessary requisite to reduce the risk of further transmission of the infection either to the babies or to the birth attendants. The denial of some of the antenatal attendees about the possible transmission of HIV through the birth canal is therefore quite alarming as they may not be compelled to strictly use professional midwives and health facilities for their deliveries to help reduce the risk of further transmission of the virus.

From the above table, the majority of the antenatal attendees had positive or good knowledge about the transmission mechanisms of the virus to their children. This agrees with the assertion by Dellar, Dlamini and Karim (2015:59) that, there is high knowledge about HIV transmission among breastfeeding mothers and pregnant women. The result is in contrast with an assertion shared by Haffejee et al (2016:173) and Vieira et al (2021:3) that, although women had adequate knowledge on the general knowledge of HIV, the knowledge on the mode of transmission was inadequate. This knowledge is important to help stem or reduce the spread of the infection between mothers and children. In other words, such positive knowledge about the transmission of HIV between mothers and children could empower the antenatal attendees to strictly follow the PMTCT of HIV protocols to reduce the risk of transmission of the virus to their children. Ashely (2020:1), posited that educating antenatal attendees about the transmission processes and preventive mechanisms of the infection is the first level of breaking the epidemiological process of the infection between mothers and their children. The good knowledge of the majority of the antenatal attendees is an indication of the effectiveness of the PMTCT of HIV services in educating HIV-positive mothers about the transmission processes of the infection in the Central Region of Ghana.

In as much as the majority of the antenatal attendees had positive knowledge about the transmission process of HIV between mothers and children, quite a significant proportion had poor knowledge about MTCT processes of HIV. This shows that some of the antenatal attendees have still not understood some of the transmission mechanisms of HIV between mothers and children. This is serious as it could slow down the efforts of the midwives in the provision of PMTCT of HIV services. This is because such mothers may

not adopt some of the safety and transmission protocols to reduce the risk of MTCT due to ignorance which could thwart all efforts in the PMTCT of HIV services in the other stages of their engagements. Accordingly, it is appropriate that the PMTCT of HIV service should begin with education on the transmission and prevention of HIV between mothers and children to help sustain all other efforts.

### **6.3.1.2 Knowledge of antenatal attendees on prevention of HIV**

As part of the process of assessing the knowledge level of the antenatal attendees on HIV and MTCT, the study explored the knowledge of the respondents on the prevention of HIV. This was important because knowledge about the prevention of HIV among HIV-positive mothers could enable them to adopt a responsible behavioural lifestyle to help prevent the spread of the infection. The results, as presented in Table 6.2 showed that the majority (88.6%) of the antenatal attendees admitted that condom use can reduce the risk of contracting HIV. This aligns with the assertion by Haffejee et al (2016:174) that, majority of women express the need for safe sex practices and encouraged the use of condoms to prevent MTCT of HIV. Such knowledge was important to help prevent the spread of HIV between mothers and their sexual partners. This is because condom use is a basic preventive mechanism for HIV-positive persons to carry out their conjugal activities without posing so much risk to their sexual partners.

The study further assessed the knowledge level of the antenatal attendees about the possibility of reducing the risk of contracting HIV through sexual abstinence. From the study, the majority (87.3%) of the antenatal attendees admitted that sexual abstinence could help reduce the risk of contracting HIV (see Table 6.2). The awareness of the majority of the antenatal attendees about the use of sexual abstinence to reduce the risk of contracting HIV is good, however, Nubed and Akoachere (2016:6) argued that this knowledge is not adequate to prevent the spread of the infection since HIV-positive individuals are mostly sexually exposed and sexually active, which makes it difficult for them to abstain from sex to control the spread of the infection. Nubed and Akoachere (2016:7) therefore suggested the need to promote other control measures, in addition to the creation of awareness about sexual abstinence, to help prevent the spread of HIV, especially among the youth who are most highly sexually active.

Another issue considered under the section was knowledge about remaining faithful to one uninfected partner as a possible measure to help reduce the risk of contracting HIV infections. The antenatal attendees were also requested to indicate their knowledge on the possibility of preventing HIV by reducing the number of sexual partners. Results from table 6.2 showed that the majority (79.7%) of the antenatal attendees admitted that being faithful to one uninfected partner can help to reduce the risk of contracting HIV infection. The table further shows that the majority (73.2%) of the antenatal attendees admitted that reducing the number of sexual partners can help prevent HIV. These aligned with the assertion by Haffejee et al (2016:173) that, having sex with multiple partners could increase the risk of contracting HIV. These results were important because they suggest that the majority of the antenatal attendees were aware that sexual promiscuity could contribute to increasing the risk of contracting HIV infection. Thus, remaining faithful to one uninfected partner could help break the epidemiological process of HIV infections. This knowledge is likely to inform the actions of the antenatal attendees to practice being responsible for sexual activities to avoid the spreading of the infection. Further, such knowledge could assist antenatal attendees to identify possible sources of contracting the infection and people at risk based on their sexual activities to enable health officials to provide comprehensive care and support for all of such persons to reduce the spread of HIV infections in the populace. Nkwabong et al (2018:2) reported that knowledge about the causes and preventive mechanisms of HIV infections enables people to adopt practical measures to protect themselves against contracting the infection.

The study further inquired from the antenatal attendees about the possibility of preventing AIDS in HIV infected persons through the use of ART. The study found that the majority (71.9%) of the antenatal attendees admitted that ART can help prevent AIDS in an infected person. This aligns with the assertion by Haffejee et al (2016:173) that people with HIV could prolong their lives by taking HIV medications. The result is also in consonance with the assertion by Panford (2018:38) that, HIV positive pregnant women demonstrated adequate knowledge on ARVs and why they should adhere to them and went further to give prophylaxis to their babies. This knowledge was important as it showed a high level of confidence among the antenatal attendees about the efficacy of the use of ART in preventing the development of AIDS from HIV in an infected person.

Thus, Chukwukaodinaka (2014:14) indicated that knowledge and confidence of HIV infected persons in ART are critical in encouraging them to be committed to their recommended or prescribed dosage to promote the care and treatment of HIV. Even though the majority of the antenatal attendees had positive knowledge about the efficacy of ART in preventing the development of AIDS from HIV, the denial of 26.8% of the antenatal attendees was quite significant. The poor knowledge of the minority implies that they did not have full confidence in the use of ART to treat or manage HIV from developing into AIDS. This could affect their commitment to take the prescribed dosage of the drug if tested positive to help control the infection as well as their participation in the PMTCT of HIV services. The situation may also pose a serious threat to their children and sexual partners. The results further suggest that the midwives had to intensify their education during the PMTCT of HIV services about the importance of ART in the care and treatment of HIV. This result supported the development of strategies 5,6 and 9 of this study (see Tables 5, 6 and 9) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

The above results showed that the antenatal attendees generally had positive or good knowledge about the preventive mechanisms of HIV. This was imperative for the antenatal attendees to lead responsible lives to help prevent the further spread of the infection. This knowledge could enable them to reduce the risk of getting other people infected with HIV. According to Nkwabong et al (2018:2), knowledge on HIV prevention is necessary to empower people to lead responsible lives to avoid contracting the infection. Similarly, Merga, Woldemichael, and Dube (2016:6) were with the assertion that, pregnant women in Central Ethiopia had good knowledge towards MTCT and PMTCT of HIV. This is in variance with the assertion shared by Zelalem, Asli and Ilana (2015:32) and Mukhtar, Quansar, Bhat and Khan (2020:2624) that antenatal women in Tanzania and district Srinagar, North India have inadequate knowledge on MTCT and PMTCT of HIV.



### 6.3.2 Awareness of antenatal attendees on PMTCT of HIV services

The study also assessed the level of awareness of the antenatal attendees on PMTCT of HIV services in the Central Region of Ghana. This was essential because the level of awareness about the various PMTCT of HIV services gives an indication about the various care and treatment support the antenatal attendees were receiving from the health facilities. It also showed the extent of exposure of HIV-positive pregnant mothers to PMTCT of HIV services to help reduce the risk of transmission of the disease to their children. Results on the awareness of the antenatal attendees on PMTCT of HIV services are presented in Table 6.3.

**Table 6.3: Awareness of antenatal attendees on PMTCT of HIV services**

Awareness	Categories	Frequency	Percentage
Screening for HIV during pregnancy	No	26	5.8
	Yes	422	94.2
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Taking HIV/AIDS medications	No	143	31.9
	Yes	306	68.1
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Delivering by skilled birth attendant	No	152	33.9
	Yes	296	66.1
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Bringing infant for HIV testing	No	232	51.8
	Yes	216	48.2
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Using family planning	No	276	61.6
	Yes	172	38.4
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Counselling and support on feeding	No	131	29.2
	Yes	317	70.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

The study inquired from the antenatal attendees about their awareness of screening for HIV during pregnancy. This is important because it informs the decisions of antenatal attendees to seek early screening which also informs the kind of antenatal services provided for them by the health professionals. From Table 6.3, the majority (94.2%) of the antenatal attendees indicated that they were aware of screening for HIV during pregnancy. This high level of awareness among the antenatal attendees was important to enable them to go for HIV screening as part of their PMTCT of HIV services. Ashely (2020:1) posited that early screening for HIV during pregnancy is imperative to enable health professionals who administer early PMTCT of HIV services to help prevent the transmission of the infection to children of HIV-positive pregnant mothers. The high level of awareness among the antenatal mothers could be attributed to over a decade of practice of the current antenatal and PMTCT of HIV protocols in Ghana, which aims at reducing the generational transmission of HIV through MTCT (Providers 2014:2). As a result, many of the women of child-bearing age have gone through the process before and were aware of antenatal protocols that require them to be screened for HIV. The implication is that the number of years of practising antenatal and PMTCT of HIV protocols is essential in raising awareness among antenatal attendees.

The study also inquired from the antenatal attendees about their awareness of taking HIV/AIDS medications. This was essential because taking HIV/AIDS medications is central to the care and treatment of HIV during PMTCT of HIV services. From the study, the majority (68.1%) of the antenatal attendees admitted that they were aware of taking HIV/AIDS medications during PMTCT of HIV services. This high level of awareness among the antenatal attendees could be attributed to the fact that they were given HIV/AIDS medications as part of their PMTCT of HIV services. The denial of 31.9% of the antenatal attendees about their awareness of taking HIV/AIDS medications was quite alarming as it suggested that they were either not taking any HIV/AIDS medications or may have assumed all such medications as part of their normal antenatal medications. However, any of the situations may not be good for the effective provision of PMTCT of HIV services as such antenatal attendees may not know the need to be committed to the dosage and consistency in taking HIV/AIDS medications to reduce the risk of MTCT. This could pose a serious threat to the quest of preventing MTCT of HIV. Turan, Onono,

Steinfeld, Shade, Owuor, Washington, Bukusi, Ackers, Kioko, Interis and Cohen (2015:2) posited that HIV-positive pregnant mothers should be educated on HIV/AIDS medications to enable them to take up the responsibility of preventing MTCT by committing to taking medications as prescribed by physicians from health facilities. This suggests that health professionals in charge of the PMTCT of HIV services in the Central Region of Ghana must step up the awareness campaign on taking HIV/AIDS medications during their engagements with the antenatal attendees. Considering the proportion of antenatal attendees who denied the awareness of taking HIV medications, new strategy 5 of this study was developed (see Table 7.1) to increase treatment and support for antenatal attendees to promote their awareness of PMTCT of HIV in the Central Region of Ghana.

Another issue considered under the section was the awareness that HIV-positive pregnant women are supposed to be delivered by skilled birth attendants. This was very crucial as the necessary health and safety protocols have to be followed to prevent any further transmission of the infection. Table 6.3 showed that the majority (66.1%) of the antenatal attendees indicated that they were aware that HIV-positive pregnant mothers have to be delivered by skilled birth attendants, while 33.9% were not aware. The awareness of the majority of the antenatal attendees about the need for them to be delivered by skilled birth attendants was good as it will encourage them to deliver in health care facilities to receive the necessary care and attention to reduce the risk of transmitting the infection to their children or birth attendants. Nonetheless, the lack of awareness of some of the antenatal attendees about the need to be delivered by skilled birth attendants could be alarming as such persons could resort to traditional birth attendants and other unskilled or unprofessional birth attendants for delivery due to ignorance. Such action could pose a serious risk to the mothers, babies and the birth attendants as they may not follow the due processes to prevent the further transmission of the infection to other persons. It is therefore imperative that the health professionals responsible for antenatal and PMTCT of HIV services in the Central Region of Ghana should intensify education and awareness creation about the need for HIV-positive pregnant mothers to be delivered by skilled birth attendants to reduce the risk of transmitting the infection to their babies. According to Turan et al (2015:4), it is always necessary that HIV-positive pregnant women be delivered by highly professional birth attendants to protect babies and birth

attendants against contracting the infection during delivery. This result also supported the development of the new strategies 1, 6 and 9 of this study (see Tables 7.1, 7.2 and 7.5) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

The study also explored the awareness level of the antenatal attendees on the need to bring infants for HIV testing. This was necessary to either further protect infants from contracting HIV or begin early care and treatment for HIV for infants born to HIV positive mothers. According to WHO (2018:4), early detection of HIV among infants is necessary to avoid other health complications and enable them to live and grow healthy. The study found that a little over half (51.8%) of the antenatal attendees were not aware that HIV-positive mothers need to bring their infants for HIV testing. This was very serious as it could compromise the quality of PMTCT services as well as defeat the overall purpose of PMTCT services of preventing MTCT and providing early care and treatment for HIV pregnant mothers and babies. Thus, WHO (2018:4) indicated that it is very essential for health professionals to track the HIV status of infants of HIV mothers to ensure that the needed care and support are provided to either prevent infections or ensure early care and treatment. The lack of awareness among the majority of the antenatal attendees implies that they did not have plans of bringing their infants for testing for HIV. This could pose a serious threat to the growth and development of infants of HIV-positive mothers in the Central Region as they may not receive the necessary early care and support due to ignorance from their mothers. According to WHO (2018:4), ignorance of HIV care and treatment protocols among parents have serious implications on the growth and development of their children. The results suggest that the health professionals in the Central Region of Ghana responsible for PMTCT of HIV services have to intensify education and awareness creation on the need for HIV-positive pregnant mothers to send their babies to the designated hospitals for HIV testing. New strategies 1, 6 and 9 of this study were developed considering the proportion of antenatal attendees who were not aware that HIV-positive mothers needed to bring their infants for HIV testing (See Tables 7.1, 7.2 and 7.5) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

The antenatal attendees were further asked about their awareness of the use of family planning as part of the PMTCT of HIV services. This was necessary to ensure that both mothers and children are well cared for and treated before going through other periods of pregnancies. According to WHO (2018:5), both HIV-positive lactating mothers and their infants require ample time to follow and practice the PMTCT protocols to prevent the further transmission of the infection to their infants and unborn babies. This, therefore, requires the use of family planning to adequately space out the birth periods to ensure the maximum protection of infants as well as preserve the health of the mothers. From the study, the majority (61.6%) of the antenatal attendees denied knowledge about using family planning to space out their births and reduce the rate of getting pregnant as one of the ways to prevent MTCT of HIV. (See Table 6.3). This low level of awareness on the use of family planning could pose a serious risk to both the HIV-positive mothers and their infants as they may not adopt family planning practices to ensure maximum recovery from previous pregnancies as well as provide the requisite care and support to their infants before undergoing other periods of pregnancies. The implication is that the health professionals in the Central Region of Ghana have to intensify education on family planning among the antenatal attendees to help empower them to make choices among the family planning practices to protect their health and also prevent any transmission of the infection to their infants. According to Nkwabong et al (2018:8), education on family planning helps to empower women and couples to take control over their birth spacing to ensure full health and physiological recovery as well as proper care and support for infants. This result also supported the development of the new strategy 9 of this study (see Table 7.5) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

Another issue considered under the section was awareness about the availability of counselling and support for feeding for HIV-positive mothers. This was very imperative as breastfeeding is an avenue for HIV-positive mothers to transmit the infection to their infants (WHO 2018:6). Results from table 6.3 showed that the majority (70.8%) of the sampled antenatal attendees admitted that they were aware of the counselling and support on feeding provided through the PMTCT of HIV services for HIV-positive lactating mothers. This was important to enable the antenatal attendees to become aware of the

available feeding alternatives to reduce the risk of transmitting HIV to infants. The lack of awareness of about 29% of the antenatal attendees could, however, pose some risk to the infants as such mothers may breastfeed them.

From the foregone analyses, it could be deduced that the antenatal attendees were generally aware of the PMTCT of HIV services in terms of the need to screen for HIV during pregnancy, taking HIV/AIDS medications, delivering with skilled birth attendants, and counselling and support on feeding. However, they largely lacked awareness about some elements under the PMTCT of HIV services, including the need to bring infants for HIV testing, and using family planning. There was therefore the need for the health professionals to intensify education on the PMTCT services to encourage HIV-positive mothers to adopt the safety protocols to reduce the risk of transmitting the infection to their infants. Thus, Turan et al (2015:4) posited that knowledge and awareness creation on PMTCT of HIV services provide choices to antenatal attendees and empower them to adopt practices that best suit their lifestyle and socio-economic conditions.

### **6.3.3 Beliefs of Antenatal Attendees on HIV**

As part of the processes of describing the perceptions of antenatal attendees on PMTCT of HIV services, the study also explored the beliefs of the sampled antenatal attendees on HIV. Idang (2015:98) reported that people's actions and choices are mostly dictated by their beliefs. Sano, Antabe, Atuoye, Hussey, Bayne, Galaa, Mkandawire and Luginaah (2016:2) argued that strong cultural views, religious beliefs and misconceptions about HIV/AIDS have had a critical role in the process of controlling HIV/AIDS in Africa. The study sought the beliefs of the antenatal attendees on the causes, transmission and prevention of HIV. The results are presented in Table 6.4.

**Table 6.4: Beliefs of antenatal attendees on HIV**

Beliefs	Responses	Frequency	Percentage
<b>Causes</b>			
HIV is caused by a virus	Strongly agree	290	64.7
	Agree	95	21.2
	Disagree	19	4.2
	Strongly disagree	17	3.8
	Don't know	27	6.0
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV is an infection that results from a supernatural means	Strongly agree	74	16.5
	Agree	62	13.8
	Disagree	73	16.3
	Strongly disagree	199	44.4
	Don't know	40	8.9
	<b>Total</b>	<b>448</b>	<b>100.0</b>
<b>Transmission</b>			
HIV can be transmitted through sexual intercourse	Strongly agree	312	69.6
	Agree	89	19.9
	Disagree	22	4.9
	Strongly disagree	22	4.9
	Don't know	3	0.7
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV can be transmitted through blood transfusion	Strongly agree	251	56.0
	Agree	106	23.7
	Disagree	32	7.1
	Strongly disagree	40	8.9
	Don't know	19	4.2
	<b>Total</b>	<b>448</b>	<b>100.0</b>
	Strongly agree	75	16.7
	Agree	52	11.6

HIV can be transmitted through sleeping in the same room with an infected individual	Disagree	70	15.6
	Strongly disagree	225	50.2
	Don't know	26	5.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV can be transmitted through breast milk	Strongly agree	180	40.2
	Agree	128	28.6
	Disagree	48	10.7
	Strongly disagree	49	10.9
	Don't know	43	9.6
	<b>Total</b>	<b>448</b>	<b>100.0</b>
<b>Prevention</b>			
HIV can be prevented by washing the vagina after sex	Strongly agree	94	21.0
	Agree	55	12.3
	Disagree	57	12.7
	Strongly disagree	200	44.6
	Don't know	42	9.4
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV can be prevented by the use of a condom	Strongly agree	273	60.9
	Agree	99	22.1
	Disagree	36	8.0
	Strongly disagree	28	6.3
	Don't know	12	2.7
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV can be prevented when one remains faithful to the partner	Strongly agree	252	56.3
	Agree	112	25.0
	Disagree	34	7.6
	Strongly disagree	40	8.9
	Don't know	10	2.2
	<b>Total</b>	<b>448</b>	<b>100.0</b>
	Strongly agree	86	19.2



HIV can be prevented by the help of a traditional healer	Agree	67	15.0
	Disagree	60	13.4
	Strongly disagree	183	40.8
	Don't know	52	11.6
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

**6.3.3.1 Beliefs on the causes of HIV among antenatal attendees**

The antenatal attendees were asked to indicate whether they had the beliefs that HIV is caused by a virus or not. Table 6.4 showed that the majority (85.9%) of the antenatal attendees agreed that HIV is caused by a virus. The positive beliefs of the majority of the antenatal attendees showed that the PMTCT of HIV services and their education had been effective which have caused them to believe and understand the causes of HIV. Such positive beliefs are imperative for the prevention of HIV as Sano et al (2016:2) indicated that people's beliefs and confidence about the true causes of HIV enable them to behave responsibly to halt the spread of the infection.

The study also inquired from the antenatal attendees whether they harboured some beliefs that HIV is an infection that results from supernatural means. Results from table 6.4 showed that the majority (60.7%) of the antenatal attendees disagreed that HIV is an infection that results from supernatural means. According to Sano et al (2016:2), the beliefs of HIV-positive persons about the true causes of HIV empower them to seek proper care and treatment from health care facilities instead of resorting to religious institutions and traditional healers for treatment. Even though the majority of the antenatal attendees disagreed that HIV was caused by supernatural means, about 30.3% still harbour some beliefs that the infection is caused by some supernatural influences. This is quite alarming as such people could also harbour the beliefs that one cannot do anything to prevent contracting the infection if it is caused or determined by supernatural means. Arrey, Bilsen, Lacor and Deschepper (2016:4) posited that people's beliefs in supernatural causes of HIV incapacitate them to take practical steps and lead responsible lives to prevent contracting the infection. Arrey et al (2016:4) therefore suggested the need for public health officials and health professionals responsible for PMTCT of HIV

services to disabuse this notion and beliefs of supernatural causes of HIV at the early stages of interaction to help prevent the further spread of the infection, hence, the development of new strategy 9 of this study (see Table 7.5) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

The above results showed that the antenatal attendees generally had positive beliefs about the causes of HIV. This was because they largely believed that HIV was caused by a virus. These positive beliefs about the causes of HIV are critical to helping disabuse the minds of the antenatal attendees about metaphysical causes and solutions. This is very important especially within the geographical setting of a developing country like Ghana and a largely rural setting of the Central Region, where people have high beliefs in the supernatural explanations of their successes and challenges. According to Sano et al (2016:2), the strong affinity to a supernatural explanation of health challenges in some developing countries has contributed to the increase in transmission of HIV and other diseases as well as increasing health complications associated with such diseases.

### **6.3.3.2 *Beliefs on the transmission of HIV among antenatal attendees***

The study also explored and described the beliefs of the antenatal attendees on the transmission processes of HIV. From Table 6.4, the majority (89.5%) of the antenatal attendees agreed that HIV can be transmitted through sexual intercourse. In addition, the majority (79.7%) of the antenatal attendees agreed that HIV can be transmitted through blood transfusion (see Table 6.4). Results from table 6.4 further showed that the majority (68.8%) of the antenatal attendees had the belief that HIV can be transmitted through breast milk. However, the majority (65.8%) of the antenatal attendees disagreed that HIV can be transmitted through sleeping in the same room with an infected person (refer to Table 6.4).

The above results showed that the antenatal attendees generally had positive beliefs about the transmission processes of HIV. This could help to empower them to adopt preventive mechanisms to halt the further spread of the infection. In other words, the strong beliefs among the antenatal attendees that HIV is transmitted through sexual intercourse could encourage them to engage in protective sexual intercourses by using

condoms to avoid further transmission of the infection. In other words, the positive beliefs among the antenatal attendees could enable them to accept the HIV-prevention mechanisms introduced to them from the PMTCT of HIV services. In essence, the people's readiness to accept behavioural changes to influence the spread of HIV should be preceded by changes in their beliefs as depicted in the conceptual framework and the theory of planned behaviour. Further, the belief that HIV cannot be transmitted by sleeping in the same room with an infected person could help reduce the level of stigma mostly extended to persons living with HIV. These beliefs show some level of appreciation among the antenatal attendees about the transmission processes of HIV.

### **6.3.3.3 *Beliefs on the prevention of HIV among antenatal attendees***

The study inquired from the antenatal attendees about their beliefs on the prevention of HIV. Table 6.4 shows that the majority (57.3%) of the antenatal attendees disagreed that washing of vagina after sex could help prevent the contraction of HIV, while the minority (42.7%) had the belief that washing of vagina after sex could help prevent HIV. Even though the majority of the antenatal attendees did not believe that washing of vagina after sex could prevent HIV, the beliefs of the minority were quite significant as these poor beliefs among such proportion of the antenatal attendees could inform the practices of the people in the research setting with the hope of preventing the infection. These wrong beliefs could contribute to the spread of HIV in the various communities as stipulated by Sano et al (2016:4) that beliefs on HIV emanate from socio-cultural and environmental settings of people, hence, strategy 9 of the new strategies of this study was developed (see Table 7.5) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

Results from Table 6.4 further showed that the majority (83%) of the antenatal attendees agreed that the use of condom during sexual intercourse helps to prevent contracting HIV. In addition, the majority (81.3%) of the antenatal attendees agreed that being a faithful partner helps to prevent contracting HIV, while the majority (54.2%) disagreed that HIV can be prevented with the help of a traditional healer (see Table 6.4). Even though the majority of the antenatal attendees disagreed that HIV can be prevented with the help of a traditional healer, the proportion (34.2%) of them admitting to those beliefs were quite

significant to influence wrongful practices with the hope of preventing the infection. This is important because the theory of planned behaviour and conceptual framework indicated that people's actions and practices are influenced by their beliefs. Focusing on one's belief and actions to prevent the contraction of HIV could affect the effectiveness of the PMTCT services as they may not fully accept the lessons being taught by the health professionals. Considering the proportion of the antenatal attendees having the belief that HIV can be prevented by traditional healers, strategy 9 of the new strategies of this study was developed (see Table 7.5) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

The above results showed that the antenatal attendees generally had positive beliefs about the prevention of HIV. Such positive beliefs were necessary to guide their actions and interactions with others to help prevent the further spread of the infection. In other words, such beliefs could encourage the antenatal attendees to remain faithful to their partners, stick to the use of condoms for sexual intercourse, and avoid resorting to traditional healers to prevent the contraction of HIV.

#### **6.3.4 Attitudes of antenatal attendees on PMTCT of HIV services**

This section explored the attitudes of the antenatal attendees on PMTCT of HIV. This was in connection with the conceptual framework and theory of planned behaviour (Ajzen 2014) which stipulated that people's acceptance and readiness to change their behaviour are largely influenced by their attitudes towards the focus of the change. From the study, the majority (92.4%) of the antenatal attendees admitted to having tested HIV before, while the minority (7.6%) denied ever testing for HIV (see Table 6.5). This showed that the majority of the antenatal attendees had adhered to the policy requirement for antenatal services, and the HIV prevention and control program of Ghana, which requires every pregnant woman to be tested for HIV for the possible provision of early care and treatment. This result is shared by Mukhtar et al (2020:2625) that antenatal women in district Srinagar, North India had ever been tested for HIV infection before. Table 6.5 presents results on the attitudes of the antenatal attendees on PMTCT of HIV.

**Table 6.5: Attitudes of antenatal attendees on PMTCT of HIV services**

<b>Attitudes</b>	<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Ever tested for HIV	Yes	414	92.4
	No	34	7.6
	<b>Total</b>	<b>448</b>	<b>100.0</b>
It is important to test for HIV	Strongly agree	328	73.2
	Agree	90	20.1
	Disagree	15	3.3
	Strongly disagree	9	2.0
	Don't know	6	1.3
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Women should consult husbands before HIV test	Strongly agree	124	27.7
	Agree	81	18.1
	Disagree	76	17.0
	Strongly disagree	158	35.3
	Don't know	9	2.0
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Every HIV-positive pregnant woman should accept medication for PMTCT	Strongly agree	197	44.0
	Agree	129	28.8
	Disagree	32	7.1
	Strongly disagree	68	15.2
	Don't know	22	4.9
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

From Table 6.5, the majority (93.3%) of the antenatal attendees agreed that it is important to test for HIV. These positive attitudes were essential to enable the antenatal attendees to avail themselves of HIV testing. The high positive attitudes of the antenatal attendees could explain the high number of them testing for HIV. Table 6.5 further shows that a little over half (52.3%) of the antenatal attendees disagreed that women should consult their

husbands before testing for HIV, while 45.8% agreed. The implication is that most of the antenatal attendees perceived HIV testing to be an individual or personal issue that does not require the permission of their husbands. The results could further imply that the women had accepted the testing of HIV among pregnant women as a norm or requirement within the health care delivery system of Ghana, which does not require the consent of husbands to do the testing. This result is in consonance with the assertion by Mukhtar et al (2020:2625) that antenatal women had a favourable attitude towards MTCT and PMTCT of HIV.

Another issue considered under the section was whether every HIV-positive pregnant woman should accept medication for PMTCT. From the study, the majority (72.8%) of the antenatal attendees agreed that every HIV-positive pregnant woman should accept medication for PMTCT. This was very important to encourage antenatal attendees to avail themselves to the PMTCT of HIV services to prevent the generational spread of the infection. Considering the fact that the attitudes of people have a critical influence on their actions, the negative attitudes of about 22.3% of the antenatal attendees about accepting medication for PMTCT among HIV-pregnant women could have serious negative implications on themselves, their babies and birth attendants as they could develop health complications in the process, transmit the infection to their babies or accidentally transmit the infection to birth attendants. This suggests that there is a need for more education to be organised for HIV-pregnant women about the need for PMTCT of HIV services. This agrees with a suggestion by Sambah, Baatiema, Appiah, Ameyaw, Budu, Ahinkora, Oduro and Siedu (2020:2) that health professionals should intensify their education on PMTCT of HIV services to make it more attractive during ANC. Considering the proportion of the antenatal attendees that have negative attitudes toward accepting medication for PMTCT of HIV, new strategies 1, 5 and 9 of this study were developed (see Tables 7.1 and 7.5) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

### 6.3.4.1 *Factors influencing the decisions of antenatal attendees to test for HIV*

As part of the processes of describing the attitudes of the antenatal attendees on PMTCT of HIV, the study explored the factors influencing the decisions of antenatal attendees to test for HIV. This was essential as it could explain some of the attitudinal issues surrounding the testing for HIV among pregnant women. The results are presented in Table 6.6.

**Table 6.6: Factors influencing the decisions of antenatal attendees to test for HIV**

<b>Factors</b>	<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Availability of treatment in case I test positive	Strongly agree	226	50.4
	Agree	127	28.3
	Disagree	19	4.2
	Strongly disagree	43	9.6
	Don't know	33	7.4
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Confidentiality of my status	Strongly agree	198	44.2
	Agree	140	31.3
	Disagree	31	6.9
	Strongly disagree	55	12.3
	Don't know	24	5.4
	<b>Total</b>	<b>448</b>	<b>100.0</b>
If partner will give me the approval to test	Strongly agree	137	30.6
	Agree	130	29.0
	Disagree	68	15.2
	Strongly disagree	96	21.4
	Don't know	17	3.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
If husband will accept HIV result	Strongly agree	129	28.8
	Agree	133	29.7
	Disagree	56	12.5

	Strongly disagree	117	26.1
	Don't know	13	2.9
	<b>Total</b>	<b>448</b>	<b>100.0</b>
If test is free	Strongly agree	202	45.1
	Agree	129	28.8
	Disagree	33	7.4
	Strongly disagree	66	14.7
	Don't know	18	4.0
	<b>Total</b>	<b>448</b>	<b>100.0</b>
If result is beneficial	Strongly agree	194	43.3
	Agree	134	29.9
	Disagree	37	8.3
	Strongly disagree	59	13.2
	Don't know	24	5.4
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

Table 6.6 shows that the majority (78.7%) of the antenatal attendees agreed that availability of treatment in case they test positive is a factor that influences them to test for HIV. This means that the high subscription rate of antenatal attendees to the government's policy of compulsory testing of HIV among pregnant women was largely influenced by the presence of care and treatment procedures offered through the PMTCT of HIV services and free provision of ART to HIV patients by the government. The implication is that availability of medication for HIV could help reduce the fear and strong perceptions harboured by people about the infection. This is in contrast with the suggestion of Treves-Kagan, Steward, Ntswane, Haller, Gilvydis, Gulati, Barnhart and Lippman (2016:2) that availability of ART alone will not reduce the fear, misconception, stigma and discrimination associated with AIDS. Considering the proportion of the antenatal attendees that agreed that the availability of treatment in case they tested positive was a factor that influenced them to test for HIV, strategies 5,6 and 9 of the new



strategies of this study were developed (see Tables 7.1, 7.2 and 7.9) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

In addition, about three-quarters (75.5%) of the antenatal attendees agreed that confidentiality of their status is a factor that influences them to test for HIV (see Table 6.6). This implies that efforts to promote HIV testing among pregnant women to satisfy the government's policy of early detection of HIV among pregnant women to prevent MTCT should place critical emphasis on upholding the tenet of confidentiality in the testing process. This was largely due to the high stigma associated with the infection in society. Thus, Obiri-Yeboah et al (2015:4) posited that most persons living with HIV are reluctant to disclose their status due to the high stigma associated with the infection in many societies. Considering the proportion of the antenatal attendees that agreed that confidentiality of their status was a factor that influenced them to test for HIV, strategy 4 of the new strategies of this study was developed (see Table 7.1) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

Partner's approval to test for HIV was also considered under this section. A little below one third (30.6%) of the antenatal attendees strongly agreed that they will test for HIV if their partners approve that and a little over one third (39.0%) of the antenatal attendees also agreed to the same statement. This implies that the majority (69.6%) of the antenatal attendees believed that partners approval is key to their decision to test for HIV. This aligns with the interpersonal influences, normative belief and subjective norm of the conceptual framework which states that individual perception about a particular behaviour is influenced by the judgement of significant others (Travis 2020:7; Bosnjak, Azjen & Schmidt 2020:353). The result also agrees with a study by Mukhtar et al (2020:2625) in North India that antenatal women had a favourable attitude towards HIV testing among pregnant women and their spouses respectively. Similarly, Merga et al (2016:6) were with the assertion that, pregnant women in Central Ethiopia had positive attitude towards MTCT and PMTCT of HIV.

Table 6.6 further showed that a little below one third (28.8%) of the antenatal attendees strongly agreed and a little below one third agreed (29.7%) that the husband's acceptance of the results from the HIV test is a factor that will enable them to undertake such a test.

This shows that the majority (58.5%) of the antenatal attendees admitted that the role of husbands in HIV testing among women in the Central Region of Ghana is vital. This aligns with the interpersonal influences of the conceptual framework which states that individual perception about a particular behaviour is influenced by the judgement of significant others (Pender 2011:4 cited in Travis 2020:7). This was necessary because the reluctance of husbands to accept HIV results could create several marital problems for the women and the family. It is therefore imperative to include the spouses of pregnant women in both pre-and post-HIV test counselling sessions. This will help to encourage more women to test for HIV and also enable health facilities to provide comprehensive care and treatment for families with HIV positive persons. In other words, the inclusion of the spouses of women will allow health professionals to also test them and provide the necessary services to manage the outcome of the testing. This agrees with the suggestion of the (Arkell 2018:3) that HIV care and management should be done among couples and persons who might have been exposed in the process to ensure the effective treatment to help halt the transmission process of the infection. Considering the proportion of the antenatal attendees that agreed that their husbands' acceptance of the results from the HIV test was a factor that will enable them to undertake the test, the strategy 3 of the new strategies of this study was developed (see Table 7.1) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

Another factor considered under this section was free testing. From table 6.6, a little below half of the antenatal attendees strongly agreed (45.1%) and a little below one third agreed (28.8%) that they will go for an HIV test if it is free. This implies that the majority (73.9%) of the antenatal attendees accepted that free testing could encourage them to test for HIV. This shows that the financial implications for testing HIV on women are a major concern to determine their willingness and readiness to go for testing or not. This also implies that some antenatal attendees were asked to pay for the HIV test which is currently free in government district hospitals in Ghana (Providers 2014:12). As a result, detailed information and more education should be giving to the antenatal attendees in the Central Region of Ghana that testing for HIV is currently free in government district hospitals in Ghana. Hence, any efforts by the government to either absorb the cost of testing under the National Health Insurance System or reduce the cost for testing for HIV

in private hospitals and private laboratories could help encourage many women to test for the infection. Thus, free testing or reduced cost for testing for HIV is a major factor in the quest for promoting early detection of HIV for effective care and support to avoid health complications. Considering the proportion of the antenatal attendees that accepted that free testing could encourage them to test for HIV, strategy 2 of the new strategies of this study was developed (see Table 7.1) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

Table 6.6 further showed that a little below half (43.3%) of the antenatal attendees strongly agreed and a little below one third agreed (29.9%) that they will take HIV test if the results are beneficial. This showed that the majority (73.2%) of the antenatal attendees believed that if only the results will serve any benefit, then they will go for the test. This could explain the high number proportion of the antenatal attendees who had tested for HIV (see Table 6.5 Attitudes of antenatal attendees on PMTCT of HIV services). In other words, they have understood and accepted that it is part of the requirement expected of them to undergo antenatal services and also help them to prevent any possible MTCT of HIV. The implication is that health professionals should continue to educate women about the importance of HIV testing to encourage them to go for the testing to promote early detection and treatment of the infection to avoid any health complications for mothers and babies. This aligns with prior related behaviour of the conceptual framework of the study which states that constant adequate information about HIV, MTCT and PMTCT services in their previous pregnancies when they attended the ANC would determine their compliance in the PMTCT services (Pender 2011:4 cited in Travis 2020:7). Strategies 1, 6 and 9 of the new strategies of this study were developed from this result (see Tables 7.1, 7.2 and 7.5) considering the proportion of the antenatal attendees that believe that the benefit of the test result was a motivating factor to undergo the HIV test.

### **6.3.5 Views of antenatal attendees on PMTCT of HIV services**

This section explores the views of antenatal attendees on PMTCT of HIV services as part of the process of assessing their attitudes on HIV testing. This is significant as espoused in Pender's health promotion model which suggests the views and attitudes of patients

about health issues influence their response to health care interventions and programs (Pender 2011:3 cited in Travis 2020:7). The results are presented in Table 6.7.

**Table 6.7: Views of antenatal attendees on PMTCT of HIV services**

<b>Views</b>	<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Pregnant women should be screened for HIV	Strongly agree	320	71.4
	Agree	103	23.0
	Disagree	18	4.0
	Strongly disagree	6	1.3
	Don't know	1	.2
	<b>Total</b>	<b>448</b>	<b>100.0</b>
It is stressful referring HIV mothers to other services	Strongly agree	114	25.4
	Agree	141	31.5
	Disagree	78	17.4
	Strongly disagree	89	19.9
	Don't know	26	5.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV infected pregnant women must be delivered by skilled personnel	Strongly agree	170	37.9
	Agree	146	32.6
	Disagree	65	14.5
	Strongly disagree	46	10.3
	Don't know	21	4.7
	<b>Total</b>	<b>448</b>	<b>100.0</b>
HIV infected women may not breastfeed their children if there is a risk of infection	Strongly agree	159	35.5
	Agree	133	29.7
	Disagree	48	10.7
	Strongly disagree	87	19.4
	Don't know	21	4.7
	<b>Total</b>	<b>448</b>	<b>100.0</b>
	Strongly agree	73	16.3

Pregnancy should be terminated if mother is HIV infected	Agree	55	12.3
	Disagree	45	10.0
	Strongly disagree	236	52.7
	Don't know	39	8.7
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

Results from Table 6.7 showed that the majority (71.4%) of the antenatal attendees emphatically supported the view that pregnant women should be screened for HIV. This shows that the antenatal attendees had developed positive attitudes towards the testing for HIV during pregnancy. It also shows that the testing for HIV among pregnant women has been generally accepted among antenatal attendees. This was attributed to about a decade of implementing this practice among pregnant women in Ghana. As a result, it has generally become a norm in the provision of antenatal services in Ghana. These positive attitudes could partly explain the high number of antenatal attendees testing for HIV in the Central Region of Ghana (refer to Table 6.5 on attitudes of antenatal attendees on PMTCT of HIV services). Thus, the theory of planned behaviour stipulated that people's subjective norms and attitudes shape their behaviours and practices (Bosnjak, Ajzen & Schmidt 2020:353). This argument is also depicted in the conceptual framework of the study.

From Table 6.7, below one-third of the antenatal attendees strongly agreed (25.4%) that it is stressful referring HIV mothers to other services while a little below one third (31.5%) agreed to that same view. On the whole, the majority (56.9%) of the antenatal attendees were of the view that it is indeed stressful referring HIV mothers to other services. The results showed that the antenatal attendees did not find it comfortable attending to PMTCT of HIV services. This might be due to the extra time they had to spend at the hospital to receive such services. Part of the stress could emanate from the fact that PMTCT of HIV services is provided at the district hospitals and as such most of the antenatal attendees had to travel from their communities to the district capitals where the district hospitals are situated to access such services. In some cases, the cost of transportation and difficulties in getting transportation to create additional psychological

and physical stress for the antenatal attendees in attending PMTCT of HIV services at the district level. Further, there is psychological stress when other pregnant women access their antenatal services at the community level with ease, while HIV-positive women had to travel to the district capitals where the district hospitals are situated for PMTCT of HIV services. Such jurisdictional demarcation in accessing antenatal services sometimes creates unnecessary rumours and stigma for HIV-positive pregnant mothers as other community members begin to suspect them about their HIV status. It will therefore be very critical for the Ghana Health Service to further decentralise the provision of PMTCT of HIV services to sub-district and community health facilities to reduce the stress, suspicions and stigma that HIV-positive pregnant mothers had to go through in accessing PMTCT of HIV services. This is in agreement with the assertion of Besada, Rohde, Goga and Raphaely (2016:2) that easy access to PMTCT of HIV services helps to encourage participation among HIV-positive pregnant mothers. Besada et al (2016:3) also indicated that the incorporation of PMTCT of HIV services into the usual antenatal services helps to reduce suspicions and stigma mostly experienced by HIV-positive pregnant women. Considering that more than half of the antenatal attendees were of the view that it is indeed stressful referring HIV mothers to other services, strategies 8 and 10 of the new strategies of this study were developed (see Table 7.4 and 7.6) to promote awareness of PMTCT of HIV among antenatal attendees in the central region of Ghana.

Another issue the antenatal attendees expressed their views on was whether HIV infected pregnant women must be delivered by skilled personnel or not. The study found that a little over one third (37.9%) of the antenatal attendees strongly agreed that HIV infected pregnant women must be delivered by skilled personnel and a little below one third (32.6%) of the antenatal attendees also agreed to that view. This brings out clearly that the majority (70.5%) of the antenatal attendees had that same opinion. (See Table 6.7). This is supported by Providers (2014:12). The results showed that the antenatal attendees generally had positive attitudes towards having skilled birth attendants attending to HIV infected pregnant women. It implies that the antenatal attendees had generally accepted the need to prevent MTCT of HIV through the delivery process. This is likely to encourage the antenatal attendees to opt for delivering in health facilities to

help the promotion of preventing MTCT of HIV (Providers 2014:12). Mukhtar et al (2020:2625) also supported that antenatal women had a favourable attitude towards delivery of HIV positive women by a skilled person.

Table 6.7 further showed that a little over one third (35.5%) of the antenatal attendees strongly agreed that HIV infected women may not breastfeed their children if there is a risk of infection and a little below one third (29.7%) agreed to that same view. This indicates that the majority (65.2%) were of the view that HIV infected women may not breastfeed their children if there is a risk of infection. The results showed that the majority of the antenatal attendees had accepted the need to reduce the risk of exposure of infants to factors that could transmit HIV from mothers to them. These positive attitudes were expected to encourage the antenatal attendees to resort to alternative feeding as directed by the midwives to help prevent MTCT of HIV. It is therefore imperative that recommended alternative feeding be made easily available and accessible to encourage HIV lactating mothers to adhere to the feeding directives learnt from the PMTCT services. This is very crucial because Besada et al (2016:7) reported that economic factors play an enormous role in the capacity and willingness of HIV-positive mothers to practice the lessons learnt from the PMTCT of HIV services. In as much as the majority of the antenatal attendees had positive attitudes towards avoiding the exposure of infants to breastfeeding of their mothers who had tested positive to HIV, a significant percentage (30.1%) of the antenatal attendees also had negative attitudes towards that view. The implication is that such antenatal attendees had either not accepted or understood the need to reduce the risk of exposure of infants to breastfeeding of mothers who had tested positive to HIV. This is likely to expose the children of such mothers to a high risk of getting infected with HIV. Considering the proportion of antenatal attendee that had negative attitudes toward the above view, strategy 9 of the new strategies of this study was developed (see Table 7.5) to promote awareness of PMTCT of HIV among antenatal attendees in the Central Region of Ghana.

However, a little over half (52.7%) of the antenatal attendees strongly disagreed that pregnancy should be terminated if the mother tested positive for HIV (see Table 6.7). The results show that the majority of the antenatal attendees had confidence in the available

care and treatment processes to protect both mothers and infants from developing health complications. In other words, the majority of the antenatal attendees had positive attitudes towards the PMTCT of HIV services in protecting infants of HIV-positive pregnant mothers from getting infected in the process. These positive attitudes could encourage most of the antenatal attendees to seek PMTCT of HIV services and also be committed to practising recommendations and directives from midwives to help prevent MTCT.

The above results showed that the antenatal attendees generally had positive attitudes towards the PMTCT of HIV services. Merga et al (2016:6) assert that pregnant women in Central Ethiopia had attitude positive towards MTCT and PMTCT of HIV. According to Nubed and Akoachere (2016:3), positive attitudes of people towards PMTCT of HIV services are important to encourage patronage of the services and also be committed to the lessons learnt. The above results are in variance with Vieira et al (2021:4) in their study in Guinea-Bissau that pregnant women have negative attitude towards HIV positive women. The implication is that efforts to encourage the relationship between positives attitudes and adoption of practices should include the promotion of creating easy access to PMTCT of HIV services as well as providing cheaper alternatives to enable HIV-positive mothers to acquire and protect their infants against MTCT.

### **6.3.6 Perceptions of antenatal attendees on PMTCT of HIV services**

This section describes the perceptions of the antenatal attendees on the PMTCT of HIV services. As described by Chukwukaodinaka (2014:15), people's level of acceptance and actions towards PMTCT of HIV services are largely influenced by their perceptions. As a result, Chukwukaodinaka (2014:15), suggested the need to occasionally explore the perceptions of patients or beneficiaries on PMTCT of HIV services to ascertain their underlying views that influence their commitment to practising PMTCT services. Table 6.8 presents results on the perceptions of antenatal attendees on PMTCT of HIV services.



**Table 6.8: Perceptions of antenatal attendees on PMTCT of HIV services**

<b>Perceptions</b>	<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Fear of stigma	Strongly agree	201	44.9
	Agree	117	26.1
	Disagree	30	6.7
	Strongly disagree	86	19.2
	Don't know	14	3.1
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Poor care from ANC nurses when tested positive	Strongly agree	113	25.2
	Agree	106	23.7
	Disagree	80	17.9
	Strongly disagree	132	29.5
	Don't know	17	3.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
My partner does not believe in hospital	Strongly agree	71	15.8
	Agree	71	15.8
	Disagree	122	27.2
	Strongly disagree	176	39.3
	Don't know	8	1.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
The clinic is situated far away from home	Strongly agree	107	23.9
	Agree	117	26.1
	Disagree	99	22.1
	Strongly disagree	119	26.6
	Don't know	6	1.3
	<b>Total</b>	<b>448</b>	<b>100.0</b>
I do not feel comfortable when using a condom	Strongly agree	155	34.6
	Agree	103	23.0
	Disagree	61	13.6
	Strongly disagree	97	21.7

	Don't know	32	7.1
	<b>Total</b>	<b>448</b>	<b>100.0</b>
My partner does not like a condom	Strongly agree	183	40.8
	Agree	98	21.9
	Disagree	55	12.3
	Strongly disagree	83	18.5
	Don't know	29	6.5
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Spent too long at the ANC	Strongly agree	118	26.3
	Agree	127	28.3
	Disagree	104	23.2
	Strongly disagree	92	20.5
	Don't know	7	1.6
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

From Table 6.8, a little below half (44.9%) of the antenatal attendees strongly agreed that they feared stigmatisation associated with receiving PMTCT of HIV services and a little below one third (26.1%) agreed or accepted that same view. The result showed that the majority (71%) of the antenatal attendees admitted to that statement. The fear of stigmatisation could sometimes discourage antenatal attendees from enrolling on PMTCT of HIV services as described in a policy document by Protection, Inclusion, & Action (2015:2) that stigmatisation against persons living with HIV compels them to stay away from designated care and treatment centres. As a result, Protection et al (2015:14) suggested the need to incorporate PMTCT of HIV services into the normal health care processes and treatment system to avoid suspicions and stigma on patients. This suggests the need for the Ghana Health Service to build the capacity (both in terms of technical and resources) of sub-district health facilities to provide PMTCT of HIV services to eliminate possible suspicions and stigmas HIV-positive pregnant mothers encounter in undergoing PMTCT services in district hospitals, while other antenatal attendees have all their issues addressed at the community-based health facilities. Strategies 4 and 8 of the

new strategies of this study were developed (see Tables 7.1 and 7.4) considering the proportion of antenatal attendees expressing the view that fear of stigmatisation associated with receiving PMTCT of HIV services could discourage them from participating in the services.

Further, a little below one third (25.2%) of the antenatal attendees strongly agreed and a little below one third (23.7%) agreed that they received poor care from ANC midwives when tested positive. The result showed that a little below half (48.9%) of the antenatal attendees perceived they are treated poorly by the midwives. These perceptions could discourage some of the antenatal attendees from seeking regular care and support through the PMTCT of HIV services. According to Egbe, Nge and Ngouekam (2020:1), poor handling of HIV-positive mothers at the health facilities sometimes compels them to seek alternative health care from herbal and traditional healers as well as religious institutions. In other words, poor perceptions about ANC midwives could discourage HIV-positive pregnant mothers from seeking PMTCT of HIV services, which could have serious negative implications on the government's efforts in controlling the transmission of the infection. On the other hand, the number of antenatal attendees that said otherwise was also significant in the sense that, slightly less than half of the antenatal attendees strongly disagreed (29.5%) and disagreed (17.9%) with these perceptions. This implies that some of the midwives render good care and services to the antenatal attendees which could encourage HIV-positive pregnant mothers to seek PMTCT of HIV services. This result is supported by the prior related behaviour of Pender's Health Promotion Model which states that past experiences been positive or negative could affect the decision of women towards PMTCT of HIV services (Pender 2011:4 cited in Travis 2020:7). Considering the above result, strategies 1 and 6 of the new strategies of this study were developed (see Tables 7.1 and 7.2) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

Another issue considered under the section was partners' perceptions on seeking care and treatment from the hospital. This was very important as issues on seeking care and treatment support for HIV are sometimes planned and decided among couples. The implication is that the views of partners of HIV-positive pregnant mothers are very

important in their decisions to access PMTCT services from health facilities. From the study, a little over one third (39.3%) of the antenatal attendees strongly disagreed and a little below one third (27.2%) disagreed that their partners did not believe in the hospital. The result showed that the majority (66.5%) of the antenatal attendees were not in support of that view (see table 6.8). This suggests that the partners of the antenatal attendees supported the care and treatment support provided through the PMTCT of HIV services of the hospitals. This is likely to encourage the antenatal attendees to be regular in their attendance to PMTCT of HIV services.

In reference to the perceptions of the antenatal attendees on the distance to the hospital to seek PMTCT of HIV services, a little below one third (23.9%) of the antenatal attendees strongly agreed and a little below one third (26.1%) agreed that the clinic was situated far away from home. Thus, half (50%) of them accepted that distance to the ANCs was a bother to them (refer to table 6.8). This is likely to discourage some of the antenatal attendees from being regular at the PMTCT of HIV services as described by Besada et al (2016:4) that high stress associated with accessing antenatal and PMTCT of HIV services compel HIV-positive mothers to sometimes skip some of their attendance. This was very critical because pregnancy has its stress-related issues on women and as such, any additional stress caused by difficulties in accessing antenatal services sometimes becomes highly unbearable for women. The situation might even be worse among HIV-positive pregnant women who may also be undergoing psychological stress with their HIV status and societal stigma. Efforts to provide PMTCT of HIV services at the community level could therefore help to relieve HIV-positive mothers from any other psychological and physical stress they may be going through to encourage them to be more regular at PMTCT of HIV sessions. Considering the above result, strategies 8 and 10 of the new strategies of this study were developed (see Tables 7.4 and 7.6) to promote antenatal attendees' awareness of PMTCT of HIV in the Central Region of Ghana.

The study also explored the perceptions of the antenatal attendees on the use of condoms. This was essential because the use of condoms helps to reduce the level of exposure of HIV-positive women and their partners to the risk of transmission and the development of further health complications in the process of treating the infection

(UNAIDS 2016:4). However, a little over one third (34.6%) of the antenatal attendees strongly agreed that they did not feel comfortable when using condoms and a little below one third (23.0%) of them agreed to that same perception. This means that the majority (57.6%) of the antenatal attendees admitted that condom use was not comfortable. The situation was more complicated as a little below half (40.8%) and a little below one third (21.9%) of the antenatal attendees strongly agreed and agreed that their partners also did not like condoms (see table 6.8) which represent the majority (62.7%) of the antenatal attendees having that opinion. This result is in consonance with a statement by UNAIDS (2017:7) and Haffejee et al (2016:175) in their assertion that condom use among people of their reproductive age is on the lower side since partners dislike it. Also, the result aligns with the assertion by Kharsany et al (2016:38) that condom use is most dependent on the male partners and most women are unable to negotiate consistent use of a condom with their partners. It is also in agreement with the assertion by Gatta (2015:59) that the majority of women avoid the use of a condom with the fear of being labelled as sex workers. This could discourage antenatal attendees from using condoms in their conjugal activities, which could also expose them and their partners to possible transmissions and complications in the treatment of the infection. The result is in variance with the assertion by Mukhtar et al (2020:2625) that antenatal women always use condoms with their spouse to prevent HIV infection. According to Silva, Oliveira, Serra, Rosa and Ferreira (2015:7), unprotected sex among persons living with HIV contributes to the high rate of transmission as well as the development of health complications associated with the treatment of the disease. Silva et al (2015:8) therefore recommended the need for continuous counselling and education among persons living with HIV to accept the use of condoms during sexual intercourse to reduce the risk of exposure to themselves and their sexual partners to prevent further complications from the infection.

Results from Table 6.8 further showed that a little over one third (36.3%) and a little below one third (28.3%) of the antenatal attendees strongly agreed and agreed that they spent too much time at the ANC. Which showed that the majority (64.6%) of the antenatal attendees were not comfortable with the number of hours they spent at the ANC. Merga et al (2016:6) agreed that waiting time for pregnant women receiving MTCT and PMTCT care in Central Ethiopia was significantly higher than the average time expected. This

could add to the stress the antenatal attendees already experienced with the long-distance and difficulties in getting transportation to the hospitals for PMTCT services, which could compel them to skip some of the ANC's schedules. This is supported by the conceptual framework (Prior related behaviour) of the study which argues that waiting time at the ANCs could influence the decision of the women towards their participation in the PMTCT of HIV services (Pender 2011:4 cited in Travis 2020:7).

The above results showed that the antenatal attendees generally had poor perceptions about the PMTCT of HIV services. Thus, they had the perceptions of receiving poor care from ANC midwives, feared experiencing stigma when tested positive, hospitals located far from their homes, discomfort with the use of condoms to prevent further transmissions and complications, and spending too much time during ANC sessions. This is in consonance with the assertion by Vieira et al (2021:4) that pregnant women have poor perceptions towards other HIV positive pregnant women. The poor perceptions about the PMTCT of HIV services generally emanated from the recommended changes in their lifestyles to effectively accommodate their situation to uphold the tenets of PMTCT, while others emanated from discomfort in accessing PMTCT of HIV services. According to Turan et al (2015:5), testing positive for HIV among pregnant women requires drastic changes in behavioural lifestyle to ensure maximum protection to babies and partners against the infection. However, Protection et al (2015:2) posited that health professionals have to be more accommodating and welcoming during PMTCT of HIV services to encourage HIV-positive mothers to attend such sessions. This is important because some of them might be facing stigma in their homes and communities and may find solace from the health professionals to lead responsible lives that will help halt the further spread of the infection.

#### **6.4 Strategies to promote antenatal attendees' awareness of PMTCT of HIV services**

This section explores the views of the antenatal attendees on the strategies to promote antenatal attendees' awareness of PMTCT of HIV services. The aim is to ascertain the way the antenatal attendees want the PMTCT of HIV services to be organised to enhance

their attendance and adoption of recommendations and practices from the health professionals. The results are presented in Table 6.9.

**Table 6.9: Strategies to promote antenatal attendees' awareness of PMTCT of HIV services**

Strategies	Responses	Frequency	Percentage
Provision of free antiretroviral drugs to HIV-positive pregnant women	Always	184	41.1
	Often	100	22.3
	Sometimes	47	10.5
	Never	117	26.1
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Provision of free formula to children born to HIV infected mothers	Always	132	29.5
	Often	90	20.1
	Sometimes	41	9.2
	Never	185	41.3
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Provision of Counselling services	Always	194	43.3
	Often	87	19.4
	Sometimes	64	14.3
	Never	103	23.0
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

From Table 6.9, a little below half (41.1%) of the antenatal attendees reported that antiretroviral drugs are always provided freely to HIV-positive pregnant women to help promote awareness of PMTCT of HIV services. This was important because antiretroviral drugs are currently the main medication for the treatment of HIV and the free provision will encourage the women to participate in the PMTCT of HIV services. The study, however, found that the Ghana Health Service provides a regular supply of drugs through the hospitals to all persons living with HIV, including HIV-positive pregnant mothers for free across the country. The concern of the antenatal attendees was that the program of

providing free antiretroviral drugs to HIV-positive pregnant women should always be available to enable them to prevent MTCT of HIV as well as ensure their healthiness in the maternal process. This was found in the results when a little below one third (22.3%) of the antenatal attendees responded often and some responded sometimes (10.5%). This agrees with Asiyanbola et al (2016:1) that, in Nigeria, inadequate ARV drug is a problem among pregnant women receiving PMTCT of HIV services. The study found that there were some occasional shortages of the drugs in the hospitals which compelled the HIV-positive pregnant mothers to resort to the pharmacy shops to obtain them at a cost. Such occasional shortages could have negative implications on the effectiveness of the PMTCT services as some HIV-positive pregnant mothers could not afford to purchase antiretroviral drugs from the pharmacy shops for financial reasons. Further, some of the HIV-positive pregnant women found it very difficult to go to the pharmacy shops to buy antiretroviral drugs due to the fear of experiencing stigma. All these could cause delays in the suppression of the virus to protect both mothers and infants from health complications and infections. According to the WHO (2015:11), reliable and easy access to antiretroviral drugs act as a psychological boost to persons living with HIV and enables them to be committed to directives and recommendations of health professionals.

From the study, a little below half (41.3%) of the antenatal attendees reported that they never heard of free infants' formula provided to children born to HIV infected mothers (see table 6.9). This posed some level of threat to the success of the entire PMTCT of HIV services as some of the antenatal attendees could not afford alternative or either practice exclusive breastfeeding for six months while receiving ART or their babies are on ART. In such a situation, some of the antenatal attendees may be compelled to breastfeed their infants, which will expose them to high levels of risk of getting infected with HIV. This is in agreement with the suggestion by WHO (2016:22) that care must be taken in safe alternative food so that the best feeding habits of the infants are not interrupted.

Table 6.9 further showed that a little below half (43.4%) of the antenatal attendees reported that they always received counselling services as part of the pre-test PMTCT of HIV services. This was important to help manage the status of the test results. According to Bell, Delpech, Raben and Casabon (2015:2), pre-test counselling for HIV is very



important to help manage post-test results situations. As a result, Bell et al (2015:3) emphasised that pre-test counselling services should be compulsory and always be done as part of the PMTCT of HIV services. The situation where some of the antenatal attendees did not receive any pre-test counselling services (23.0%) as part of the PMTCT services is quite disturbing as such people might be subjected to psychological stress before getting knowledge about available services that could enable them to live their normal lives. The study, however, found that some of the ANCs in the district hospitals did not have the HIV test kit to conduct the HIV tests. They, therefore, relied on hospital main laboratories or private laboratories for such services. As a result, antenatal attendees from such districts were just informed by the health professionals to go for HIV test as part of their ANC services and submit the results at the facilities. This internal resource gap (lack of capacity to conduct HIV test) creates a vacuum in the PMTCT of HIV services thereby denying antenatal attendees from receiving pre-test counselling services. This implies the urgent need to build the capacities of all district hospitals to conduct HIV test to help bridge the counselling gap in the PMTCT of HIV services. Considering this result, strategy 8 and 10 of the new strategies of this study were developed (see Tables 7.4 and 7.6) to promote antenatal attendees' awareness of PMTCT of HIV in the central region of Ghana.

#### **6.4.1 Strategies to promote pre and post-test counselling on PMTCT of HIV services**

The study further assessed the content for pre-test and post-test counselling of the antenatal attendees as part of the strategies for PMTCT of HIV services. Counselling plays a crucial role in the entire PMTCT session as it helps to address the psychological needs of antenatal attendees concerning the prevention and transmission of HIV. The section was organised under the content of pre-test counselling and post-test counselling. The results are presented in Table 6.10.

**Table 6.10: Strategies of antenatal attendees to promote awareness of PMTCT of HIV counselling services**

Strategies	Responses	Frequency	Percentage
<b>Content of pre-test counselling</b>			
Methods to avoid HIV infection	Always	189	42.2
	Often	79	17.6
	Sometimes	37	8.3
	Never	143	31.9
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Services available for HIV infected pregnant women	Always	181	40.4
	Often	73	16.3
	Sometimes	49	10.9
	Never	145	32.4
	<b>Total</b>	<b>448</b>	<b>100.0</b>
<b>Content of post-test counselling</b>			
Explanation of test results	Always	195	43.5
	Often	102	22.8
	Sometimes	55	12.3
	Never	96	21.4
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Plan for harm reduction	Always	139	31.0
	Often	64	14.3
	Sometimes	62	13.8
	Never	183	40.8
	<b>Total</b>	<b>448</b>	<b>100.0</b>
Methods to prevent MTCT	Always	166	37.1
	Often	78	17.4
	Sometimes	36	8.0
	Never	168	37.5
	<b>Total</b>	<b>448</b>	<b>100.0</b>

Source: Field survey (2020)

#### **6.4.1.1 Strategies of antenatal attendees to promote pre-test counselling of PMTCT of HIV services**

From Table 6.10, a little below half (42.2%) of the antenatal attendees reported that they always received pre-test counselling on methods to avoid HIV infection. This was important to expose the antenatal attendees to the transmission mechanisms of HIV to enable them to either protect themselves against getting infected or avoid further infections to others when they tested positive for the infection. However, the situation where about a little below one third (31.9%) never received any pre-test counselling on methods to avoid HIV infection was quite alarming as it could deny them the opportunity to gain knowledge about the prevention and transmission processes of HIV as well as their participation in the PMTCT of HIV services. This implies that some of the strategies to halt the spread of MTCT of HIV were not fully employed in the Central Region of Ghana.

Another issue considered under the section was receiving pre-test counselling on services available for HIV infected pregnant women. Results from Table 6.10 showed that a little below half (40.4%) of the antenatal attendees indicated that they always received pre-testing counselling on the available services for HIV infected pregnant women. Such exercise exposes antenatal attendees to various options that can help one live with HIV and manage the post-test psychological recovery process when one tested positive for the infection. This is in variance with Asiyanbola, Adejumo and Arulogun (2016:6) that women attending ANCs lack PMTCT service counselling. Asiyanbola et al (2016:7), therefore suggest that training for health professional should be intensified to enable them to offer HIV counselling whenever the women attend the ANCs.

#### **6.4.1.2 Strategies of antenatal attendees to promote post-test counselling of PMTCT of HIV services**

From Table 6.10, a little below half (43.5%) of the antenatal attendees reported that they always received an explanation on the test results as part of the post-test counselling services. This was necessary to enable the antenatal attendees to gain knowledge about their HIV status. However, a little below half (40.8%) of the antenatal attendees reported that they never received post-test counselling on planned harm reduction. In addition, a little over one third (37.5%) of the antenatal attendees never received post-test

counselling on methods to prevent MTCT of HIV. The results showed weak post-test counselling for antenatal attendees in the Central Region of Ghana as well as non-compliance with some of the PMTCT of HIV strategies. This was likely to cause serious psychological stress to the antenatal attendees when they tested positive for HIV. This is consistent with the assertion by Asiyanbola et al (2016:1) that, test results are handed over to pregnant women without post test counselling hence, guidelines for counselling among pregnant women are not strictly adhered to. According to the WHO (2015:3), post-test counselling on HIV is very critical to avoid the possible development of suicide tendencies among persons who test positive as it gives hope to such persons about the available options and established support systems to provide care and treatment for them to live their normal lives. This is also supported by the conceptual framework of the study which explains that information sharing can encourage or discourage participation in the desired behaviour (Pender 2011).

This section conducts inferential analyses on various issues regarding the perceptions of antenatal attendees on PMTCT services. The aim was to establish the statistical significance of issues across various categories of antenatal attendees as well as analyse the contribution of various factors influencing the practising of PMTCT directives.

The study first conducted a regression analysis on the factors influencing the attitudes of antenatal attendees to test for HIV. This was imperative because the theory of planned behaviour stipulated that people attitudes play a central role in their practices and behavioural changes (Bosnjak et al 2020:353). This suggests that any attempt by the antenatal attendees to adopt the lessons from the PMTCT services to help prevent MTCT will emanate from their attitudes towards the service. The study, therefore, analysed the unique influences of various attitudinal elements on their decision to be tested for HIV. In this analysis, the dependent variable was tested for HIV, while the independent variables or predictors were availability of treatment in case of testing positive, the confidentiality of one's status, approval from partners, and free testing. The results are presented in Table 6.10.

**Table 6.10: Regression analysis on factors influencing decisions of antenatal attendees to test for HIV**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.987	0.034		29.166	0.000
	Availability of treatment in case of testing positive	0.031	0.013	0.149	2.433	0.015
	Confidentiality of status	-0.020	0.014	-0.093	-1.474	0.041
	Approval from partners	0.002	0.011	0.011	0.212	0.832
	Free testing	0.018	0.011	0.083	1.654	0.099

a. Dependent Variable: Testing for HIV

R = 0.634; Adjusted R square = 0.508; F-statistic = 23.02; p-value = 0.048

Dependent variable: Ability to meet basic needs

Predictors: Availability of treatment in case of testing positive, the confidentiality of one's status, approval from partners, and free testing

Source: Field survey (2020)

From Table 6.10, multiple regression analysis was used to test attitudinal factors among antenatal attendees. The results of the regression indicated the four predictors. [F (regression degrees of freedom, residual degrees of freedom, F value, p value, R square and adjusted R square. (R<sup>2</sup> = .508, then regression degree of freedom and residual degree of freedom, F= 23.02, p<.048). It was predicted on availability of treatment in case of testing positive ( $\beta = .149$ , p<.015), confidentiality of status ( $\beta = -.093$ , p<.041), approval from partners ( $\beta = -.011$ , p>.832) and free testing ( $\beta = -.083$ , p>.099).

The correlation of 0.634 shows a strong positive relationship between the attitudinal factors and the decision to test for HIV among antenatal attendees in the Central region of Ghana. The implication is that as the attitudes of the antenatal attendees improve, they also make their decisions to test for HIV in the PMTCT of HIV services, and vice versa. This means that the more the antenatal attendees have their attitudes improve, the more they will subscribe to the HIV testing policy under the PMTCT of HIV services of the

Ghana Health Service. This is in agreement with the theory of planned behaviour that the attitudes of people play a central role in their behavioural change process (Bosnjak et al 2020:353). Table 6.10 also showed an adjusted R square value of 0.508, which means that the attitudinal elements of the antenatal attendees explained about (50.8%) of their decisions to test for HIV under the PMTCT services. In other words, other variables explain about 49.2% of variations in the decisions of antenatal attendees to test for HIV under the PMTCT services. The F-statistic explains the relationship between the independent variables and the dependent variable. A p-value of 0.048 (F-statistic = 23.02) implies that there was a statistically significant influence of attitudes on the decision of antenatal attendees to test for HIV under the PMTCT services. In other words, the associated p-value of 0.048 showed that independent variables made critical input in explaining variations in the dependent variable. This was because the p-value of 0.048 was within the error margin of 0.05.

Table 6.10 further showed that availability of treatment in case of testing positive to HIV made the highest unique contribution (Beta = 0.149) towards the decision to test for HIV under the PMTCT of HIV services when the effects from all other variables have been controlled. Thus, the Beta values explain the unique contributions of the independent variables to variations in the dependent variable when they are expressed on the same scale. As a result, a high value shows the high contribution of an independent variable towards the dependent variable. The associated p-value of 0.015 suggests that availability of treatment in case of testing positive for HIV made a significant effect on the decision of antenatal attendees to test for HIV under the PMTCT services. This was because the p-value of 0.015 was within the acceptable margin of error of 0.05. The implication is that assurance of possible care and treatment of HIV is a major determinant factor that encouraged the antenatal attendees to decide to test for HIV under the PMTCT services. This suggests that pre-test counselling is very imperative in the entire PMTCT services as it affords the antenatal attendees the chance to learn about the opportunities available for HIV-positive pregnant women. According to WHO (2015:6), the non-availability of a cure for HIV is the main reason for the creation of several misconceptions about the disease as well as the development of stigma against persons living with HIV. As a result, measures to assure people about the possibility of leading a normal healthy

life when tested for HIV during the pre-test counselling is imperative to encourage them to test for the infection.

Confidentiality of one's status made the second-highest unique contribution (Beta = -0.093) to decisions of antenatal attendees to test for HIV under the PMTCT services when the influences of the other variables have been controlled. The associated p-value of 0.041 means that confidentiality of one's status made a statistically significant influence on the decisions of antenatal attendees to test for HIV under the PMTCT services in the Central Region of Ghana. The WHO (2015:4) posited that confidentiality of HIV status is important because of the high social stigma associated with the disease. Accordingly, efforts to protect the confidentiality of the HIV statuses of the antenatal attendees could encourage them to test for the disease to begin the PMTCT of HIV services.

However, approval from partners made the least unique contribution (Beta = 0.011) to decisions of antenatal attendees to test for HIV under the PMTCT of HIV services when the influences of the other variables have been controlled. The associated p-value of 0.212 means that approval from partners did not make a statistically significant influence on the decisions of antenatal attendees to test for HIV under the PMTCT services. The implication is that the decision for testing for HIV under the PMTCT services was largely the sole decision of the antenatal attendees. This was attributed to the long years of practice which has made it part of the antenatal processes under the Ghana Health Service policy guidelines.

The study also performed a test of difference between perceptions, beliefs and views of the antenatal attendees on PMTCT of HIV services across the gestation period. This was essential because the more one advances on the gestation stages, the more the person is taken through the PMTCT of HIV services to influence her perceptions, beliefs and views on HIV. Composite variables were created for perceptions, beliefs and views of the antenatal attendees on PMTCT of HIV services. ANOVA was used to assess the statistical significance of difference between perceptions, beliefs and views of antenatal attendees on PMTCT of HIV services across the three gestation ages (first, second and third trimesters). Prior to the performance of the ANOVA test, the study explored the skewness of the three composite distributions to establish their normality to merit

parametric test. From the normality test, the skewness values for perceptions, beliefs and views of the antenatal attendees on PMTCT of HIV services were 0.59, 0.48 and 0.55, respectively. Table 6.11 presents results on the tests of differences.

**Table 6.11: Anova on perceptions on PMTCT services and gestation age of antenatal attendees**

Perceptions	Statistics	Sum of squares	Df	Mean square	F	Sig.
Perceptions	Between groups	32.283	2	10.761	8.957	0.001
	Within groups	533.396	445	1.201		
	Total	565.679	447			
Beliefs	Between groups	3.886	2	1.295	3.138	0.025
	Within groups	183.255	445	0.413		
	Total	187.141	447			
Views	Between groups	15.119	2	5.040	3.287	0.021
	Within groups	680.825	445	1.533		
	Total	695.944	447			

Source: Field survey (2020)

Table 6.11 shows that there was a statistically significant difference in perceptions among antenatal attendees across the three gestation ages (first, second and third trimesters). This is reported statistically as [F (degree of freedom of the groups) = F-statistic 8.957; p-value = 0.001:  $p < 0.05$ ) beliefs, [F (degree of freedom of the groups) = F-statistic 3.138; p-value = 0.025:  $p < 0.05$ ) and views, [F (degree of freedom of the groups) = F-statistic 3.287; p-value = 0.021:  $p < 0.05$ ). This was because the p-values were all within the acceptable margin of error of 0.05. The differences could be attributed to the fact that the more one advances through the gestation period, the more she undergoes the PMTCT of HIV services to improve their understanding and issues about HIV among pregnant women. Thus, lessons through the PMTCT of HIV services help to improve the perceptions, beliefs and views of antenatal attendees (Besada et al 2016:8).



## **6.6 SUMMARY**

This chapter expanded on the results and discussion of the data gathered from the antenatal attendees (second phase). It also presented the demographic characteristics of the antenatal attendees which revealed the differences and trends in the perceptions of antenatal attendees regarding PMTCT of HIV services in the Central Region of Ghana. The chapter also presented on the perceptions of the antenatal attendees on PMTCT of HIV services which was very helpful to determine their seriousness and commitment toward the PMTCT of HIV services in the Central Region of Ghana. In addition, strategies used at the PMTCT of HIV services was covered. This ascertained the way the antenatal attendees want the PMTCT of HIV services to be organised to enhance their attendance and adoption of recommendations and practices from the health professionals. This led to the development of most of the new strategies for this study.

The next chapter will present the developed strategies for promoting antenatal attendees' awareness of PMTCT of HIV services and how they were evaluated.

## **CHAPTER 7**

### **STRATEGIES FOR PROMOTING PMTCT OF HIV SERVICES AMONG ANTENATAL ATTENDEES**

#### **7.1 INTRODUCTION**

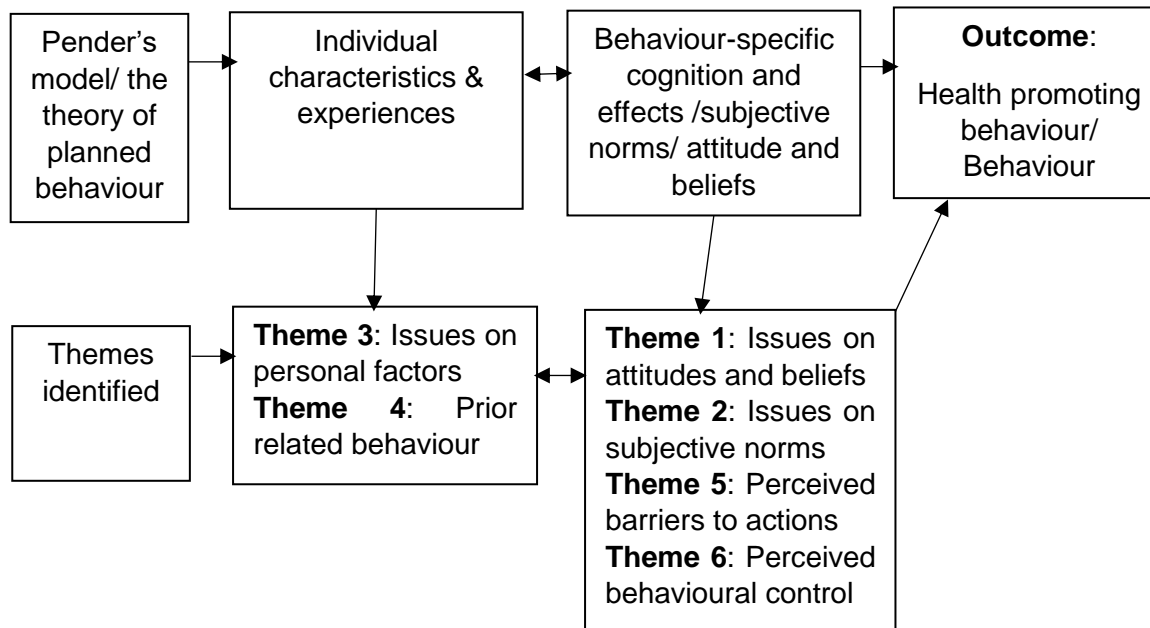
In this chapter, step 2 objective of the study is addressed which is to develop and describe strategies for midwives to promote PMTCT of HIV services. The rationale being to promote the awareness of antenatal attendees on PMTCT of HIV services in the Central Region of Ghana. This was in line with the conceptual framework adapted from the theory of planned behaviour (see Figure 1.2). The framework shows that strategies to influence behavioural intentions must precede the promotion of health behaviour. This is because the health promotion strategies seek to influence the attitudes and beliefs, subjective norms, and perceived behavioural control of people to enable them to accept and adopt improved health behaviour. The section was organised in consonance with the key elements under Pender's health promotion model (see Figure 1.1) and the theory of planned behaviour (see Figure 1.2). The major elements that guided the organisation of the chapter were attitudes and beliefs, subjective norms, perceived behavioural control, prior related behaviour, personal factors, and perceived barriers to actions. Thus, the strategies were developed on the major elements which were the main themes from Pender's model and the theory of planned behaviour. The aim was to develop strategies that could be used to advance the course of the major themes under the two frameworks to help promote PMTCT of HIV services among antenatal attendees in the Central Region of Ghana. The new strategies were developed to promote awareness of the antenatal attendees on PMTCT of HIV services and thus improved health promotion behaviour.

#### **7.2 Discussion of the Results**

The results of the study supported the models and theories for improving the health behaviour of people such as Pender's model and the theory of planned behaviour. The results are presented based on the major themes identified under Pender's model and the theory of planned behaviour.

### **7.2.1 Pender's model and the theory of planned behaviour for improving health behaviour**

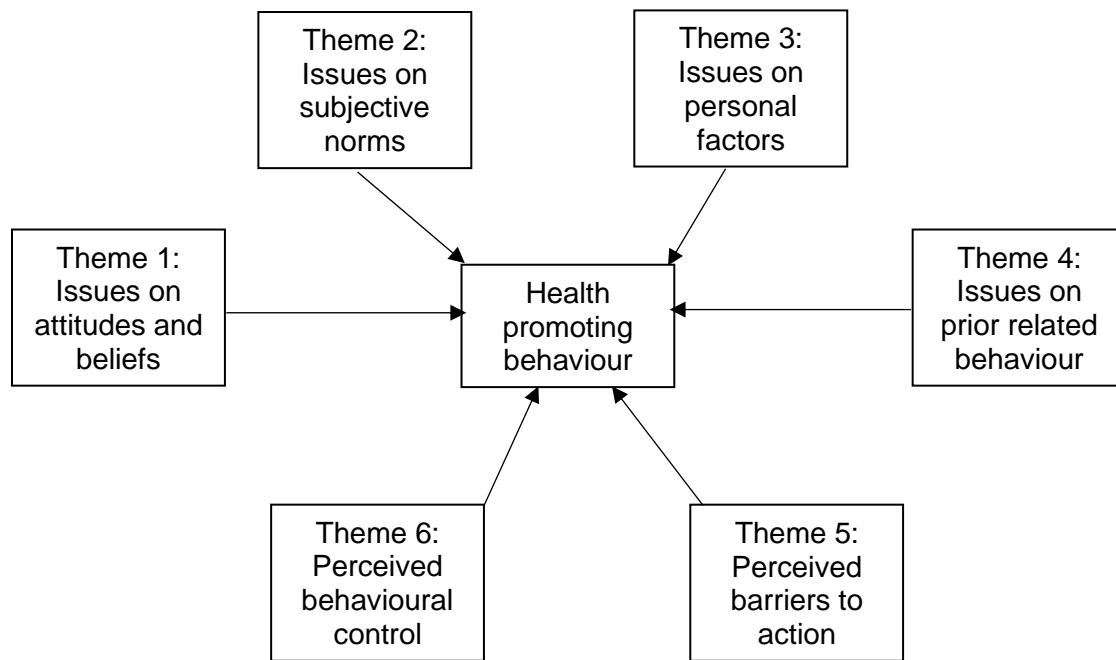
Pender's model is organised under three major sections as well as the theory of planned behaviour. The sections for the Pender's model are individual characteristics and experiences, behaviour-specific cognitions and effects, and health-promoting behaviour. The theory of planned behaviour, on the other hand, comprises subjective norms, perceived behavioural control and behavioural intentions and behaviour. The model and the theory indicate that differences in individual characteristics and experiences explain variations in their health behavioural outcomes. The outcome of the study is to promote health behaviour related to PMTCT of HIV services among antenatal attendees. The researcher identified that, all the three areas of the theory of planned behaviour were interrelated with two areas of Pender's model and had similar concepts, that is the behaviour-specific cognition and affects and health-promotion behaviour. The researcher decided to merge these areas to become three major sections and developed one framework for the development of the new strategies. Themes were identified along the three major sections of Pender's model and the Theory of planned behaviour which are individual characteristics and experiences, behaviour-specific cognitions and effects/ subjective norms/ attitude and beliefs and health-promoting behaviour/ behaviour. Figure 7.1 presents the Pender's model and the Theory of planned behaviour along with the themes that emerged from the study.



**Figure 7.1: Themes identified for concepts under Pender’s model and the theory of planned behaviour.**

### 7.3 Strategies for Health Promoting Behaviour

Strategies are defined as avenues to actualise plans to address particular problems to achieve specific goals or outcomes (Barad 2018:47). According to Lumen (2020:1), it is always necessary for people and institutions to outline their operational strategies to ascertain their feasibility in achieving the expected goals. Tapera (2016:122) posited those various strategies provide alternative avenues in addressing different parts of a complex problem and the responsibility lies on organisational managers to decide on the most possible ones. This section developed strategies to help promote health behaviour among antenatal attendees with specific reference to PMTCT of HIV services in the Central Region of Ghana. The strategies were based on the results identified under the various themes of Pender’s model and the theory of planned behaviour. Figure 7.2 presents a pictorial view about how the issues under the various themes could help inform the promotion of health behaviour.



**Figure 7.2: Pictorial presentation of themes for the development of strategies**

### 7.3.1 Purpose of the developed strategies

The purpose of the development of strategies was to help promote improved health behaviour among antenatal attendees in the Central Region of Ghana. The strategies were to guide the operations of health professionals and policymakers such as the Regional Health Directorate and Ghana Health Service in implementing specific actions to improve health behaviours of pregnant women in relation to PMTCT of HIV services. The strategies focused on the operational strategies of the healthcare system in providing PMTCT of HIV services. The interim strategies were operationalised and revised to be reviewed by experts in the field. The final strategies were developed following the revision and validation from experts.

### 7.3.2 Interim strategies

The following strategies were suggested to help promote improved health behaviour among the antenatal attendees on PMTCT of HIV services. The strategies were organised with various themes.

### **7.3.2.1 Strategies for theme 1: Issues on attitudes and beliefs**

Attitudes and beliefs were the first major theme under Figure 7.2. The theory of planned behaviour (Figure 1.2) explains attitudes and beliefs as an individual's beliefs about the presence of factors that might facilitate or hinder the performance of the behaviour (Ajzen 2014:443). Based on the major results under attitudes and beliefs in the previous chapters on presentation and discussion of results, various strategies were developed to help improve the health-promoting behaviour of the antenatal attendees. The study found that the antenatal attendees generally had positive attitudes and beliefs on PMTCT of HIV services. However, several factors influenced these positive attitudes and beliefs, including perceived benefits of test results, free testing, husband acceptance of HIV results, the confidentiality of status during HIV testing, and availability of treatment for HIV-positive pregnant mothers. As a result, the strategies were built on these factors.

#### **7.3.2.1.1 Organise health campaigns about the importance of HIV testing during pregnancy**

The study found that awareness of the antenatal attendees about the benefits associated with the testing of HIV during pregnancy was an important factor that influenced their decision to test for HIV. The implication is that efforts to propagate the benefits associated with knowing one's HIV status during pregnancy are imperative to encourage the antenatal attendees to maintain positive attitudes towards HIV testing and PMTCT of HIV services for improved health behaviour. The strategy, therefore, is to organise health campaigns about the importance of HIV testing during pregnancy. This will help to educate antenatal attendees on the importance of HIV testing during pregnancy and encourage more pregnant women to subscribe to the PMTCT of HIV services. The development and implementation of this strategy are essential because HIV testing is one of the initial activities in the PMTCT of HIV services. According to the WHO (2017:2), the testing for HIV during pregnancy allows health professionals to separate HIV-positive pregnant mothers from others to provide the needed critical care and support to help prevent the transmission of the infection to their infants. In other words, HIV testing precedes all other activities in the PMTCT of HIV services. However, Mandala, Kasonde, Badru, Dirks and Torpey (2019:2) posited that the success and sustenance of PMTCT of

HIV services are largely dependent on the capacity of the health care system to determine the status of pregnant women. According to the WHO (2017:2), educating antenatal attendees about the need to establish their HIV status is imperative to change various misconceptions and beliefs as well as improve their attitudes towards HIV testing. As a result, it is suggested that the Central Regional Health Directorate of Ghana should intensify the health campaign on the importance of HIV testing during pregnancy among antenatal attendees. This is essential to help sustain the gains achieved in the PMTCT of HIV services. It is expected that such massive education and campaign will change some perceptions, beliefs and misconceptions within the local communities about HIV testing and management among pregnant women. Part of the campaign should focus on the available care and treatment support for both parents and infants. It is expected that the implementation of this strategy will enable the health professionals to identify HIV-positive pregnant women at the early stages of conception to provide the needed care and support for the PMTCT of HIV services.

As part of the implementation of this strategy, the campaign should not remain at the District Hospitals as it is being used for the PMTCT of HIV services, rather decentralised to community-based health facilities. This will help deepen the awareness campaign. At this point, the health professionals could get the opportunity to address local misconceptions and beliefs about the infection and encourage more antenatal attendees to participate in the PMTCT of HIV services.

#### ***7.3.2.1.2 Promoting free testing of HIV among antenatal attendees***

The study found that the majority of the antenatal attendees admitted that free testing could encourage them to test for HIV. This suggests that the promotion of free testing of HIV among pregnant women could help promote the attitudes and beliefs of the antenatal attendees in the Central Region of Ghana. According to Ngigi and Busolo (2018:88), measures to promote behavioural change to respond to public health issue should ensure cost reduction or elimination. Furthermore, the authors added that cost elimination in public health promotion encourages the adoption of measures to cause behavioural change as well as empowering health officials to enforce public health directives. Thus, the cost can cause people to develop poor attitudes towards public health issue. People

can use excuses related to cost and non-affordability to avoid HIV testing during pregnancy (Ejigu & Tadesse 2018:8). The study found that even though the Ghana Health Service was promoting free testing of HIV among antenatal attendees, some antenatal attendees were asked to pay for the HIV test. Also, due to the shortage of HIV testing kits in some government District Hospitals, some of the antenatal attendees resorted to private laboratories and private hospitals for HIV testing at a fee. The implication is that free testing or reduced cost for testing for HIV is a major factor in the quest for promoting early detection of HIV for effective care and support to avoid health complications. This aligns with the assertion by Ngigi and Busolo (2018:88), that measures to promote behavioural change to respond to public health issue should ensure cost reduction or elimination.

### **7.3.2.1.3      *Encourage male participation in PMTCT of HIV services***

From the study, the antenatal attendees were concerned about the acceptance of HIV results. Thus, the study found that the antenatal attendees admitted that husbands' acceptance of their HIV test results was a factor that influenced their attitudes towards PMTCT of HIV services. The implication is that strategies to promote the encouragement of partners to participate in PMTCT of HIV services and the need for HIV testing as part of the process is necessary to improve the attitudes of antenatal attendees towards PMTCT of HIV services. Although it is stated clearly in the Providers (2014:5) that partners of women assessing the PMTCT of HIV interventions should be involved in the PMTCT of HIV services, the situation in the Central Region is different. It is therefore imperative that health professionals institute campaigns to educate the males about the importance of their participation in antenatal clinics and PMTCT of HIV services. In other words, the current situation where antenatal clinics and PMTCT of HIV services are attended by only pregnant women should gradually be changed to encourage more male participation. Such participation will help to improve the attitudes of pregnant women in PMTCT of HIV services since all associated decisions will be made with the support of their partners (MOH /GHS 2014:5). With the participation of males in the antenatal clinics, they are more likely to accept HIV test results from their partners to promote PMTCT of HIV services. Further, the participation of partners or husbands in the PMTCT of HIV



services for antenatal attendees could help encourage them to be involved in the PMTCT of HIV activities. This is in consonance with the assertion of Ejigu and Tadesse (2018:9) that male participation in antenatal clinics and PMTCT of HIV services helps to encourage adherence to health and safety protocols to protect pregnancies and prevent further transmissions among household members. Adera, Wudu, Yimam, Kidane, Woreta and Molla (2015:222) also indicated that participation of male partners in PMTCT of HIV services enables midwives and health professionals to provide counselling services to couples and educate them about available treatments and support systems, which give them the confidence to avail themselves for all PMTCT of HIV activities.

#### **7.3.2.1.4 Promoting confidentiality of status during HIV testing**

From the study, it was found that the antenatal attendees were very much particular about the confidentiality of status during HIV testing. This suggests that efforts to improve the attitudes of antenatal attendees on PMTCT of HIV services should also develop measures to protect the confidentiality of their status to encourage them to participate in the PMTCT of HIV services. According to Salvadori and Hahn (2019:154), the confidentiality of HIV status during testing has been a major issue in the efforts to control the spread of the infection. Health professionals should assure antenatal attendees of the confidentiality of their test results prior to HIV testing to help encourage them to test for the infection. Further, discussions and counselling on test results should be conducted in an office space that promotes privacy. These are important to avoid the situation where a third party gets information about the HIV status of an antenatal attendee. Salvadori and Hahn (2019:154) reported that confidentiality of the HIV status of antenatal attendees is imperative in addressing issues regarding stigmatisation.

#### **7.3.2.1.5 Organise health campaigns on the availability of treatment for HIV-positive pregnant mothers**

From the study, the antenatal attendees indicated that awareness of a possible treatment for HIV-positive pregnant mothers could encourage them to participate in the PMTCT of HIV services. According to Sakyi, Lartey and Kennedy (2020:9), the perception that HIV

has no cure puts some fear into people and makes them reluctant to test for the infection to ascertain their status. Knowledge about the available health support and treatment will help allay some of the fears and encourage pregnant women to willingly attend the PMTCT of HIV services. It is therefore imperative that the Ghana Health Service in the Central Region organise health campaigns about the available care and treatment support they provide for pregnant women who test positive for HIV. This will help to allay the fears of the antenatal attendees that there is no cure or support for persons living with HIV. This campaign will encourage more antenatal attendees to freely participate in the PMTCT of HIV services to ensure that their infants and themselves are properly attended to in the situation when they test positive for the infection. In other words, the lack of knowledge about the available care and support for pregnant women puts fear into the antenatal attendees to freely participate in the PMTCT of HIV services, which enables them to know their HIV status (Merga, Woldemichael & Dube 2016:1).

**Table 7.1: Strategies for issues on attitudes and beliefs**

Strategies	Operationalisation
Organise health campaigns about the importance of HIV testing during pregnancy.	<ul style="list-style-type: none"> <li>• To create awareness about PMTCT of HIV services during pregnancy.</li> <li>• To improve perceptions and understanding of PMTCT of HIV services.</li> </ul>
Promote free testing of HIV among antenatal attendees.	<ul style="list-style-type: none"> <li>• To encourage HIV testing among antenatal attendees.</li> <li>• To ensure that HIV testing in all government District Hospitals in the Central Region of Ghana is free.</li> <li>• To encourage the use of the National Health Insurance scheme for HIV testing among antenatal attendees in private laboratories</li> </ul>

	<p>and private hospitals in the Central Region of Ghana.</p> <ul style="list-style-type: none"> <li>• To reduce the cost of HIV testing among antenatal attendees in private laboratories and private hospitals.</li> </ul>
Encourage male participation in PMTCT of HIV services.	<ul style="list-style-type: none"> <li>• To increase family consent for participating in PMTCT of HIV services.</li> <li>• To increase adherence to PMTCT protocols.</li> </ul>
Promote confidentiality of status during HIV testing.	<ul style="list-style-type: none"> <li>• To reduce stigmatisation against antenatal attendees testing positive for HIV.</li> <li>• To increase the confidence of antenatal attendees in the PMTCT of HIV services.</li> </ul>
Organise health campaigns on the availability of treatment of HIV-positive pregnant mothers.	<ul style="list-style-type: none"> <li>• To increase awareness about HIV treatment and support.</li> <li>• To improve attitudes towards PMTCT of HIV services.</li> </ul>

**7.3.2.2 Strategy for theme 2: Issues on subjective norms**

The second theme under Figure 7.2 was subjective norms. The theory of planned behaviour ( Figure 1.2 ) explain subjective norms as an individual's perception of social normative pressures, or relevant others' beliefs that he or she should or should not perform such behaviour (Ajzen 2014:443). The strategy under this theme is that the Ghana Health Service in the Central Region should embark on a health campaign in the region about the need for pregnant women to undergo PMTCT of HIV services to ensure

maximum protection for both their infants and themselves. Such a campaign will help change community and socio-cultural norms and perceptions about infection and pregnancy. This will enable more women to use the formal healthcare system for antenatal services and be prepared to participate in the PMTCT of HIV services. This is important since communal norms and practices have a critical influence on individual attitudes towards PMTCT of HIV services and issues surrounding HIV. Such a campaign could also be used to educate people against stigmatisation towards people living with HIV. This will help to reduce the prejudice and fears surrounding going for HIV test among antenatal attendees as they participate in the PMTCT of HIV services. According to Ojikutu, Pathak, Srithanaviboonchai, Limbada, Friedman, Li, Mimiaga, Majer, Safren and HIV Prevention Trials Network 063 Team (2016:2), communal norms and appreciation of PMTCT of HIV services have a significant influence on stigmatisation against families with HIV infected persons. The authors further suggested that communal sensitisation on PMTCT of HIV services is essential in reducing social stigma against families with HIV infected persons.

**Table 7.2: Strategy for issues on subjective norms**

Strategy	Operationalisation
Organise health campaigns about the importance of PMTCT of HIV services for antenatal attendees.	<ul style="list-style-type: none"> <li>• To increase awareness on PMTCT of HIV services for antenatal attendees.</li> <li>• To increase participation of antenatal attendees on PMTCT of HIV services.</li> </ul>

### **7.3.2.3 Strategy for theme 3: Issues on personal factors**

Under this section, the study suggests that antenatal services should be segregated across age cohorts and the experience of pregnant women to effectively improve their prior related behaviour. Thus, health facilities should separate teenage pregnant mothers from adults and provide them with basic pregnancy lessons and PMTCT of HIV services

that are related to their age group. This will enable the health professionals to provide antenatal services and PMTCT of HIV services that are more direct in response to the issues of various age cohorts. This strategy could be used to educate teenage mothers on the mode of conducting themselves and handling their babies to prevent MTCT of HIV. This is in line with Pender's model which notes that each person has unique personal characteristics and experiences that affect subsequent actions. Under the individual characteristics and experiences, Pender argued that prior related behaviour and personal factors influence one's behaviour (Travis 2020:7). As a result, efforts to promote healthy behavioural changes among a particular group of people should focus on strategies to alter prior related behaviours in relation to their personal factors. According to Nsemo and Neji (2020:172), some teenage pregnant mothers feel reluctant to attend antenatal care services because of stigmatisation from elderly antenatal attendees. As a result, segregating the teenage pregnant mothers from the adults could encourage more teenage pregnant mothers in the Central Region of Ghana to attend antenatal services. It is expected that the teenage pregnant mothers will feel free to ask questions to enhance their understanding as well as get answers to help change some of their prior related behaviours.

In terms of experience, the strategy is to organise the antenatal attendees into first-time pregnancies and those who had gone through pregnancy session before. This was imperative because first-time pregnant women may not understand the importance of PMTCT of HIV services in the antenatal services as compared to multiple timers who had gone through the process before. According to Vieira et al (2021:9), antenatal attendees with previous experiences on PMTCT of HIV services are more aware of what is expected of them at each stage in the process and easily comply with laid down protocols as against first time pregnant mothers and less experienced teenage pregnant mothers.

**Table 7.3: Strategy for issues on personal factors**

Strategy	Operationalisation
Segregate antenatal services across age and experience of pregnant mothers.	<ul style="list-style-type: none"> <li>• To help contextualise PMTCT of HIV services to particular groups of pregnant mothers for easy understanding.</li> <li>• To help encourage participation among various groups of pregnant mothers.</li> </ul>

**7.3.2.4 Strategy for theme 4: Issues on prior related behaviour**

Pender’s model (Figure 1.1) explained prior related behaviour in terms of waiting time, follow-up visits and information sharing in health-promoting behaviour. From the study, the antenatal attendees complained of stress in referring them to other health facilities for PMTCT of HIV services. Based on this result, the strategy will be to task community health nurses to provide some of the PMTCT of HIV services at the community level. Ghana has community health nurses mostly attached to particular health facilities who provide varied healthcare services to communities without access to health facilities. They mostly provide basic health care services such as antenatal services, immunisation, and community health education. Building the capacities of such nurses to provide some of the PMTCT of HIV services at the community level could help to reduce the time and stress antenatal attendees have to go through at the health facilities. This is in agreement with the assertion of Ngigi and Busolo (2018:89) that easing stress associated with accessing PMTCT of HIV services helps to encourage antenatal attendees to avail themselves regularly for the service. It will also help to reduce the number of times antenatal attendees would have to travel to health facilities in other communities. This will eventually help to improve the participation of antenatal attendees in PMTCT of HIV services. Thus, the community health nurses could also provide monitoring services on communal and individual health practices and offer technical advice to change some misconceptions about pregnancy and PMTCT of HIV services.

**Table 7.4: Strategy for issues on prior related behaviour**

Strategy	Operationalisation
Task community health nurses to provide some of the PMTCT of HIV services at the community level.	<ul style="list-style-type: none"> <li>• To reduce the stress antenatal attendees, go through in accessing PMTCT of HIV services.</li> <li>• To educate community members on PMTCT of HIV services to reduce stigmatisation.</li> <li>• To monitor progress in adherence to PMTCT of HIV services at the community level.</li> </ul>

**7.3.2.5 Strategy for theme 5: Issues on perceived barriers to actions**

Perceived barriers to actions under Pender’s model encompass views and misconceptions that could impede the adoption of health-promoting behaviour. From the study, a quite significant proportion of the antenatal attendees had misconceptions about HIV. This suggested that such antenatal attendees had either not accepted or understood the PMTCT of HIV services and are likely to expose their infants to the HIV infection. The strategy under this section of the model is to embark on health campaigns to improve the knowledge and attitudes of antenatal attendees on PMTCT of HIV services. According to Sano, Antabe, Atuoye, Hussey, Bayne, Galaa, Mkandawire and Luginaah (2016:1), health campaigns are necessary to diffuse some of the social misconceptions about HIV prevention, treatment and PMTCT of HIV services. Community health nurses could be used to carry out such campaigns at the community level to correct communal misconceptions, views and wrong practices associated with the PMTCT of HIV services.

**Table 7.5: Strategy for issues on perceived barriers to actions**

Strategy	Operationalisation
Organise health campaigns to improve the knowledge and attitudes of antenatal attendees on PMTCT of HIV services.	<ul style="list-style-type: none"><li>• To correct communal misconceptions and wrong practices associated with PMTCT of HIV services.</li></ul>

**7.3.2.6 Strategy for theme 6: Issues on perceived behavioural control**

Under Figure 7.2, perceived behavioural control largely encompasses the perceptions on the availability and accessibility of health facilities to antenatal attendees. It is expected that efforts to decentralise PMTCT of HIV services to community-based healthcare systems could help change some of the negative perceptions associated with their availability and accessibility of health facilities. Thus, decentralising PMTCT of HIV services to the community-based healthcare system, as a strategy, could reduce the stress antenatal attendees go through in accessing parts of the services from District health facilities. Further, decentralising PMTCT of HIV services to the community-based healthcare systems could enable health professionals to intensify education about available treatments for HIV, measures to avoid getting HIV infection and effectively monitor HIV-positive pregnant mothers to avoid onward transmission to their infants. This could help give some level of control for both health professionals and antenatal attendees on protecting and preventing HIV infections. Ngigi and Busolo (2018:89) posited that stress in accessing PMTCT of HIV services discourages antenatal attendees from effectively participating in the service, which eventually affects their confidence, commitment, attitudes and beliefs in the entire antenatal service system. As part of the decentralisation of PMTCT of HIV services to sub-district levels, community health workers and public health workers should be empowered to educate pregnant women at the local level to help improve their perceptions about PMTCT of HIV services and community prejudices and misconceptions about HIV infection. According to Mandala et al (2019:4), the capacity of the health professional is central to the effective provision of PMTCT of HIV services and as such, they should be empowered and well-resourced to perform their role.



**Table 7.6: Strategy for issues on perceived behavioural control**

Strategies	Operationalisation
Decentralise PMTCT of HIV services to community-based healthcare systems.	<ul style="list-style-type: none"><li>• To reduce the stress associated with accessing PMTCT of HIV services.</li><li>• To make PMTCT of HIV services easily accessible to antenatal attendees.</li><li>• To help intensify education on PMTCT of HIV services.</li></ul>

The following 10 interim strategies were developed from the operationalisation of the themes. The strategies were given to experts for review and validation before they were finalised.

Strategy 1: Organise health campaigns about the importance of HIV testing during pregnancy.

Strategy 2: Promote free testing of HIV among antenatal attendees.

Strategy 3: Encourage male participation in PMTCT of HIV services.

Strategy 4: Promote confidentiality of status during HIV testing.

Strategy 5: Organise health campaigns on the availability of treatment of HIV-positive pregnant mothers.

Strategy 6: Organise health campaigns about the importance of PMTCT of HIV services for antenatal attendees.

Strategy 7: Segregate antenatal services across age and experience of pregnant women.

Strategy 8: Task community health nurses to provide some of the PMTCT of HIV services at the community level.

Strategy 9: Organise health campaigns to improve the knowledge and attitudes of antenatal attendees on PMTCT of HIV services.

Strategy 10: Decentralise PMTCT of HIV services to community-based healthcare systems.

#### 7.4 Validation of Strategies

Developed interim strategies in relation to the operationalisation of the various themes in Pender's model and the theory of planned behaviour were submitted to health experts for validation. This was important to ascertain the feasibility, practicality, acceptability and importance of the various strategies in addressing the identified results from the study. Table 7.7 presents the biographic information about the experts who reviewed and validated the strategies.

**Table 7.7: Biographic information of experts**

No.	Qualification	Occupation	Work experience
1	MSc in Nursing	Principal Nursing Officer	14 years
2	MPH	Municipal HIV/AIDS Coordinator	33 years
3	MPH	Senior Public Health Officer	15 years
4	PhD. in Health promotion	Senior Lecturer	30 years
5	Medical Doctor	HIV/AIDS Consultant	20 years
6	PhD. in Nursing	Senior Lecturer	26 years

A total of six health experts were selected from various sections of the health sector for review and validation of the strategies. Thus, whereas two of the experts were selected from the academia (nursing), the remaining were direct medical practitioners from health facility, public health and physician under the Ghana Health Services in the Central Region. The HIV/AIDS coordinator was responsible for policymaking in PMTCT of HIV services, lecturers supported the PMTCT of HIV services with research and training of upcoming health professionals on the provision of PMTCT of HIV services, while the public health officer, principal nursing officer and medical doctor were in charge of the direct provision and supervision of PMTCT of HIV services to antenatal attendees. Table 7.8 presents the criteria for validating the strategies.

**Table 7.8: Criteria for validating strategies**

<b>Criteria</b>	<b>Strongly disagree (1)</b>	<b>Disagree (2)</b>	<b>Agree (3)</b>	<b>Strongly agree (4)</b>
<b>Clarity</b> of the strategy				
<b>Reliability</b> of the strategy in promoting improved health behaviour across different facilities and settings				
<b>Effectiveness</b> of the strategy in promoting improved health behaviour				
<b>Feasibility</b> in implementing the strategy				
<b>Practicability</b> of strategy in promoting improved health behaviour				
<b>Validity:</b> strategy based on evidence				
<b>Relevance</b> of the strategy in promoting improved health behaviour				
<b>Applicability:</b> strategy targets are clearly defined				
<b>Acceptability</b> of the strategies among stakeholders				

After identifying the experts, they were called on phones to secure their consent of participation by the researcher. The aim was to ensure their free will to participate in the study. After securing their initial consent to participate in the study, the strategies were sent to them along with a synopsis, ethical clearance form, and consent form by the researcher. Clear directions on how to evaluate the strategies were also attached to the

questionnaires. They were asked to score the various strategies using the Likert scale. Considering the fact that there were nine criteria and four points on the Likert scale, it implies that the highest score for a strategy will be 36 while the lowest will be 9. The experts were requested to provide some narratives on their scores if the need be. The experts provided feedback on their evaluation to the researcher. The feedback from the experts is compiled in Table 7.9.

**Table 7.9 Average scores of experts/evaluators on the strategies**

Strategies	Experts/Evaluators						Average score
	E1	E2	E3	E4	E5	E6	
Strategy 1	36	36	35	35	34	36	35
Strategy 2	31	30	29	27	30	25	29
Strategy 3	36	34	33	32	36	34	34
Strategy 4	21	23	22	25	20	22	22
Strategy 5	32	35	34	34	32	33	33
Strategy 6	28	30	35	32	30	34	32
Strategy 7	14	19	21	18	18	19	18
Strategy 8	30	29	31	27	33	28	30
Strategy 9	28	30	32	34	30	28	30
Strategy 10	35	36	34	33	31	32	34

#### **7.4.1 Experts/Evaluators comments on scores**

This section presents a summary of the comments from the evaluators on the strategies. Thus, the section explains the reasons behind their scores for the various strategies.

##### **Strategy 1**

Strategy 1 was given the highest score among the various strategies. This was because the evaluators indicated that a health campaign was important to increase awareness about PMTCT of HIV services and also help change some of the misconceptions about PMTCT of HIV services. They further added that various communal perceptions act as

barriers to the effective delivery of PMTCT of HIV services, which require effective public health campaigns to improve the attitudes and beliefs of the people to commit themselves to the programme.

### **Strategy 2**

Some of the experts admitted that free testing of HIV among antenatal attendees was important to encourage them to participate in the PMTCT of HIV services especially for the teenage pregnant mothers and those who are unemployed. However, others were of the view that until some of the misconceptions about the programme are diffused through education and public health campaigns, some pregnant women will not participate in the PMTCT of HIV services.

### **Strategy 3**

Strategy 3 was scored generally high because the experts indicated that male participation in PMTCT of HIV services was important to encourage pregnant women to participate in the programme as well as encourage them to comply with the health and safety protocols.

### **Strategy 4**

Strategy 4 was scored somehow low. Some of the reasons were that confidentiality alone was not adequate to promote PMTCT in HIV services and that more education is required for people to accept and understand the processes.

### **Strategy 5**

This strategy was scored high because the experts believed that the availability of treatment is key to prevent HIV transmission and will encourage pregnant women to participate in the PMTCT of HIV services.

### **Strategy 6**

Strategy 6 was scored generally high because the experts indicated that knowing the benefits associated with PMTCT of HIV services and the support available will increase the participation of pregnant women.

### **Strategy 7**

Strategy 7 was scored the lowest. This was because the experts believed the strategy was not practicable, feasible, relevant and acceptable.

### **Strategy 8**

Strategy 8 was given a high score because the experts reported that it is feasible, and easy to implement since the existing structures support its implementation.

### **Strategy 9**

Strategy 9 was also scored high because the experts were of the view that until some of the misconceptions about the programme are diffused through education and public health campaigns, some pregnant women will not participate in the PMTCT of HIV services.

### **Strategy 10**

Strategy 10 was among the highest scored strategies. This was because most of the experts perceived it to be feasible and practicable in addressing the stress in accessing PMTCT of HIV services among antenatal attendees, easy to be implemented, and high acceptability among stakeholders in its implementation.

## **7.5 Discussion of the strategies**

It is perceived that the adoption of the various strategies to align the various elements in the health promotion model and the theory of planned behaviour such as attitudes and beliefs, subjective norms, perceived behavioural control, prior related behaviour, personal factors, and perceived barriers to actions in line with the tenets of the PMTCT of HIV services could change the views, misconceptions and prior related behaviour surrounding

HIV and pregnancy. This will encourage the antenatal attendees to adopt the health-promoting behaviour to enable them to utilise PMTCT of HIV services during pregnancies. Thus, Mariwah et al (2017:7) posited that improving knowledge, perception and attitude on HIV prevention, transmission and treatment helps to diffuse some of the misconceptions surrounding PMTCT services and encourage antenatal attendees to participate in the PMTCT of HIV services.

According to Ng & Caires (2016:424), the set of variables for behaviour specific knowledge and its effect have important motivational significance. Thus, health-promoting behaviour is the desired behavioural outcome, which makes it the endpoint in the health promotion model and the theory of planned behaviour, and as a result, the behaviours should result in improved health, enhanced functional ability and better quality of life at all stages of development (Ng & Caires 2016:421). The final behavioural demand is also influenced by the immediate competing demand and preferences, which can derail intended actions for promoting health. The outcome of a health-promoting model and the theory of planned behaviour is to achieve the intended aim of the efforts exerted in the health promotion. In this instance, the aim was to promote the awareness of PMTCT of HIV among antenatal attendees. It is therefore expected that the successful implementation of the recommended strategies at the various stages in the health promoting model and the theory of planned behaviour could help promote the awareness of PMTCT of HIV among antenatal attendees in the Central Region of Ghana. Thus, Mariwah et al (2017:6) stipulated those deliberate efforts are required from policy makers and state institutions to cause significant changes in the attitudes and behaviours of people to promote PMTCT of HIV in the healthcare delivery system.

## **7.6 SUMMARY**

In this chapter, strategies for promoting awareness of PMTCT of HIV services among antenatal attendees were developed and evaluated. This chapter provided in detail the implementation of the third objective (step 3). Interim strategies were developed and sent to experts in the field for review and validation. In general, 10 strategies were developed based on the results of the initial phase and the second phase which brought out clearly the gaps in the existing strategies. Quantitative approach was used to evaluate the

developed strategies. The next chapter will present summaries, interpretation of results, recommendations, and conclusions of the entire study.



## CHAPTER 8

### SUMMARIES, INTERPRETATION OF RESULTS AND CONCLUSIONS

#### 8.1 INTRODUCTION

This chapter presents a summary of the major results of the study, limitations and the overall conclusions of the study. It also presents recommendations to help promote the awareness of PMTCT of HIV among antenatal attendees in the Central Region of Ghana.

#### 8.2 Summary and interpretation of the research results

This section presents a summary of the interpretation of results of the study. The section is organised under perceptions of midwives to promote antenatal attendees' awareness of PMTCT of HIV services, perceptions of antenatal attendees on PMTCT of HIV services, and strategies to promote awareness of PMTCT of HIV services among antenatal attendees.

The study sought to develop strategies to promote awareness of PMTCT of HIV services among antenatal attendees in the Central Region of Ghana. A descriptive cross-sectional research design was employed for this study which explored and described antenatal attendees and midwives' perceptions of PMTCT of HIV services and developed strategies used by the midwives to promote antenatal attendees' awareness of PMTCT of HIV services. The study also adopted a quantitative research approach, which allowed for the use of numerical values and statistics to be used to analyse the data. Questionnaires were used as tools for gathering data for the study. Two separate questionnaires were developed for the study; one for midwives and the other for antenatal attendees. A total of 496 respondents were sampled for the study, comprising 48 midwives and 448 antenatal attendees. The data were processed with Statistical Package for the Social Sciences (SPSS) version 21. Descriptive statistics such as frequencies, percentages, means and standard deviations were used to analyse the data. Further inferential statistics such as correlation, ANOVA and regression were used to analyse the data. An error margin of 0.05 was used for all inferential analysis.

### **8.2.1 Perceptions of midwives on PMTCT of HIV services**

- The study found that the midwives generally had a high level of knowledge and awareness as well as positive attitudes on PMTCT of HIV services. This was partly due to the high level of experience among the midwives as they had multiple years of working experience in midwifery. This has enabled them to go through full cycles of the PMTCT of HIV services. According to Meilani et al (2019:90), the experiences of health professionals help to shape their attitudes on PMTCT of HIV services. In other words, continuous practising of PMTCT of HIV services enabled the midwives to gain much experience and knowledge in providing the necessary care and support to HIV-positive pregnant women.
- Some of the strategies adopted by the midwives were administration of ARV prophylaxis to both mothers and infants, initiating ART regardless of CD4 cell counts, regular administration of vitamin A supplement for children, and ensuring compliance to treatment for HIV positive mothers. Thus, the WHO (2019:1) indicated that efforts to prevent MTCT of HIV among antenatal mothers should involve the administration of ART for the mothers and vitamin A supplements for infants to help boost their immune system against possible infections.
- The midwives were of the view that some of the mothers lack knowledge of HIV and PMTCT of HIV services, few infrastructures for PMTCT of HIV services, pregnant teens lacked self-care knowledge, and some hospitals running short of HIV testing kits. These could pose serious challenges to the effective administration of PMTCT of HIV services as stipulated by Kei, Ndwiga, Okong'o and Njoroge (2014:45) that poor knowledge among antenatal mothers on PMTCT of HIV services poses a serious threat to the success of the entire program as they could easily and unknowingly expose themselves and infants to high risk of exposure to contracting the infection.

### **8.2.2 Perceptions of antenatal attendees on PMTCT of HIV services**

- The majority (61.6%) of the antenatal attendees denied knowledge about using family planning to space out their births. This low level of awareness on the use of family planning could pose a serious risk to both the antenatal attendees and their infants as they may not adopt family planning practices to ensure maximum recovery from

previous pregnancies as well as provide the requisite care and support to their infants before undergoing other periods of pregnancies. According to Nkwabong et al (2018:8), education on family planning helps to empower women and couples to take control over their birth spacing to ensure full health and physiological recovery as well as proper care and support for infants.

- About three-quarters (75.5%) of the antenatal attendees agreed that confidentiality of their status is a factor that influences them to test for HIV (see Table 6.6). This implies that efforts to promote HIV testing among pregnant women to satisfy the government's policy of early detection of HIV among pregnant women to prevent MTCT should place critical emphasis on upholding the tenet of confidentiality in the testing process. This was largely due to the high stigma associated with the disease in society. Thus, Obiri-Yeboah et al (2015:4) posited that most persons living with HIV are reluctant to disclose their status due to the high stigma associated with the disease in many societies.
- The majority (73.9%) of the antenatal attendees agreed that free testing could encourage them to test for HIV. This shows that the financial implications for the testing of HIV on antenatal attendees are a major concern to determine their willingness and readiness to go for testing or not. Thus, Ngigi and Busolo (2018:88) indicated that cost elimination in public health promotion encourages the adoption of measures to cause behavioural change as well as empowering health officials to enforce public health directives.
- The majority (56.9%) of the antenatal attendees agreed with the view that it was stressful referring HIV mothers to other health facilities for PMTCT of HIV services. The results showed that the antenatal attendees did not find it comfortable attending to PMTCT of HIV services in other health facilities. This might be due to the extra time they had to spend at the hospital to receive such services, which could also discourage them from participating in PMTCT of HIV services. According to Besada, Rohde, Goga, Raphaely et al (2016:2), easy access to PMTCT of HIV services helps to encourage participation among HIV-positive pregnant mothers.

### **8.2.3 Strategies to promote awareness of PMTCT of HIV services among antenatal attendees**

- Educate antenatal attendees on the importance of HIV testing during pregnancy. This is critical to encourage more pregnant women to subscribe to the PMTCT of HIV services. According to the WHO (2017:2), the testing for HIV during pregnancy allows health professionals to separate HIV-positive pregnant mothers from others to provide the needed critical care and support to help prevent the transmission of the infection to their infants. In other words, HIV testing precedes all practical PMTCT of HIV services.
- Promote free testing of HIV among antenatal attendees to improve their attitudes and subscription to PMTCT of HIV services. This aligns with the assertion of Ngigi and Busolo (2018:88) that measures to promote behavioural change to respond to public health issue should ensure cost reduction or elimination.
- Institute campaigns to educate the males about the importance of their participation in antenatal and PMTCT of HIV services with their pregnant women. Ejigu and Tadesse (2018:9) reported that male participation in antenatal and PMTCT of HIV services helps to encourage adherence to health and safety protocols to protect pregnancies and prevent further transmissions among household members.
- Decentralize PMTCT of HIV services to the community-based health facilities to increase participation and reduce pressure at the district hospitals. Ngigi and Busolo (2018:89) posited that stress in accessing PMTCT of HIV services discourages antenatal attendees from effectively participating in the service, which eventually affects their confidence, commitment, attitudes and beliefs in the entire antenatal service system.
- Institute PMTCT of HIV service for pregnant teens to address the direct needs of the pregnant teens. According to Nsemo and Neji (2020:172), pregnant teens are mostly inexperienced and require that special care and attention be created for them during PMTCT of HIV services to address their peculiar needs.

### **8.3 Recommendations**

Based on the major results of the study the following recommendations were made to promote improved health behaviour among antenatal attendees in the Central Region of Ghana. The recommendations were organised under practices, further research, and policy development.

#### **8.3.1 Recommendations for practices**

- The study recommends that the Ghana Health Service should embark on free testing of HIV among antenatal attendees in the Central Region. This will encourage more antenatal attendees to subscribe to the policy to ensure its success.
- It is recommended that the Ghana Health Service should decentralise its PMTCT of HIV services operations to community-based health facilities. This will enable sub-district health facilities to test for HIV and provide other critical counselling services for antenatal attendees. This will help to reduce the stress antenatal attendees go through to access PMTCT of HIV services as well as contribute to improving their level of awareness of PMTCT of HIV services.
- The study recommends that Ghana Health Service should launch a massive campaign on PMTCT of HIV services to raise public awareness. This could be through media programs to educate the public about the tenets of PMTCT of HIV services. Part of such campaign could be on the need for male partners to participate in PMTCT of HIV services with their pregnant women, available treatment and support systems for HIV-positive pregnant women, and alternative breastfeeding formula for infants with HIV-positive pregnant mothers, among others. This will help to instil confidence among the populace, raise awareness about PMTCT of HIV services, encourage people to subscribe to the service.
- The study suggests that the Ghana Health Service should manage its stocks of HIV testing kits well to avoid shortages in the health facilities. This is even more important as the study is recommending the utilisation of more health facilities in the provision of PMTCT of HIV services. Regular supplies or avoiding such shortages will help to ensure that all antenatal attendees undergo testing to begin the PMTCT of HIV

services. This is essential to help protect pregnant mothers, infants and midwives from accidental infections or transmission.

- The study recommends that the Ghana Health Service intensify the provision of free infants' formula to HIV positive mothers to supplement their infant feeding.
- The study recommends that the midwives should scale up education on the alternative local feeding formula to enable HIV-positive lactating mothers to avoid breastfeeding their infants. The provision of alternative local feeding formula could help to reduce the cost and ease accessibility to feeding such infants to reduce their risk of getting infections from their mothers.
- The study suggests that midwives should intensify the campaign on free provision of infant formula to children born to HIV positive mothers to encourage newly diagnosed HIV positive mothers to participate in the PMTCT of HIV services.

### **8.3.2 Recommendation for policy development**

- The study served as an avenue for evaluating the implementation of the government policy on PMTCT of HIV services. As a result, the results of the study highlighted areas of a high level of awareness and where improvements had to be made. It is envisaged that incorporating the strategies and recommendations of the study into the implementation of the policy on PMTCT of HIV services in the Ghana Health Service would help to improve its effectiveness in controlling the spread of HIV in Ghana.

### **8.3.3 Recommendation for further studies**

- The study suggests that further studies should be conducted among the male partners of antenatal attendees about their level of awareness on PMTCT of HIV services. This is important because the antenatal attendees consult their partners on most of the critical decisions regarding PMTCT of HIV services. As a result, the perceptions and level of awareness of the male partners on PMTCT of HIV services are very imperative in supporting their pregnant partners to subscribe to the services. Findings from such a study could help inform the Ghana Health Service about areas of education and media campaigns that could be organised to improve the level of awareness of

husbands and partners in PMTCT of HIV services to help encourage more antenatal attendees to participate in the exercise.

#### **8.4 Limitations of the Study**

- One of the limitations of the study was engaging the antenatal attendees at the health facilities right after antenatal services. In this setting, one is more likely to be influenced by her experience for the day, which might not be a true reflection of the entire PMTCT of HIV services. It is envisaged that interviewing respondents in their homes in a relaxed mood could have enabled them to give a fair assessment of the PMTCT of HIV services based on their comprehensive view of their engagement on the program. However, the antenatal attendees were scattered into several communities under the district health facilities, which would have been very difficult to reach them and engage them for the study. As a result, the researcher took advantage of their convergence at the district health facility to engage them for the study. To help reduce the effect of the limitation on the study, the antenatal attendees were asked to relax and counselled to give a fair assessment of their participation in the PMTCT of HIV services in the district.
- Another limitation of the study was the cross-sectional nature of the study. Thus, cross-sectional study design takes a snapshot of data for action without engaging the respondents to track changes in the assessment of a phenomenon (Setia 2016:263). The respondents were engaged at a single point in time in their assessment of the PMTCT of HIV services in the Central Region of Ghana. However, using cross-sectional design in the assessment of such programs could not guarantee fairness as respondents are more likely to be influenced by their recent interactions with the program. It is expected that the use of a longitudinal study could have provided a fair platform for the implementers of the program, which would have helped to gather more data to give a clearer assessment of the PMTCT of HIV services. However, time and financial constraints could not permit the researcher to do so. The researcher managed this limitation by asking questions that enabled the respondents to reflect on their past experiences in the program to conclude.

- Another limitation of the study was the COVID-19 pandemic which came into Ghana at the time of data collection. This caused a delay in the data collection process since most of the district hospitals were not allowing entry into their facilities. It also affected the time spent with each respondent since the more time spent with someone or outside the home increases the risk of getting infected. As a result, in-depth communication with the respondents was affected but the researcher managed to adhere to the COVID-19 protocols and put on the required personal protective equipment to go through the data collection process successfully.

## **8.5 CONCLUSIONS**

PMTCT of HIV services has become integral in antenatal services to ensure the effective control and generational transmission of HIV. One of the critical issues for promoting PMTCT of HIV services among antenatal attendees is to promote awareness. This study aimed to develop strategies to promote the awareness of PMTCT of HIV among antenatal attendees in the Central Region of Ghana. It aimed at exploring and describing the perceptions of midwives and antenatal attendees on PMTCT services.

The study found that the midwives generally had positive perceptions of PMTCT of HIV services. This was because they had a high level of knowledge and awareness on PMTCT of HIV services, which was largely due to their multiple years of providing the services to antenatal attendees. The implication is that the level of experience of midwives was imperative in improving their perceptions on PMTCT of HIV services. The midwives also generally had positive attitudes towards the provision of PMTCT of HIV services to antenatal attendees. Thus, the midwives were generally committed to ensuring that the various protocols on PMTCT of HIV services were provided for and adhered to by the antenatal attendees. As part of the efforts for promoting the awareness of PMTCT of HIV services by the midwives were providing pre and post-test counselling to antenatal attendees, providing a user-friendly environment for pregnant women, and promoting the participation of male partners of antenatal attendees in PMTCT of HIV services.

The antenatal attendees generally had poor perceptions about the PMTCT services. Thus, they had the perceptions of receiving poor care from ANC nurses, feared



experiencing stigma when tested positive, hospitals located far from their homes, discomfort with the use of condoms to prevent further transmissions and health complications and spending too much time during ANC sessions. The poor perceptions about the PMTCT of HIV services generally emanated from the recommended changes in their lifestyles to effectively accommodate their situation to uphold the tenets of PMTCT of HIV, while others emanated from discomfort in accessing PMTCT of HIV services. The antenatal attendees were generally aware of the PMTCT of HIV services in terms of the need to screen for HIV during pregnancy, taking HIV/AIDS medications, delivered by skilled birth attendants, and counselling and support on feeding. However, they largely lacked awareness about the need to bring infants for HIV testing and using family planning. Further, the antenatal attendees generally had positive attitudes towards the PMTCT of HIV services. However, the study found that physical and economic accessibility to PMTCT of HIV services recommended actions and practices sometimes discouraged some antenatal attendees from fully practising lessons from PMTCT of HIV services to prevent MTCT.

Some of the strategies developed or recommended to promote the awareness of PMTCT of HIV services among antenatal attendees were to decentralise operations to sub-district health facilities and use community health nurses to prosecute massive health campaigns on HIV and PMTCT of HIV services. It is envisaged that the decentralisation of PMTCT of HIV services to sub-district health facilities will reduce the stress antenatal attendees have to go through to access the service. Further, the community health workers could help educate community members to change communal misconceptions about HIV and PMTCT of HIV services as well as monitor progress in the utilisation of PMTCT of HIV services at the community level.

## **8.5 Summary**

This chapter expanded on the major summary of the major results of the study, limitations and the overall conclusions of the study. It also presented on the recommendations to help promote the awareness of PMTCT of HIV services among antenatal attendees in the Central Region of Ghana. Three main limitations and three major recommendations for the study were outlined in this chapter. The ten new strategies developed from this study

were well outlined and it was observed that, the implementation of these new strategies in addition to the existing ones would promote awareness of antenatal attendee, hence, preventing MTCT of HIV.

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**ANNEXURES**

**ANNEXURE A**

Ethics approval certificate from UNISA



RESEARCH ETHICS COMMITTEE: DEPARTMENT OF HEALTH STUDIES  
REC-012714-039 (NHERC)

5 February 2019

Dear Rita Opoku Danso

HS HDC/896/2019

Student: Rita Opoku Danso

Student No.: 58542124

Supervisor: Dr DSK Habedi

Qualification: D Litt et Phil

Joint Supervisor: -

Decision: Approval

**Name:** Rita Opoku Danso

**Proposal:** Strategies for promoting the prevention of mother to child transmission of human immunodeficiency virus among antenatal attendees in the central region of Ghana

**Qualification:** DPCHS04

**Risk Level:** Low Risk

Thank you for the application for research ethics approval from the Research Ethics Committee: Department of Health Studies, for the above mentioned research. Final approval is granted from 5 February 2019 to 5 February 2024

*The application was reviewed in compliance with the Unisa Policy on Research Ethics by the Research Ethics Committee: Department of Health Studies on. 5 February 2019*

*The proposed research may now commence with the proviso that:*

- 1) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
- 2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Research Ethics Review Committee, Department of Health Studies. An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.*



RECEIVED

2019-02-06

Executive Dean  
College of Human Sciences

University of South Africa  
Pretorius Street, Muckleneuk Ridge, City of Johannesburg  
PO Box 392, UNISA 0003, South Africa  
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150  
www.unisa.ac.za

are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

3) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

4) You are required to submit an annual report by 30 January of each year that the study is active. Reports should be submitted to the administrator [HSREC@unisa.ac.za](mailto:HSREC@unisa.ac.za) Should the reports not be forthcoming the ethical permission might be revoked until such time as the reports are presented.


**Note:**

The reference numbers [top middle and right corner of this communiqué] should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the Research Ethics Committee: Department of Health Studies.

Kind regards,



**Prof JE Maritz**  
**CHAIRPERSON**  
[maritje@unisa.ac.za](mailto:maritje@unisa.ac.za)



**Prof A Phillips**  
**DEAN OF COLLEGE OF HUMAN SCIENCES**



University of South Africa  
Pretorius Street, Muckleneuk Ridge, City of Tshwane  
PO Box 392 UNISA 0003 South Africa  
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150  
[www.unisa.ac.za](http://www.unisa.ac.za)

**ANNEXURE B**

Introductory letter to the Central Regional Health Directorate

Department of Science Education  
Faculty of Science and Technology  
Education  
University of Cape Coast  
Cape Coast  
2<sup>nd</sup> October, 2018

The Director  
Central Regional Health Directorate  
Cape Coast- Ghana

Dear Sir,

#### **INTRODUCTORY LETTER**

I am Rita Opoku-Danso, a lecturer at the University of Cape Coast, Department of Science Education. I am on a PhD. Program at the University of South Africa (UNISA) and conducting research on the topic: **Strategies for promoting the prevention of mother to child transmission of human immunodeficiency virus among antenatal attendees in the Central Region of Ghana.** I will be very glad if I am given a permission letter to aid me in getting an ethical clearance to proceed on the propose study. Counting on your usual cooperation.

Thank you.

Yours faithfully



Rita Opoku-Danso (Mrs.)

**ANNEXURE C**

Gate Keeper's permission letter

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

GHS Core values  
PEOPLE CENTRED  
PROFESSIONALISM  
TEAMWORK  
INNOVATION/EXCELLENCE  
DISCIPLINE  
INTEGRITY



GHANA HEALTH SERVICE  
REGIONAL HEALTH  
DIRECTORATE  
P. O. BOX 63  
CAPE COAST,  
CENTRAL REGION,  
GHANA  
Tel: 042 32281/2  
Fax: 042 34785  
rdhs.central@ghsmai.org

My Ref. No. CR/G-  
Your Ref. No...

203/213

15<sup>th</sup> February, 2019

**MRS. RITA OPOKU-DANSO (PRINCIPAL INVESTIGATOR)**  
**DIRECTORATE OF LEGAL, CONSULAR AND GENERAL SERVICES**  
**OFFICE OF THE REGISTRAR**  
**UNIVERSITY OF CAPE COAST**  
**CAPE COAST**

**RE: CHANGE OF RESEARCH TOPIC**

Reference your letter dated 14<sup>th</sup> February 2019, informing me of the change of the topic of your research from:

**“Barriers towards the Prevention of Mother to Child Transmission of HIV among Antenatal Attendees in the Central Region of Ghana”**

To:

**“Strategies for Promoting the Prevention of Mother to Child Transmission of HIV among Antenatal Attendees in the Central Region.”**

I write to accept the change. However, the conditions of the permission for the former topic still apply; namely:

1. A copy of the proposal of the study in full should be lodged with the Research and Development Unit of the Central Regional Health Directorate;
2. Ethical clearance from the **Ghana Health Service Ethics Review Committee (GHS-ERC)** should be obtained for the study;
3. Data collection should commence **only upon receipt of clearance from the GHS-ERC** and a copy of the clearance certificate lodged with the Research and Development Unit of the Central Regional Health Directorate; and
4. A copy of the final report of the study in full should be lodged with the Research and Development Unit of the Central Regional Health Directorate.

By copy of this letter, Metropolitan/Municipal/District Directors of Health Services and Medical Superintendents are duly informed.

Thank you.

  
DR. ALEXIS NANG-BIEFUBAH  
REGIONAL DIRECTOR OF HEALTH SERVICES  
CENTRAL REGION

**ANNEXURE D**

Ghana Health Service ethics approval

**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

MyRef. GHS/RDD/ERC/Admin/App/20/09  
Your Ref. No.

Tel: +233-0302-960628  
Fax + 233-0302-685424  
Mob + 233-050-3539896  
Email: [ethics.research@ghsmai.org](mailto:ethics.research@ghsmai.org)  
6<sup>th</sup> January, 2020

Rita Opoku-Danso  
University of South Africa (UNISA)  
South Africa

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

GHS-ERC Number	<b>GHS-ERC002/10/19</b>
Project Title	Strategies for Promoting the Prevention of Mother to Child Transmission of Human Immunodeficiency Virus among Antenatal Attendees in the Central Region of Ghana
Approval Date	6 <sup>th</sup> January, 2020
Expiry Date	5 <sup>th</sup> January, 2021
GHS-ERC Decision	<b>Approved</b>

**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



**ANNEXURE E**

Notice of intention to submit thesis

**NOTICE**

**INTENTION TO SUBMIT DISSERTATION / THESIS FOR EXAMINATION**

SURNAME AND INITIALS OF STUDENT Opoku-Danso  
 ROD.....

STUDENT NUMBER 58542124.....

DEGREE PhD (Nursing).....

FINAL TITLE OF THE DISSERTATION / THESIS UNDER WHICH IT WILL BE SUBMITTED  
 (please print and ensure that the correct wording is used)

Strategies for promoting the prevention of mother to child transmission of human  
 immunodeficiency virus among antenatal attendees in the Central Region of  
 Ghana.....

.....  
 .....

I hereby give notice that i intend to submit my dissertation / thesis for examination with a view  
 to the graduation ceremony to be held during (please indicate with **X**)

*(NB: Graduation cannot be guaranteed for the particular graduation period due to external factors  
 influencing approval of the final result (e.g. corrections to be made before the final copies can be  
 submitted, etc), but submission prior to the closing date will enhance the possibility thereof)*

APRIL / MAY 2021___	SEPTEMBER 2021__X__
---------------------	---------------------

I declare that my supervisor has been consulted and supports submission and endorses the  
 final title quoted above



.....  
 SIGNATURE

.....6th May,2021.....  
 DATE



**ANNEXURE F**

Participant information sheet for midwives

**PARTICIPANT INFORMATION SHEET FOR MIDWIVES INVOLVED IN PMTCT SERVICES IN DISTRICT HOSPITALS IN THE CENTRAL REGION OF GHANA**

**Title of Study: Strategies for promoting the Prevention of Mother-to-Child Transmission of Human Immunodeficiency Virus among antenatal attendees in the Central Region of Ghana.**

**Introduction**

I am Rita Opoku-Danso, an Assistant Lecturer at the University of Cape Coast. I am currently pursuing a doctoral study (PhD) in Nursing at University of South Africa (UNISA). As part of this degree, I am conducting this research project to help me write a thesis and I will like to invite you to participate in the study. The purpose of the study is to develop strategies for promotion of antenatal attendees' awareness of prevention of mother-to-child transmission of human immunodeficiency virus services.

**Address:** Department of Science Education, University of Cape Coast

**Local Telephone Number:** 0500037115/0244229669

**Email:** rita.opoku-danso@ucc.edu.gh

**Background and Purpose**

Mother-to-child transmission (MTCT) of human immunodeficiency virus (HIV) remains the major source of HIV infection in children. Targeting pregnant women attending antenatal clinics and midwives involved in prevention of mother-to-child transmission (PMTCT) of HIV services provide a unique opportunity for implementing PMTCT services against HIV infection of new-born babies. Despite the strategies put in place, HIV among children still remains high. Sub-Saharan Africa including Ghana contributes more than 90% of global MTCT burden. This project will ensure a better understanding of the perception of midwives on PMTCT of HIV services and to develop new strategies in addition to the existing ones for the promotion of PMTCT of HIV services. The results may help improve health outcomes for mothers and babies in the future.

I am currently pursuing a doctoral degree (PhD) in nursing at University of South Africa (UNISA) and this research is being undertaken for my degree.

1

This is to Certify that this Study's Inform Consent Form Has Been Approved by GHS-ERC for the Period... 06.01.2020 to 05.01.2020  
Sign: [Signature] Date: 15.01.2020  
Name: Nana Akwasi Agye  
GHC-ERC Administrator

### Nature of the research

The study aims to develop strategies for promotion of prevention of mother-to-child transmission of human immunodeficiency virus services among antenatal attendees in Ghana to inform policy, practice, education and future research. I will explore and describe the knowledge, awareness, attitude, perception and strategies of the antenatal attendees' and midwives' of PMTCT services. Pregnant women attending antenatal clinics and midwives involved in PMTCT services in district hospitals in the Central Region are the focus of this study. A total of 424 participants comprising 384 pregnant women and 40 midwives will be used. As part of the data collection, the study will administer a questionnaire to you after you have agreed to participate and have given informed consent.

### Methods

A descriptive cross-sectional research design will be employed for this study. This will allow the researcher to gather data on PMTCT at a particular point in time when there is an intention of describing the nature of existing conditions. It also involves collecting data in order to answer research questions concerning the subject of the study. Questions will be asked on the sociodemographic, knowledge, awareness, attitude, perception and strategies that can be developed to promote PMTCT services.

**What the participation will involve:** Participation involves answering a structured questionnaire. If you agree to participate, a mutually convenient time will be given for you to feel comfortable and respond to the questions at your own convenience. To explain the purpose of the study, a presentation will be provided for you and your colleagues. You will have the opportunity to ask questions pertaining to the study. You will then be given a copy of this Participant information sheet to keep. If you are willing to participate in the study, you will be asked to sign the consent form to signal your approval to participate. Participation will involve you providing information about your understanding of management practices with respect to MTCT of HIV. The process will last approximately 30 minutes.

**There are seven (6) pages in this Participant information sheet and Consent form. Please ensure that you have all pages.**

This is to Certify that this Study's Inform Consent Form Has Been Approved by GHS-ERC for the Period 06.01.2020 to 05.01.2020  
Sig. [Signature] Date 15.01.2020  
Name Nana Akens Apati  
GHC-ERC Administrator

**Your consent**

You are invited to take part in this research project because you are a midwife involved in PMTCT services in a district hospital in the Central Region of Ghana. To participate in the research, midwives should have been administering PMTCT services to pregnant women in district hospitals in the Central Region. This document contains information about the project and its purpose is to explain to you as clearly as possible what is involved in the project so that your decision to partake or not will be well informed.

Please read this document carefully and ask as many questions as you need to understand this information. You may wish to discuss this with a colleague or someone else to make your decision about participation in this research. Once you fully understand the project and if you are willing to participate, you can sign the consent form to show that you have given your consent to participate. You will be given a copy of this Participant Information Sheet and Consent form to keep.

**Risks and Discomforts**

The nature of the questions is unlikely to be upsetting. However, if you are uncomfortable responding to any question in the questionnaire, you may refuse to respond and/ or withdraw at any time up until data are analysed. If you find any of the questions upsetting, you will be directed to your manager for support. If you choose not to answer and/or withdraw from the study, your relationship with your health facility or research team will not be affected.

**Benefits**

You will not benefit directly from this study, however results from the study will assist the health facilities and the government to adopt strategies to reduce mother-to-child transmission of HIV and prevent HIV among children.

**Right to refuse or withdraw**

Your participation in this research is voluntarily and you can decline to take part in the project at any time. This will not affect you or your relationship with your health facility or the research team members.

This is to Certify that this Study's Inform Consent Form Has Been Approved by GHS-ERC for the Period 06-01-2020 to 05-01-2020  
Sign: [Signature] Date: 15-01-2020  
Name: Nana Abasi Apiti  
GHC-ERC Administrator

### **Confidentiality**

All information collected from you will be treated as confidential and will be stored in an electronic file. The information you provide will be given a study number for use in the data analysis and reporting. Your name will not be included with the data. Total discretion will be used in the handling and management of data collected for the study. Under no circumstance will your information be given to any party or government agency unless required by law. Your information will be accessible to the research team only.

### **Data storage**

Consent forms signed by participants will be kept in a waterproof bag that has a key and lock and will be transported from the study site to the house of the PhD student and kept in a locked cabinet. The hard copies will later be transported with the researcher to South Africa and kept within a secure staff area in the University of South Africa cabinet for safe keeping. All data will be destroyed after five years following PhD completion of her thesis and publication. The hard copies will be destroyed and the softcopies will be deleted in accordance with UNISA requirements.

### **Source of funding**

The student researcher, Rita Opoku-Danso received a DSF-POSTGRD BURSARY CONTRACT from UNISA and University of Cape Coast Research Sponsorship to undertake her PhD. Participants will not be paid or given incentives to participate in the study.

### **Dissemination / transfer of findings**

The findings from this thesis will be published in peer-reviewed international journals as well as presented to the District Hospitals in the Central Region staff and at other conferences in Ghana and internationally to improve practices. A summary of the findings from this study will be provided for the management and staff at the district hospitals in the Central Region of Ghana.

### **Questions about the research**

If you have questions about this research, please contact:

Mrs. Rita Opoku-Danso  
Student researcher  
[rita.opoku-danso@ucc.edu.gh](mailto:rita.opoku-danso@ucc.edu.gh)  
Telephone (Ghana): 0244 229669/0500037115

This is to Certify that this Study's Inform Consent  
Form Has Been Approved by GHS - ERC for the  
Period..... 05.01.2020 to 05.01.2020  
SG..... Date.....  
Name..... Nana Abene Apeti  
GHC-ERC Administrator

**Concerns or Complaints**

If you have any concerns or complaints about any ethical issues and rights to participation, then you may contact:

The Research Ethics Committee:  
Department of Health Studies  
University of South Africa  
Preller Street, Muchieneuk Ridge, city of  
Tshwane  
P.O. Box 392 unisa 0003 South Africa  
Telephone: +27124293111  
Facsimile +27124294150  
www.unisa.ac.za  
Project number 58542124

Administrator of the Ghana Health Service  
Ethics Review Committee:  
Nana Abena Kwaa Ansah Apatu  
Research and Development Division  
Ghana Health Service  
P.O. Box MB 190  
Accra  
Telephone: +233-503539896  
ethics.research@ghsmail.org

5

This is to Certify that this Study's Inform Consent  
Form Has Been Approved by GHS-ERC for the  
Period..... 06.01.2020 to 05.01.2020  
Signed..... Date: 15.01.2020  
Name..... Nana Abena Apatu  
GHC-ERC Administrator



**ANNEXURE G**

Consent form for midwives

CONSENT FORM FOR MIDWIVES IN DISTRICT HOSPITALS IN THE CENTRAL REGION OF GHANA

STUDY TITLE: Strategies for promoting the Prevention of Mother to Child Transmission of Human Immunodeficiency Virus among antenatal attendees in the Central Region of Ghana.

PARTICIPANTS' STATEMENT

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

I voluntarily agree to be part of this research.

Name or Initials of Participant.....

Participants' Signature .....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

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

Researcher's name:

Signature .....

Date.....

This is to Certify that this Study's Inform Consent Form Has Been Approved by GHS-ERC for the Period 05.01.2020 to 05.01.2020  
Sig [Signature] Date 15.01.2020  
Name Nana Akana Opare  
GHC-ERC Administrator

**ANNEXURE H**

Participant information sheet for antenatal attendees

**PARTICIPANT INFORMATION SHEET FOR PREGNANT WOMEN IN DISTRICT HOSPITALS IN THE CENTRAL REGION OF GHANA**

**Title of Study:** Strategies for promoting the Prevention of Mother-to-Child Transmission of Human Immunodeficiency Virus among antenatal attendees in the Central Region of Ghana.

**Introduction**

I am Rita Opoku-Danso, an Assistant Lecturer at the University of Cape Coast. I am currently pursuing a doctoral study (PhD) in Nursing at University of South Africa (UNISA). As part of this degree, I am conducting this research project to help me write a thesis and I will like to invite you to participate in the study. The purpose of the study is to develop strategies for promotion of antenatal attendees' awareness of prevention of mother-to-child transmission of human immunodeficiency virus services.

**Address:** Department of Science Education, University of Cape Coast

**Local Telephone Number:** 0500037115/0244229669

**Email:** rita.opoku-danso@ucc.edu.gh

**Background and Purpose**

Mother-to-child transmission (MTCT) of human immunodeficiency virus (HIV) remains the major source of HIV infection in children. Targeting pregnant women attending antenatal clinics provide a unique opportunity for implementing prevention of mother-to-child transmission (PMTCT) services against HIV infection of new-born babies. Despite the strategies put in place, HIV among children still remains high. Sub-Saharan Africa including Ghana contributes more than 90% of global MTCT burden. This project will ensure a better understanding of the perception of the antenatal attendees on PMTCT of HIV services and to develop new strategies in addition to the existing ones for the promotion of PMTCT of HIV services. The results may help improve health outcomes for mothers and babies in the future.

I am currently pursuing a doctoral degree (PhD) in nursing at University of South Africa (UNISA) and this research is being undertaken for my degree.

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Sign.....*[Signature]*.....Date 15.01.2020  
Name.....*Nana Abena Apeku*.....  
GHC-ERC Administrator

### Nature of the research

This study aims to develop strategies for promotion of prevention of mother-to-child transmission of human immunodeficiency virus services among antenatal attendees in Ghana to inform policy, practice, education and future research. I will explore and describe the knowledge, awareness, attitude and perception of the antenatal attendees' and midwives' of PMTCT services. Pregnant women attending antenatal clinics and midwives involved in PMTCT services in district hospitals in the Central Region are the focus of this study. A total of 424 participants comprising 384 pregnant women and 40 midwives will be used. As part of the data collection, the study will administer a questionnaire to you after you have agreed to participate and have given informed consent.

**What the participation will involve:** You are invited to participate in this study by giving your responses to a structured set of questions. If you agree to participate, a mutually convenient place will be made available for you to feel comfortable and response to the questions. The researcher will read and explain the questions to you if you cannot read and write. Examples of questions include: What is your religious affiliation? How old are you? What is your occupation? What is your gestational age? How many times have you visited the ANC? Can HIV positive woman transmit the virus to the baby when passing through the birth canal? Can HIV be transmitted to the baby through breast feeding?

Your cooperation will be appreciated and only 30 minutes of your time will be required. We also seek your permission to indicate your responses on the question paper.

There are seven (6) pages in this Participant information sheet and Consent form. Please ensure that you have all pages.

### Your consent

You are invited to take part in this research project because you are a pregnant woman in the Central Region and are attending antenatal clinic for a routine visit. This document contains information about the project and its purpose is to explain to you as clearly as possible what is involved in the project so that your decision to partake or not will be well informed.

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Name... Nana Akene Apati  
GHC-ERC Administrator

Please read this document carefully and ask as many questions as you need to understand this information. You may wish to have a discussion with a relative, friend and/or healthcare professional to make your decision about participation in this project.

Once you fully understand the project, and if you are willing to participate, you can sign the consent form or a fingerprint can be placed on the consent form. The signing or fingerprinting of the consent form shows that you understand the project and have given your consent to participate in it. You will be given a copy of this Participant information sheet and Consent form to take home.

**Risks and Discomforts**

There will be no physical risks associated with this study beyond the inconvenience of time taken in the data collection process. In the event if you feel uncomfortable answering any question, you may refuse to answer and/or withdraw at any time up until data are analysed. Refusal to answer and/or withdraw from the study will not affect your relationship with your health facility or the research team.

**Benefits**

You will not benefit directly from this study, however results from the study will assist the health facilities and the government to adopt strategies to reduce mother-to-child transmission of HIV and prevent HIV among children.

**Right to refuse or withdraw**

Your participation in this research is voluntarily and you can decline to take part in the project at any time. This will not affect you or your healthcare in anyway. You will still have all the benefits that you enjoy when you visit the health facility.

**Confidentiality**

All information collected from you will be kept strictly confidential and will be stored in a file without any personal details included. No data that specifically identifies you will be publicly available.

**Data storage**

Consent forms signed by participants will be kept in a waterproof bag that has a key and lock and will be transported from the study site to the house of the student researcher and kept in a locked

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GHC-ERC Administrator

cabinet. The hard copies will later be transported with the student researcher to South Africa and kept within a secure staff area in the University of South Africa cabinet for safe keeping. All data will be destroyed after five years following the student's completion of her thesis and publication. The hard copies will be burnt, and the softcopies will be deleted, in accordance with UNISA requirements.

#### **Source of funding**

The student research is supported by a DSF-POSTGRD BURSARY CONTRACT UNISA and University of Cape Coast Research Sponsorship. Participants will not be paid or given incentives to participate in the study.

#### **Dissemination / transfer of findings**

The findings from this thesis will be published in peer-reviewed international journals as well as presented to the District Hospitals in the Central Region staff and at other conferences in Ghana and internationally.

#### **Questions about the research**

If you have questions about this research, please contact:

Mrs. Rita Opoku-Danso  
Student researcher  
rita.opoku-danso@ucc.edu.gh  
Telephone (Ghana): 0244 229669/0500037115

#### **Concerns or Complaints**

If you have any concerns or complaints about any ethical issues and rights to participation, then you may contact:

The Research Ethics Committee:  
Department of Health Studies  
University of South Africa  
Preller Street, Muchienuk Ridge, city of  
Tshwane  
P.O. Box 392 unisa 0003 South Africa  
Telephone: +27124293111  
Facsimile +27124294150  
www.unisa.ac.za  
Project number 58542124

Administrator of the Ghana Health Service  
Ethics Review Committee:  
Nana Abena Kwaa Ansah Apatu  
Research and Development Division  
Ghana Health Service  
P.O. Box MB 190  
Accra  
Telephone: +233-503539896  
ethics.research@ghsmai.org

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Sign: [Signature] Date: 15.01.2020  
Name: Nana Abena Apatu  
GHC-ERC Administrator

**ANNEXURE I**

Assent form for antenatal attendees between 15 and 17 years



ASSENT FORM FOR PREGNANT WOMEN BETWEEN 15 TO 17 YEARS IN DISTRICT HOSPITALS IN THE CENTRAL REGION OF GHANA

STUDY TITLE: Strategies for promoting the Prevention of Mother to Child Transmission of Human Immunodeficiency Virus among antenatal attendees in the Central Region of Ghana

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have heard the purpose and contents of the Participants' Information Sheet read and satisfactorily explained to me in a language I understand (English / Fante). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant.....

Participants' Signature .....OR Thumb Print.....

Date:.....

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in the (English /Fante) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to her satisfaction.

Name of Interpreter.....

Signature of Interpreter.....

Date:.....

Contact Details

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Sig: [Signature] Date: 15.01.2020  
Name: Nana K. Mensah  
GHC-ERC Administrator

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language she understood (English / Fante).

I confirm that she was given the opportunity to ask questions/seek clarifications and same were duly answered to her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print .....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

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

Researcher's name: .....

Signature .....

Date: .....

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Sign: [Signature] Date: 15.01.2020  
Name: Nana Akua Xpik  
GHC-ERC Administrator

**ANNEXURE J**

Parental consent form for antenatal attendees between 15 to 17 years

PARENTAL CONSENT FORM FOR PREGNANT WOMEN BETWEEN 15 TO 17 YEARS  
IN DISTRICT HOSPITALS IN THE CENTRAL REGION OF GHANA

STUDY TITLE: Strategies for promoting the Prevention of Mother to Child Transmission of  
Human Immunodeficiency Virus in the Central Region of Ghana.

PARTICIPANTS' STATEMENT

I acknowledge that my child /ward have read or have heard the purpose and contents of the  
Participants' Information Sheet read and satisfactorily explained to her in a language she  
understands (English / Fante). She fully understands the contents and any potential implications  
as well as her right to change her mind (i.e. withdraw from the research) even after she have  
signed this form.

She voluntarily agrees to be part of this research.

Name or Initials of Parents' .....

Parents' Signature .....OR Thumb Print.....

Date:.....

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named  
participant to the best of my ability in the (English / Fante) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly  
interpreted to his/her satisfaction.

Name of Interpreter.....

Signature of Interpreter.....

Date:.....

Contact Details

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Period..... 06.01.2020 ..to... 05.01.2020  
Sig..... Date 15.01.2020  
Name..... Nana Akwe Apata  
GHC-ERC Administrator

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language, he/she understood (English / Fante).

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing for the child / ward to be part of the research.

Name:.....

Signature..... OR Thumb Print .....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

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

Researcher's name: .....

Signature .....

Date: .....

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Sign... [Signature] Date... 15-01-2020  
Name... Nana Abalo Apata  
GHC-ERC Administrator

**ANNEXURE K**

Consent form for antenatal attendees 18 and above

CONSENT FORM FOR PREGNANT WOMEN 18 YEARS AND ABOVE IN DISTRICT HOSPITALS IN THE CENTRAL REGION OF GHANA

STUDY TITLE: Strategies for promoting the Prevention of Mother to Child Transmission of Human Immunodeficiency Virus among antenatal attendees in the Central Region of Ghana

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and satisfactorily explained to me in a language I understand (English / Fante). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant.....

Participants' Signature .....OR Thumb Print.....

Date:.....

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in the Fante language to her proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to her satisfaction.

Name of Interpreter.....

Signature of Interpreter.....

Date:.....

Contact Details

This is to Certify that this Study's Inform Consent Form Has Been Approved by GHS-ERC for the Period..... 05.01.2020 to 05.01.2020 Sign..... Date..... 15.01.2020 Name..... Nana Aba Apati GHC-ERC Administrator

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language she understood (English / Fante)

I confirm that she was given the opportunity to ask questions/seek clarifications and same were duly answered to her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print .....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

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

Researcher's name:.....

Signature .....

Date: .....

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Signature: [Handwritten Signature] Date: 15.01.2020  
Name: Nana P. Akpan Akpan  
GHC-ERC Administrator



**ANNEXURE L**

Questionnaire for Antenatal Attendees

**UNIVERSITY OF SOUTH AFRICA  
COLLEGE OF HUMAN SCIENCES  
DEPARTMENT OF HEALTH STUDIES**

Questionnaire to explore and describe the strategies for promoting the prevention of mother to child transmission (PMTCT) of HIV in the central region of Ghana. We assure you that your response will remain anonymous. Your cooperation is appreciated.

**Instruction:** Please provide the appropriate response(s) by ticking (✓) the box as applicable or by writing in the spaces provided. Please do not write your name and your signature on the questionnaire.

**QUESTIONNAIRE FOR ANTENATAL ATTENDEES**

**1. Demographic characteristics**

1.1. Age of respondents

- a) 15 – 17 years [ ]
- b) 20 – 29 years [ ]
- c) 30 – 39 years [ ]
- d) 40 – 49 years [ ]

1.2. Religious affiliation

- a) Charismatic [ ]
- b) Orthodox [ ]
- c) Pentecostal [ ]
- d) Islam [ ]
- e) Traditional [ ]
- f) Others specify.....

1.3 Marital status

- a) Married [ ]
- b) Divorced [ ]
- c) Single [ ]
- e) Other specify .....

1.4. Occupation

- a) Civil servant [ ]
- b) Self employed [ ]
- c) Student [ ]
- d) Unemployed [ ]
- e) Other specify .....

1.5. Partner's occupation

- a) Civil servant [ ]
- b) Self-employed [ ]
- c) Student [ ]
- d) Unemployed [ ]
- e) Other specify .....

1.6. Educational level

- a) No formal education [ ]
- b) Basic / JHS / SHS [ ]
- c) Secondary [ ]
- d) Tertiary [ ]
- e) Other specify .....

1.6. Partner's educational level

- a) No formal education [ ]
- b) Basic / JHS / SHS [ ]
- c) Secondary [ ]
- d) Tertiary [ ]
- e) Other specify .....

1.7. Gestational age .....

1.8. Number of ANC visits.....

1.9. Are you on any medication? Yes or No, If yes specify .....

**2. Knowledge Scale**

The following statements are about knowledge regarding HIV and MTCT. Please indicate your level of agreement to the following statements by ticking

a. Yes b. No

### Statement

- | <b>Transmission</b>   | <b>Yes or No</b>     |
|---|----------------------|
| 2.1. HIV can be transmitted through mosquito bite.  | a) Yes [ ] b) No [ ] |
| 2.2. HIV positive pregnant women can transmit the virus to her unborn child                               | a) Yes [ ] b) No [ ] |
| 2.3. HIV positive women can transmit the virus through breastfeeding.                                     | a) Yes [ ] b) No [ ] |
| 2.4. HIV positive pregnant women can transmit the virus when the baby is passing through the birth canal. | a) Yes [ ] b) No [ ] |

### Prevention

- |   |                      |
|---|----------------------|
| 2.5. Condom use can reduce the risk of contracting HIV.   | a) Yes [ ] b) No [ ] |
| 2.6. Sexual abstinence can reduce the risk of contracting HIV.                                  | a) Yes [ ] b) No [ ] |
| 2.7. Being faithful to one uninfected partner can reduce the risk of contracting HIV infection. | a) Yes [ ] b) No [ ] |
| 2.8. Reducing the number of sexual partners can prevent HIV                                     | a) Yes [ ] b) No [ ] |
| 2.9. ART can prevent AIDS in an HIV infected person.  | a) Yes [ ] b) No [ ] |

### 3. Awareness Scale

The following statements are about awareness regarding PMTCT services. Please indicate your level of agreement to the following statements by ticking

a. Yes b. No

**PMTCT comprises of the following services**

- 3.1. Screening for HIV during pregnancy a) Yes [ ] b) No [ ]
- 3.2. Taking HIV/AIDS medications a) Yes [ ] b) No [ ]
- 3.3. Delivering with skilled attendant a) Yes [ ] b) No [ ]
- 3.4. Bringing infant for HIV testing a) Yes [ ] b) No [ ]
- 3.5. Using family planning a) Yes [ ] b) No [ ]
- 3.6. Counselling and support on feeding a) Yes [ ] b) No [ ]

#### 4 Belief scale

The following statements are about beliefs regarding HIV. Please select statements item that best describes your feelings.

Key: A = Strongly Agree, B = Agreed, C = Disagreed, D = Strongly Disagree, E = Don't know

##### Statement

##### Cause

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 4.1. HIV is caused by a virus                              | A | B | C | D | E |
| 4.2. HIV is disease that results from a supernatural means | A | B | C | D | E |

##### Transmission

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 4.3. HIV can be transmitted through sexual intercourse                      | A | B | C | D | E |
| 4.4. HIV can be transmitted through blood transfusion                       | A | B | C | D | E |
| 4.5. Transmitted through sleeping in the same room with infected individual | A | B | C | D | E |
| 4.6. HIV can be transmitted through breast milk                             | A | B | C | D | E |

### Prevention

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 4.7. Wash vagina after sex   | A | B | C | D | E |
| 4.8. Use of condom   | A | B | C | D | E |
| 4.9. Being faithful to partner                                     | A | B | C | D | E |
| 4.10. HIV can be prevented by the help<br>of a traditional healer. | A | B | C | D | E |

### 5. Attitude Scale

5.1. Have you ever tested for HIV before? Yes or No. If yes where?

Private lab or Government lab

**The following statements are about attitudes regarding prevention of mother to child transmission of HIV. Please select statements item that best describes your feelings.**

**Key: A = Strongly Agree, B = Agreed, C = Disagreed, D = Strongly Disagree, E = Don't know**

#### Statement

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 5.2. It is important to test for HIV   | A | B | C | D | E |
| 5.3. It is important to test for HIV when offered                            | A | B | C | D | E |
| 5.4. Women should consult husband before HIV test                            | A | B | C | D | E |
| 5.5. Every HIV positive pregnant woman should accept<br>medication for PMTCT | A | B | C | D | E |

**Now that you are pregnant which of the following will inform your decision to test for HIV**

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 5.6. Availability of treatment in case I test positive | A | B | C | D | E |
| 5.7. Confidentiality of my status                      | A | B | C | D | E |
| 5.8. If partner will approve of the testing            | A | B | C | D | E |
| 5.9. If husband will accept HIV result                 | A | B | C | D | E |
| 5.10. If test is free                                  | A | B | C | D | E |

5.11. If result is beneficial

A B C D E

**Please select statements item that best describes your feelings towards PMTCT services Key: A = Strongly Agree, B = Agreed, C = Disagreed, D = Strongly Disagree, E = Don't know**

**Statement**

5.12. Pregnant women should be  
Screened for HIV

A B C D E

5.13. It does not help to have  
HIV mothers referred to other  
services it is stressful

A B C D E

5.14. HIV infected pregnant women  
must deliver with skilled personnel

A B C D E

5.15. HIV infected woman may not  
breast feed her child if there is risk of infection

A B C D E

5.16. Pregnancy should be terminated if mother is HIV infected

A B C D E

**6. Perception scale. The following statements are about perceptions associated with accessing PMTCT services. Please select statements item that best describes your feelings.**

**Key: A = Strongly Agree, B = Agreed, C = Disagreed, D = Strongly Disagree, E = don't know**

**Statements**

6.1. Fear of testing positive

A B C D E

6.2. Fear of stigma

A B C D E

6.3. Poor care from ANC nurses when tested positive

A B C D E

6.4. HIV medications will kill me faster

A B C D E

6.5. Nurses shout at people when they  
are late for ANC

A B C D E

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 6.6. I do not know the advantages of PMTCT                       | A | B | C | D | E |
| 6.7. My family members advised me about PMTCT                    | A | B | C | D | E |
| 6.8. I do not have transportation to the hospital                | A | B | C | D | E |
| 6.9. My friends do not think it is proper to access the services | A | B | C | D | E |
| 6.10. My partner does not believe in hospital.                   | A | B | C | D | E |
| 6.11. The clinic is situated far away from home.                 | A | B | C | D | E |
| 6.12. I do not feel comfortable when using condom.               | A | B | C | D | E |
| 6.13. My partner does not like condom                            | A | B | C | D | E |
| 6.14. My religion does not support the use of condom.            | A | B | C | D | E |
| 6.15. Spent too long at the ANC.                                 | A | B | C | D | E |

**7. Strategy scale: The following statements are about strategies to promote PMTCT services. Please select statements item that best describes your feelings.**

7.1. Provision of free antiretroviral drugs to pregnant women testing positive.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

7.2. Provision of free infant formula to children born to HIV infected mothers.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]



7.3. Counselling services is provided.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

**Content of pre-test counselling**

7.4. HIV infection risk.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

7.5. Explain about test result.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

7.6. Method to avoid HIV infection.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

7.7. Services available for HIV infected pregnant women.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

## Content of post-test counselling

7.8. Meaning of test result.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

7.9. Encourage to disclose test result.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

7.10. Plan for harm reduction.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

7.11. MTCT rate.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

7.12. Method to prevent MTCT.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

**ANNEXURE M**

Questionnaire for Midwives

**UNIVERSITY OF SOUTH AFRICA  
COLLEGE OF HUMAN SCIENCES  
DEPARTMENT OF HEALTH STUDIES**

Questionnaire to explore and describe the strategies for promoting the prevention of mother to child transmission (PMTCT) of HIV in the Central Region of Ghana. We assure you that your response will remain anonymous. Your cooperation is appreciated. Please answer all questions.

**Instruction:** Please provide the appropriate response(s) by ticking (√) the box as applicable or by writing in the spaces provided. Please do not write your name and your signature on the questionnaire.

**QUESTIONNAIRE FOR MIDWIVES**

**1: Demographic characteristics**

1.1. Age

- a) 21 – 30 years [    ]
- b) 31 – 40 years [    ]
- c) 41 – 50 years [    ]
- d) 51 - 60 years [    ]

1.2. Professional qualification

.....

1.3. Position

.....

1.4. How long have you been in service?

.....

## 2. Knowledge / Awareness Scale

The following statements are about knowledge and awareness regarding PMTCT services. Please indicate your level of agreement to the following statements by ticking

a. Yes   b. No

### PMTCT comprises of the following services

- |   |            |           |
|---|------------|-----------|
| 2.1. Screening for HIV during pregnancy | a) Yes [ ] | b) No [ ] |
| 2.2. Taking HIV/AIDS medications        | a) Yes [ ] | b) No [ ] |
| 2.3. Delivering with skilled attendant  | a) Yes [ ] | b) No [ ] |
| 2.4. Bringing infant for HIV testing    | a) Yes [ ] | b) No [ ] |
| 2.5. Using family planning              | a) Yes [ ] | b) No [ ] |
| 2.6. Counselling and support on feeding | a) Yes [ ] | b) No [ ] |

## 3. Attitude Scale

The following statements are about attitudes regarding prevention of mother to child transmission of HIV. Please select statements item that best describes your feelings.

Key: A = Strongly Agree, B = Agreed, C = Disagreed, D = Strongly Disagree, E = Don't know.

### Statement

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 3.1. Pregnant women should be Screened for HIV   | A | B | C | D | E |
| 3.2. Referral of HIV positive pregnant women to institutions where they can be monitored | A | B | C | D | E |
| 3.3. It does not help to have HIV mothers referred to other                              | A | B | C | D | E |



- c) Sometimes [ ]
- d) Never [ ]

4.4. CD4 testing is critical for determining ART eligibility and is available

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.5. ARV prophylaxis for PMTCT to both mother and infant is provided

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.6. ART is initiated regardless of CD4 count.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.7. Counselling and support on maternal nutrition and infant feeding is provided

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.8. Exclusive breastfeeding is encouraged.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.9. PMTCT and maternal, nutritional, neonatal and child health (MNNCH) is available.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.10. Care for the HIV exposed infant including early infant diagnosis of HIV and cotrimoxazole prophylaxis is provided.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.11. Routine care during pregnancy, labour, delivery and post-natal period for HIV positive women is provided.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.12. Immunizations according to national immunization schedule for the child.

- a). Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d). Never [ ]

4.13. Symptomatic infants not given yellow fever immunization.

- a). Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d). Never [ ]



4.14. Early and aggressive treatment of opportunistic infections (OIs) of the child.

- a). Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d). Never [ ]

4.15. Regular administration of vitamin A supplement for the child.

- a). Always [ ]
- b). Often [ ]
- c). Sometimes [ ]
- d). Never [ ]

4.16. Regular 6 monthly de-worming.

- a). Always [ ]
- b). Often [ ]
- c). Sometimes [ ]
- d). Never [ ]

4.17. Routine HIV testing and counselling is available.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.18. The clinic provides a user-friendly environment for women living with HIV to avoid fear of discrimination and stigma.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.19. The clinic refers the HIV positive mother, partner and children for treatment and support services.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.20. Replacement feeding is available and accessible to patient.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.21. The health provider ensures compliance to treatments for HIV positive mothers.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

4.22. Health provider ensures partners involvement.

- a) Always [ ]
- b) Often [ ]
- c) Sometimes [ ]
- d) Never [ ]

## 5: Views scale

The following statements are about the perception of midwives regarding PMTCT services administration. Please select statements item that best describes your feelings.

**Key: A = Strongly Agree, B = Agreed, C = Disagreed, D = Strongly Disagree, E = Don't know**

Statement

5.1. Some mothers lack knowledge of HIV and PMTCT A B C D E

- 5.2. There are fewer infrastructures for PMTCT A B C D E
- 5.3. CD4 count level hinders access to eligibility of government treatment A B C D E
- 5.4. There are inadequate VCT centres A B C D E
- 5.5. Pregnant teens lack self-care knowledge A B C D E
- 5.6. Some mothers cannot read or write A B C D E
- 5.7. The nurses lack adequate training on PMTCT A B C D E
- 5.8. The hospital is short of ARV drugs A B C D E
- 5.9. Older pregnant women visiting ANC at the advanced stage of pregnancy A B C D E
- 5.10. Older pregnant women not comfortable to attend ANC with younger ones. A B C D E
- 5.11. Some religions do not support visiting health facilities. A B C D E
- 5.12. Older pregnant women have experience to care for themselves. A B C D E
- 5.13. Partners need to give consent before testing for HIV. A B C D E
- 5.14. Do not have enough time to test for HIV and monitor pregnancies. A B C D E
- 5.15. Midwives not enough at the ANC. A B C D E
- 5.16. Some religions do not support condom use.
- 5.17. Hospitals short of HIV testing kits. A B C D E
- 5.9. Please specify other views not mentioned

.....  
 .....

**ANNEXURE N**  
**Cronbach Alpha Reliability Test for Midwives**

## CRONBACH ALPHA RELIABILITY TEST FOR MIDWIVES

### Attitude scale

Items	No. of items	Cronbach's Alpha
Pregnant women should be screened for HIV	<b>10</b>	0.126
Referral of HIV positive pregnant women to institutions where they can be monitored		
It does not help to have HIV mothers referred to other services it is stressful		
HIV infected pregnant women must deliver with skilled personnel		
HIV infected woman may not breast feed her child if there is risk of infection		
Pregnancy should be terminated if mother is HIV infected		
Post-test counselling takes so much of my time		
Gets tired after testing for a number of women		
Retesting for HIV is a waste of time		
Retesting for HIV is not necessary		

### Strategy scale

Items	No. of items	Cronbach's Alpha
Ensure reliable and equitable PMTCT access for all women, including the most vulnerable	<b>22</b>	0.381
The facility has well trained personnel to administer PMTCT services		
The facility provides care, treatment and support for the HIV infected woman, her exposed child, including her infected children from other pregnancies, as well as for her sexual partner		
CD4 testing is critical for determining ART eligibility and is available		

ARV prophylaxis for PMTCT to both mother and infant is provided		
ART is initiated regardless of CD4 count		
Counselling and support on maternal nutrition and infant feeding is provided		
Exclusive breastfeeding is encouraged		
PMTCT and maternal, nutritional, neonatal and child health (MNNCH) is available		
Care for the HIV exposed infant including early infant diagnosis of HIV and cotrimoxazole prophylaxis is provided		
Routine care during pregnancy, labour, delivery and post-natal period for HIV positive women is provided		
Immunizations according to national immunization schedule for the child		
Symptomatic infants not given yellow fever immunization		
Early and aggressive treatment of opportunistic infections (OIs) of the child		
Regular administration of vitamin A supplement for the child		
Regular 6 monthly de-worming		
Routine HIV testing and counselling is available		
The clinic provides a user-friendly environment for women living with HIV to avoid fear of discrimination and stigma		
The clinic refers the HIV positive mother, partner and children for treatment and support services		
Replacement feeding is available and accessible to patient		
The health provider ensures compliance to treatments for HIV positive mothers		
Health provider ensures partners involvement		

### View scale

Items	No. of items	Cronbach's Alpha
Some mothers lack knowledge of HIV and PMTCT	17	0.211
There are fewer infrastructures for PMTCT		

CD4 count level hinders access to eligibility of government treatment		
There are inadequate VCT centres		
Pregnant teens lack self-care knowledge		
Some mothers cannot read or write		
The nurses lack adequate training on PMTCT		
The hospital is short of ARV drugs		
Older pregnant women visiting ANC at the advanced stage of pregnancy		
Older pregnant women not comfortable to attend ANC with younger ones		
Some religions do not support visiting health facilities		
Older pregnant women have experience to care for themselves		
Partners need to give consent before testing for HIV		
Do not have enough time to test for HIV and monitor pregnancies		
Midwives not enough at the ANC		
Some religions do not support condom use		
Hospitals short of HIV testing kits		

OVER ALL

Items	No. of items	Cronbach's Alpha
Pregnant women should be screened for HIV	49	0.718
Referral of HIV positive pregnant women to institutions where they can be monitored		
It does not help to have HIV mothers referred to other services it is stressful		
HIV infected pregnant women must deliver with skilled personnel		
HIV infected woman may not breast feed her child if there is risk of infection		

Pregnancy should be terminated if mother is HIV infected		
Post-test counselling takes so much of my time		
Gets tired after testing for a number of women		
Retesting for HIV is a waste of time		
Retesting for HIV is not necessary		
Ensure reliable and equitable PMTCT access for all women, including the most vulnerable		
The facility has well trained personnel to administer PMTCT services		
The facility provides care, treatment and support for the HIV infected woman, her exposed child, including her infected children from other pregnancies, as well as for her sexual partner		
CD4 testing is critical for determining ART eligibility and is available		
ARV prophylaxis for PMTCT to both mother and infant is provided		
ART is initiated regardless of CD4 count		
Counselling and support on maternal nutrition and infant feeding is provided		
Exclusive breastfeeding is encouraged		
PMTCT and maternal, nutritional, neonatal and child health (MNNCH) is available		
Care for the HIV exposed infant including early infant diagnosis of HIV and cotrimoxazole prophylaxis is provided		
Routine care during pregnancy, labour, delivery and post-natal period for HIV positive women is provided		
Immunizations according to national immunization schedule for the child		
Symptomatic infants not given yellow fever immunization		
Early and aggressive treatment of opportunistic infections (OIs) of the child		
Regular administration of vitamin A supplement for the child		
Regular 6 monthly de-worming		
Routine HIV testing and counselling is available		



The clinic provides a user-friendly environment for women living with HIV to avoid fear of discrimination and stigma		
The clinic refers the HIV positive mother, partner and children for treatment and support services		
Replacement feeding is available and accessible to patient		
The health provider ensures compliance to treatments for HIV positive mothers		
Health provider ensures partners involvement		
Some mothers lack knowledge of HIV and PMTCT		
There are fewer infrastructures for PMTCT		
CD4 count level hinders access to eligibility of government treatment		
There are inadequate VCT centres		
Pregnant teens lack self-care knowledge		
Some mothers cannot read or write		
The nurses lack adequate training on PMTCT		
The hospital is short of ARV drugs		
Older pregnant women visiting ANC at the advanced stage of pregnancy		
Older pregnant women not comfortable to attend ANC with younger ones		
Some religions do not support visiting health facilities		
Older pregnant women have experience to care for themselves		
Partners need to give consent before testing for HIV		
Do not have enough time to test for HIV and monitor pregnancies		
Midwives not enough at the ANC		
Some religions do not support condom use		
Hospitals short of HIV testing kits		

**ANNEXURE O**

**Cronbach Alpha Reliability Test for Antenatal Attendees**

## CRONBACH ALPHA RELIABILITY TEST FOR ANTENATAL ATTENDEES

### Knowledge Scale

Items	No. of items	Cronbach's Alpha
<b>HIV Transmission</b>	<b>9</b>	0.111
HIV can be transmitted through mosquito bite		
HIV positive pregnant women can transmit the virus to her unborn child		
Transmit the virus through breastfeeding		
Transmit the virus when the baby is passing through the birth canal		
<b>HIV Prevention</b>		
Condom use		
Sexual abstinence		
Faithful to one uninfected partner		
Reducing the number of sexual partners		
ART can prevent AIDS in an HIV infected person		

### Awareness scale

Items	No. of items	Cronbach's Alpha
<b>PMTCT comprises of the following services</b>	<b>6</b>	0.101
Screening for HIV during pregnancy		
Taking HIV/AIDS medications		
Delivering with skilled attendant		
Bringing infant for HIV testing		
Using family planning		
Counselling and support on feeding		

### Belief scale

Items	No. of items	Cronbach's Alpha
<b>Causes of HIV</b>		
Caused by a virus	10	0.126
Cause by supernatural means		
<b>Transmission</b>		
Transmitted through sexual intercourse		
Transmitted through blood transfusion		
Transmitted through sleeping in the same room with infected individual		
Transmitted through breast milk		
<b>Prevention</b>		
Wash vagina after sex		
Use of condom		
Being faithful to partner		
HIV can be prevented by the help of a traditional healer		

### Attitude Scale

Items	No. of items	Cronbach's Alpha
Ever tested for HIV before	16	0.152
Important to test for HIV when offered		
Important to test for HIV		
Consult husband before HIV test		
HIV positive pregnant woman should accept medication for PMTCT		
<b>Factors which will influence decision to test for HIV</b>		
Availability of treatment in case I test positive		
Confidentiality of my status		
If friends will accept me when tested positive		

If partner will approve of the testing		
If family members will accept me		
If test is free		
If result is beneficial		
<b>Feelings towards PMTCT services</b>		
Pregnant women should be screened for HIV		
It does not help to have HIV mothers referred to other services it is stressful		
HIV infected pregnant women must deliver with skilled personnel		
HIV infected woman may not breast feed her child if there is risk of infection		

### Perception scale

Items	No. of items	Cronbach's Alpha
Fear of testing positive	15	0.142
Fear of stigma		
Poor care from ANC nurses when tested positive		
HIV medications will kill me faster		
Nurses shout at people when they are late for ANC		
I do not know the advantages of PMTCT		
My family members advised me about PMTCT		
I do not have transportation to the hospital		
My friends do not think it is proper to access the services		
My partner does not believe in hospital		
The clinic is situated far away from home		
I do not feel comfortable when using condom		
My partner does not like condom		
My religion does not support the use of condom		
Spent too long at the ANC		

## Strategy scale

Items	No. of items	Cronbach's Alpha
Provision of free antiretroviral drugs to pregnant women testing positive.	12	0.122
Provision of free infant formula to children born to HIV infected mothers.		
Counselling services is provided		
Screening services is provided		
<b>Content of pre-test counselling</b>		
HIV infection risk		
Explain about test result		
Method to avoid HIV infection		
Services available for HIV infected pregnant women		
<b>Content of post-test counselling</b>		
Encourage to disclose test result		
Plan for harm reduction		
MTCT rate		
Method to prevent MTCT		

## OVERALL

Items	No. of items	Cronbach's Alpha
HIV can be transmitted through mosquito bite	68	0.754
HIV positive pregnant women can transmit the virus to her unborn child		
Transmit the virus through breastfeeding		
Transmit the virus when the baby is passing through the birth canal		
Condom use		
Sexual abstinence		
Faithful to one uninfected partner		
Reducing the number of sexual partners		
ART can prevent AIDS in an HIV infected person		

Screening for HIV during pregnancy		
Taking HIV/AIDS medications		
Delivering with skilled attendant		
Bringing infant for HIV testing		
Using family planning		
Counselling and support on feeding		
Cause by a virus		
Cause by supernatural means		
Transmitted through sexual intercourse		
Transmitted through blood transfusion		
Transmitted through sleeping in the same room with infected individual		
Transmitted through breast milk		
Wash vagina after sex		
Use of condom		
Being faithful to partner		
HIV can be prevented by the help of a traditional healer		
Ever tested for HIV before		
Important to test for HIV when offered		
Important to test for HIV		
Consult husband before HIV test		
HIV positive pregnant woman should accept medication for PMTCT		
Availability of treatment in case I test positive		
Confidentiality of my status		
If friends will accept me when tested positive		
If partner will approve of the testing		
If family members will accept me		
If test is free		
If result is beneficial		
Pregnant women should be screened for HIV		
It does not help to have HIV mothers referred to other services it is stressful		
HIV infected pregnant women must deliver with skilled personnel		
HIV infected woman may not breast feed her child if there is risk of infection		
Fear of testing positive		
Fear of stigma		
Poor care from ANC nurses when tested positive		
HIV medications will kill me faster		

Nurses shout at people when they are late for ANC		
I do not know the advantages of PMTCT		
My family members advised me about PMTCT		
I do not have transportation to the hospital		
My friends do not think it is proper to access the services		
My partner does not believe in hospital		
The clinic is situated far away from home		
I do not feel comfortable when using condom		
My partner does not like condom		
My religion does not support the use of condom		
Spent too long at the ANC		
Provision of free antiretroviral drugs to pregnant women testing positive		
Provision of free infant formula to children born to HIV infected mothers		
Counselling services is provided		
Screening services is provided		
HIV infection risk		
Explain about test result		
Method to avoid HIV infection		
Services available for HIV infected pregnant women		
Encourage to disclose test result		
Plan for harm reduction		
MTCT rate		
Method to prevent MTCT		



**ANNEXURE P**  
**Editor' Report**

**UNIVERSITY OF CAPE COAST  
COLLEGE OF HUMANITIES & LEGAL STUDIES  
DEPARTMENT OF ENGLISH**

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OUR REF.  
YOUR REF



UNIVERSITY POST OFFICE,  
CAPE COAST

18<sup>th</sup> June, 2021

To whom it may concern:

Dear Sir/Madam,

**Report on editing thesis manuscript: Rita Opoku-Danso**

I present this report in connection with editing the manuscript of the thesis titled “Strategies for promoting the prevention of mother to child transmission of human immune deficiency virus among antenatal attendees in the Central Region of Ghana”.

The editing centred mainly on the general standard academic writing including grammar, sentence structure, punctuation, capitalization, spelling, word choice, organization and paragraphing. Additionally, I have checked the dissertation for relevant aspects of consistency, albeit eclectic style which include numbers, italics, bold, lists, reference list entries, spacing, indentation, wordiness, redundancy, clarity, conciseness, use of abbreviations, parallel structure and formatting.

The bulk of my editing work was also devoted to achieving consistency in and between your quoted works and the reference list. It must be noted that I left the spacing and page format intact. When the manuscript is finalized, pagination should be cross-checked since some sections may have shifted owing to additions and deletions.

The thesis is a beautiful piece of work, both in concept and in execution. Notwithstanding the long editor’s checklist, the number of correctable items was minimal, as the review has revealed.

In sum, the write-up, to my view, is a thoughtful, interesting, and promising thesis.

If you have questions or comments regarding this edits, kindly email me on [alex.ohemeng@ucc.edu.gh](mailto:alex.ohemeng@ucc.edu.gh) or call on +233541217775. Meanwhile, I offer my best wishes as you continue your thesis process for its final submission.

A handwritten signature in blue ink, appearing to read 'Alex Ohemeng'.

Mr. Alex Ohemeng

**ANNEXURE Q**

**Statistician's Report**

# RESMAD CONSULT

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20<sup>th</sup> June, 2021

To whom it may concern:

Dear Sir/Madam,

## **Letter of acknowledgement in involvement in statistical analysis of research project**

This is to acknowledge that I, Prince George Aning-Agyei (Ph.D.), have assisted Rita Opoku Danso to analyse her data on the topic “Strategies for promoting the prevention of mother to child transmission of human immune deficiency virus among antenatal attendees in the Central Region of Ghana”. I provided assistance in statistical analysis of the data using SPSS version 21 by determining the appropriateness of the statistical tools to be used based on the attributes of the variables data had been gathered on.

I have a Ph.D. in Development Studies from the University of Cape Coast and currently the Executive Director of Resmad Consult, which is a research consultancy firm in Accra, Ghana. I am a Corporate member of the Ghana Institute of Planners, member of the Ghana Monitoring Evaluation Forum, and member of the Development Studies Association of UK. You can contact me on 00233-203915025 or [prinxaning@gmail.com](mailto:prinxaning@gmail.com) on any future engagements or clarifications on the statistical analysis conducted.

Yours sincerely,

Prince George Aning-Agyei (Ph.D.)

**Executive Director**

**Resmad Consult**

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