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IMPLEMENTATION OF PMTCT OPTION B+ IN THE TECHIMAN MUNICIPALITY: CLIENT SATISFACTION AND SERVICE PROVIDER CHALLENGES

BY

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DECLARATION

I, DEBORAH SERWAAH BAAFI, hereby declare that, this is my own work and that it contains no material previously published by another person nor materials which has been accepted for the award of degree. I have duly acknowledged the works of others cited in this dissertation.

Baafi Deborah Serwaah	…….	……
Student Name	Signature	Date

Dr. Amos Laar	……..……..	……..
Name of Supervisor	Signature	Date

DEDICATION

This piece of work is dedicated to Little Yvonne, a beautiful little girl I met in the course of the study and all HIV positive women attending care at the Holy Family Hospital. Also dedicated to my entire family for their immense support all my life.

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This work was done with the support of some individuals and institutions.

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ABSTRACT

Background: Ghana including 20 other countries in 2009 were earmarked for rapid PMTCT interventions scale-up within their primary care system for maternal and child health. This intervention became operationalized in June 2015 with the introduction of the PMTCT option B+ where HIV-positive women are initiated on lifelong ARVs regardless of their CD4 count upon immediate diagnosis of HIV and infants born to HIV-positive women receive daily zidovudine (AZT) for the first 4–6 weeks of life.

Objectives: To explore the socio-cultural, facility, and service related factors that influence implementation of PMTCT Option B+ in the Techiman Municipality.

Methods: The study was a facility-based cross sectional study, which employed the mixed method approach. Qualitative and quantitative methods were used to interact with HIV positive women to find the socio-cultural, facility and service receipt factors that influenced client satisfaction whereas solely qualitative method was used to identify challenges service providers encountered under PMTCT Option B+.

Results: HIV positive pregnant and nursing mothers as well as their service providers were involved in this study with their ages ranging from 17 years to 53 years. A little over 85 percent of the HIV positive women were less than 24 years with only 14.4 percent over 24 years. More than half (69.9%) were married with the remaining either separated, never married, cohabiting, divorced or widowed. Service providers included Medical Officers, Nurse midwives among others. Of other socio-demographic characteristics of respondents assessed, respondents‟ type of residence was statistically a significant predictor of client satisfaction (AOR: 3.256 95% CI. 1.556-6.813). None of the socio-cultural factors assessed was statistically significantly associated with client satisfaction. Facility and

service related factors including waiting time (AOR: 0.151 95% CI. 0.066-0.347) and experience of stigma from service providers (AOR 0.070 95% CI. 0.007-0.731) made statistically significant difference with client satisfaction. Other facility and service related factors like medical tests carried out at the facility (AOR: 0.405 95% CI. 0.079-2.021), experience of side effects of medications (AOR: 1.844 CI 95% 0.861-3.951) and information given on medications ($p<0.001$) had associations with client satisfaction however they made no statistically significant difference with client satisfaction. Service provider challenges included heavy workload, shortage of operational logistics and high defaulter rates.

Conclusion: Implementation of PMTCT Option B+ in the Techiman Municipality has seen milestones in areas of regular supply of medications, regular follow-up counseling, among others however the aspects of long wait time at the facility, stigma from service providers, inadequate infrastructure and other challenges dawdles. For service providers, heavy workload, client defaulting rates, challenges with operational logistics, inadequate training and workshops on PMTCT are still some challenges faced in the delivery of services under PMTCT Option B+ in the Techiman Municipality.

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LIST OF ABBREVIATIONS

ART	Antiretroviral Therapy
ARVs	Antiretrovirals
AZT	Azidothymidine
CT	Counseling and Testing
CDC	Centres for Disease Control and Prevention
CVA	Cardiovascular Attacks
e-MTCT	Elimination of Mother-to-Child Transmission of HIV
FGD	Focus Group Discussion
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
HTC	HIV Testing and Counseling
LFU	Loss to Follow up
MCH	Maternal and Child Health
MNCH	Maternal Newborn and Child Health
MO	Medical Officer
MOH	Ministry of Health
MTCT	Mother-to-Child Transmission of HIV
NACP	National AIDS/STI Control Program
NGO	Non-governmental Organization
NHIS	National Health Insurance Scheme
NVP	Nivirapine
OIs	Opportunistic Infections
OPD	Outpatient Department
PI	Principal Investigator
PMTCT	Prevention-of-Mother-to-Child Transmission of HIV
RTAs	Road Traffic Accidents
TB	Tuberculosis
UNAIDS	Joint United Nations Program for HIV and AIDS
UNICEF	United Nations International Children‟s Fund
WHO	World Health Organization

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1.0 CHAPTER ONE

1.1 INTRODUCTION

The feeling of joy of expecting healthy babies into a family is always indescribable. Nonetheless such was not the case of HIV-positive women until the introduction of Antiretroviral Therapy (ART). Human Immunodeficiency Virus (HIV) destroys the immune system and the body‟s ability to fight other diseases such that the immune system becomes weakened, enabling other diseases to take advantage of the weakened body immunity undeniably robing mothers of the joy of motherhood. HIV is of two types, which are the HIV-1 and HIV-2. The HIV-1 is the most common in West Africa however both have been identified in Ghana. Sexual intercourse, use of contaminated needles and other sharps, blood and blood transfusions, as well as trans-placental or trans-vaginal routes (also known as vertical transmission), breast milk or other direct contact with infected human bodily fluids are the common ways infections spread (UNAIDS/WHO, 2007).

Mother-to-child transmission (MTCT) is the vertical transmission of HIV from an HIV-positive mother to her child during pregnancy, childbirth, or breastfeeding. Rate of transmission is estimated at 15 percent to 45 percent when there is no intervention (De Cock et al., 2000) which significantly can be reduced to less than 5 percent with effective interventions during pregnancy, labour, delivery and breastfeeding. Interventions to reduce MTCT are together known as Prevention-of Mother-To-Child-Transmission (PMTCT). PMTCT in the developed world has certainly been successful, with a reduction

in transmission rates from 35 percent to less than 2 percent (WHO, 2010). PMTCT of HIV basically has four prongs approach to intervention which are: (1) primary prevention of HIV infection among women of reproductive age; (2) prevention of unintended pregnancies among women living with HIV; (3) prevention of HIV transmission from women living with HIV to their children and (4) provision of appropriate treatment, care and support to mothers living with HIV, their children and families (WHO, 2010).

Global scale up of interventions for PMTCT are very impressive however, there still remain high pediatric HIV infections with sub-Saharan Africa alone contributing more than 90 percent of global Mother-to-Child Transmission (MTCT) burden.

As per reports by the National AIDS/STI Control Program, 2.1 percent of antenatal women in 2012 were found to be HIV-positive from the HIV sentinel survey (HSS) conducted in Ghana (National AIDS/STI Control Program [NACP], 2013).

Following the release of new guidelines in 2015, WHO no longer recommends different choices for PMTCT, but instead advises that all pregnant and breastfeeding women should receive ART irrespective of clinical stage of disease or CD4 count (WHO, 2015). This approach was first pioneered by Malawi (Chan, Kanike, Bedell, Mayuni,, Manyera, Mlotha, Harries, Joep J van Oosterhout , & van Lettow, 2016).

The PMTCT cascade comprises 18 months of care from the initial antenatal visit and HIV testing through ARV treatment, intrapartum care, infant testing, infant feeding education and infant/mother treatment (Taylor & Buttenheim, 2013) and now lifelong ARVs with option B+. The comprehensive option B+ recommended for the prevention of MTCT by the WHO is an upgrade of option B which provides that women with CD4>350 cells/mm^3

receive ART beginning at 14 weeks into gestation, throughout pregnancy, and after birth until breastfeeding ceases whereas Option B+ directs all HIV-positive women to receive lifetime ART, even if CD4 count is >350 cells/mm3. Under both options, infants born to HIV- positive women receive daily zidovudine (AZT) for the first 4–6 weeks of life (VanDeusen, Paintsil, Agyarko-Poku, & Long, 2015).

Ghana including 20 other countries in 2009 were earmarked for rapid PMTCT interventions scale-up within their primary care system for maternal and child health which became operationalized in June 2015 with the introduction of the PMTCT option B+ where HIV- positive women are initiated on lifelong ARVs regardless of their CD4 count upon immediate diagnosis of HIV. Since the scale up of interventions under PMTCT in 2009, MTCT of HIV has seen a reduction in new infections from 330 000 [300 000–370 000] in 2009 to 170 000 [150 000–200 000] in 2014. The number of new HIV infections among children declined by 13 percent between 2000 and 2008, and by 48 percent between 2009 and 2014. Ghana among the priority countries recorded a decline of 51 percent of MTCT of HIV between 2009-2014. It can therefore be implied that, the Global Plan has achieved more milestones in its effort to eliminate MTCT of HIV (UNAIDS, 2015). However some countries including Ghana, face significant challenges in rolling out effective services to PMTCT of HIV.

1.2 Problem statement

The past years have seen unprecedented efforts to sustain and expand coverage of PMTCT services towards the elimination of MTCT of HIV globally with much dedication, support and funding from stakeholders which include the introduction of the comprehensive

PMTCT Option B+. Literature reviewed show that there are challenges associated with the implementation of Option B+ in countries like Malawi and Ethiopia inclusive of the 22 countries earmarked for rapid scale up of PMTCT interventions in 2009 (Herce, Mtande, Chimbwandira, Mofolo, Chingondole, Rosenberg, Lancaster, Kamanga, Chinkonde, Kumwenda, Tegha, Hosseinipour, Hoffman, Martinson, Stein & van der Horst, 2015).

In Malawi, Kim et al., (2015) found that the proportion of women visiting ANC whose HIV status was discovered dropped from 99 percent to 84 percent post Option B+. This decline was attributable to shortages in operational materials (mainly test kit shortages).

Ebuy, Yebyo, & Alemayehu, (2015) in their study in Tigray, Northern Ethiopia reported overall adherence to Option B+ drugs of 87.1 percent (95% CI 82.6-90.7%) with non-adherence of 12.9 percent. Mostly the reasons given for non-adherence included forgetfulness of time to take drugs and fear of side effects. Proper counseling, care and support from close relations and disclosure of status to partners from close relations were also identified to be associated with adherence to Option B+.

Laar, Amankwa, & Asiedu, (2014) published a qualitative study that explored the challenges that health care workers face implementing PMTCT guidelines, and the experiences of HIV-positive clients receiving these services in the Accra Metropolis in Ghana. This literature reviewed among other literature showed that general studies have been done on PMTCT in general but few on PMTCT Option B+.

A recent study by VanDeusen et al., (2015) explored the cost effectiveness of Option B+, which is only but an aspect of troop of challenges associated with the implementation of option B+.

Option B+ is a new and scaled up intervention, however from literature reviewed little studies have been directed at it in Ghana despite the fact that it has been rolled out over a year now. It was against this background that the researcher set out, to explore various factors that influence implementation of PMTCT Option B+. The WHO 2013 Consolidated Guidelines acknowledge the need for additional research "to support the recommendations, inform programmatic decisions and to promote optimal implementation" (Mclntyre, 2014).

Compared to all other health intervention packages, Option B+ needed to be academically assessed in its early stages to identify teething challenges and pre-empt solutions to policy makers and program implementers.

1.3 Justification

In view of the changing face of interventions in connection with elimination of MTCT, the researcher had the concern to bring out a tangible evidence based reference document, which is meant to inform all stakeholders in the fight against MTCT which include; PMTCT clients, care providers, policy makers, implementers, funding partners among others on the possible threats to successful implementation of Option B+. Understanding these factors will provide evidence for the formulation of more updated and innovative goals to strengthen the success story of PMTCT option B+.

This study will also inform other researchers about the challenges encountered in the implementation of PMTCT Option B+. Further studies on Option B+ could evolve per the findings of this research such that areas uncovered could be given extra attention to foster implementation of the PMTCT cascade.

MTCT is of global concern and to a greater extent, the general public needs to be informed on the progress of PMCT option B+ such that individual and community support systems could be strengthened in the crusade towards Virtual elimination of Mother-to-Child Transmission (eMTCT).

Undertaking this academic exercise is significant to improve service delivery and service receipt under PMTCT Option B+.

1.4 Conceptual Framework

The factors that influence implementation of PMTCT Option B+ can be categorized into many forms but for the purpose of this study, interplay of the individual level factors (socio-cultural, facility and service receipt) and facility and service delivery related factors would be explored.

Individual level factors are those factors that an HIV-positive woman is likely to encounter within her personal closet, social and cultural context and economic settings that may influence her access and utilization of PMTCT Option B+ services.

Individual level factors contribute greatly to the high defaulter rate in the PMTCT program which may be as a result of *"lack of support, stigma, disclosure issues, attitudes and perceptions towards the drugs, non-acceptance of status and feeling that they are still*

well." (Cantrell, Sinkala, Megazinni, Lawson-Marriot, Washington, Chi et al., 1999). Also active partner involvement in the form of "*accompanying partner to the clinic, providing money for transport, reminding them to take the medicine, agreeing to test for HIV themselves and also agreeing to safer sex practices"* all contribute to the effective implementation of option B+ (Munchenje, 2015).

Facility and Service related factors could be defined as those factors that may be influence in the implementation of Option B+. Such factors could be related to the location, infrastructure, workforce, technologies and processes in the delivery of health care services under PMTCT Option B+. Both service providers and service recipients may experience such challenges (factors). Per reviewed literature some factors largely have a toll on whether or not implementation of PMTCT will be achieved. In Zimbabwe, inadequate operational materials coupled with poor road network and long waiting time at the various institutions, inadequate staff, inadequate service space, poor follow-up strategies were identified to be associated with the implementation of PMTCT option B+ (Munchenje, 2015).

In summary, individual level, factors, facility and service related factors influence implementation of PMTCT option B+ to an extent that if such factors are absent the global aim of eMTCT of HIV and treatment of HIV hopefully will be achieved.

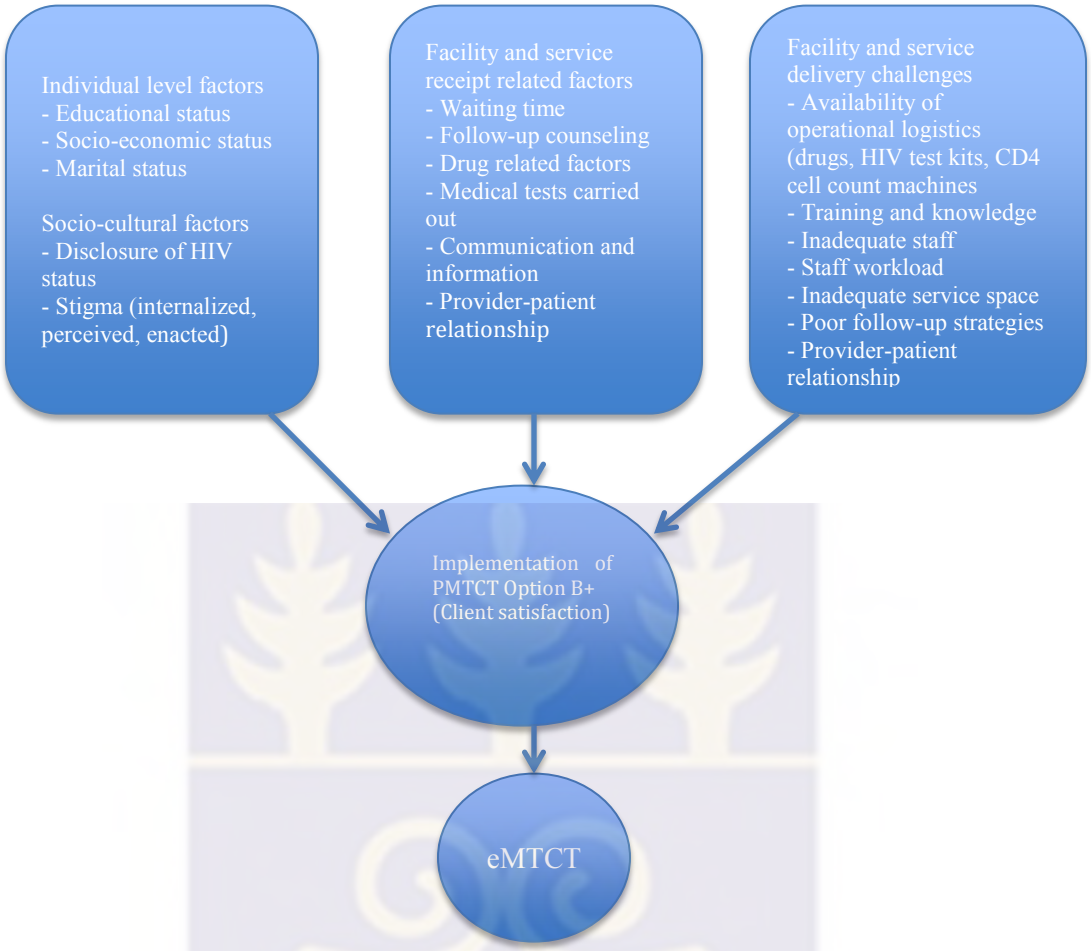

Figure 1: Conceptual framework showing the socio-cultural, facility and service related factors that influence implementation of PMTCT option B+.

1.5 Research question

What were the factors that influence implementation of PMTCT Option B+ in the Techiman municipality?

1.6 Aims and objectives

This research sought to identify early programmatic factors that influence effective implementation of PMTCT Option B+ in the Techiman Municipality. Specifically, the study explored socio-cultural factors, facility, and service related factors that influence implementation of the programme.

1.6.2 General Objective

- To explore the factors that influence implementation of PMTCT Option B+ in the Techiman Municipality.

1.6.3 Specific Objectives

- To examine socio-cultural factors that influence implementation of PMTCT Option B+.
- To assess facility and service receipt factors that influence implementation of PMTCT Option B+
- To determine facility and service delivery challenges that influence implementation of PMTCT Option B+.

2.0 CHAPTER TWO

2.1 LITERATURE REVIEW

Introduction

An orderly and thorough search for relevant published information from qualified sources in relation to Mother to Child Transmission (MTCT) of HIV, Prevention of mother to child transmission (especially Option B+), its successes and challenges; socio-cultural, facility and service related factors that have been reported all around the world was systematically studied such that the researcher gathered background knowledge on research objectives which aided in exploring the factors that influence PMTCT option B+ implementation.

2.1.1 Mother to Child Transmission (MTCT) of HIV

Mother to Child Transmission (MTCT) of HIV is the vertical transmission of HIV from mother to her child. In the absence of preventive measures MTCT range from 25 percent to 35 percent in developing countries compared to 15 percent to 25 percent in developed countries (UNAIDS, 1998). Without any interventions the risk of MTCT is 15 percent -30 percent in non-breastfeeding populations and breastfeeding by an infected mother increases the risk by 5 percent -20 percent to a total of 30 percent – 45 percent (De Cock et al, 2000).

Some commonly discovered factors that influence MTCT of HIV according to Onyango, (2006) include high prevalence rate of HIV in women of reproductive age, high birth rates, a large population of women of reproductive age, and ineffective or incomplete coverage of MTCT prevention interventions (Packson, 2015).

2.1.2 The Evolution of PMTCT Option B+

Before option B+ became operationalized, the whole PMTCT ARV regimen went through a passage of upgrade right from 2001 through to 2013. Per the 2001 guidelines, an HIV-positive pregnant woman was initiated at 4 weeks AZT; AZT+3TC, or SD NVP. Based on CD4 count <200, an HIV-positive pregnant woman was recommended to take AZT from 28 weeks + SD NVP or AZT from 28 weeks + sdNVP + AZT/3TC for 7 days according to the 2004 and 2006 guidelines respectively. The year 2010 brought the recommendation of Option A (AZT + infant NVP) and Option B (triple ARVs) prescribed based on CD4 count less than or equal to 350. A more comprehensive guideline known as Option B+ evolved in 2013 where all HIV-positive pregnant and breastfeeding women regardless of CD4 cell count once tested positive is initiated on ART. With the target of treatment of HIV and eMTCT lifelong ARVs is recommended under option B+.

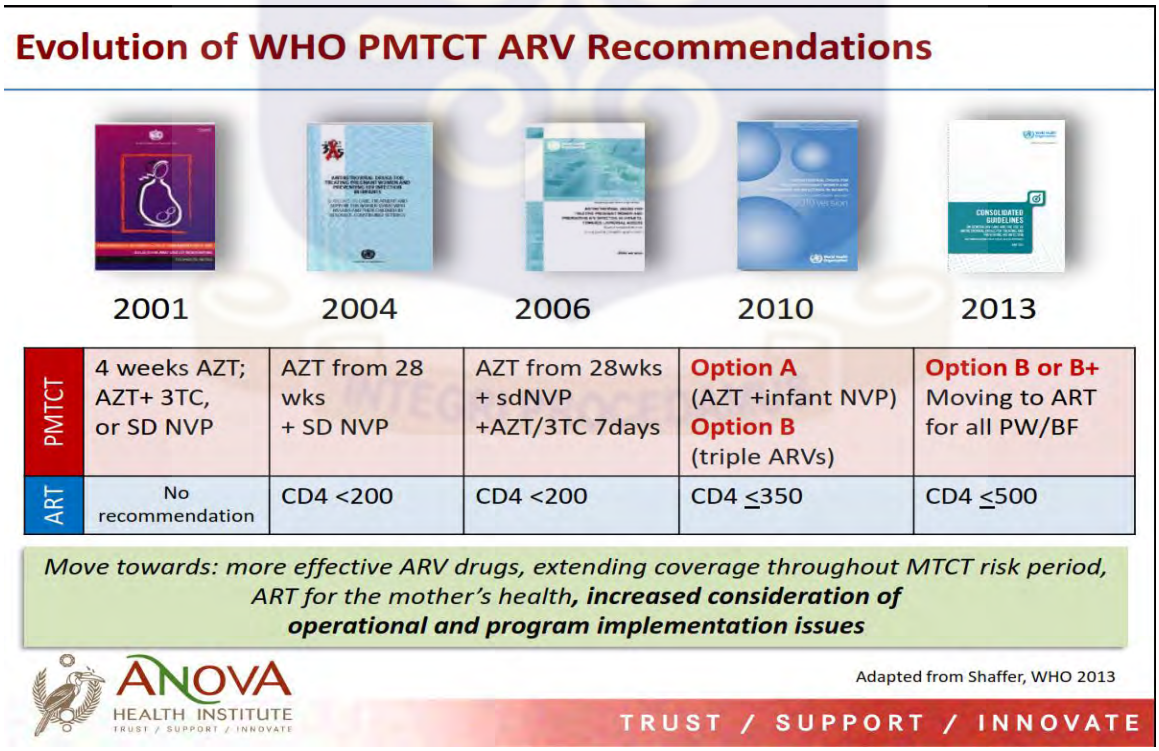

Figure 2: Evolution of WHO PMTCT ARV guidelines (Mclntyre, 2014)

2.1.3 PMTCT guidelines for HIV-positive women and HIV-exposed infants

HIV-positive women

Option B+ (lifelong ART) is a new treatment regimen that has been started in Ghana since June 2015. This is whereby all pregnant and or breastfeeding women who test HIV positive are initiated on anti-retroviral therapy (ART) throughout the pregnancy and breastfeeding period and continue taking ART for the rest of their lives. Previous regimens required that the pregnant or breastfeeding woman undergo CD4 cell count and when their CD4 was found less than 500ml/l that is when they would be started on ART. Option B+ does not require CD4 to be done before ART initiation [(Mills, Bakanda, Birungi, Chan, Ford, Cooper, Nachega, Dybul & Hogg, 2011) (Munchenje, 2015)]. This regimen may improve maternal and child health by reducing rates of MTCT and to a larger extent morbidity and mortality. With Option B+, she remains continuously on ART, so there is no window during a future pregnancy when she is not receiving prophylactic therapy, assuming adherence to therapy (Vandeusen et al., 2015).

HIV-exposed infants

All infants born to HIV-positive women should receive a course of antiretroviral treatment as soon as possible after birth. The treatment should be linked to the mothers‟ course of ARVs and infant feeding method thus; an infant who is breastfeeding should receive once-daily nevirapine from birth for six weeks whereas an infant on replacement feeding should be given once-daily nevirapine (or twice-daily zidovudine) from birth for four to six weeks. At week four to six weeks old, all infants who are born to HIV-positive mothers should be given early infant diagnosis, another HIV test after 18 months and or when

breastfeeding ends to provide final infant diagnosis (WHO, 2015).

2.1.4 Success of PMTCT Option B+

Option B+ may be a more effective PMTCT strategy, as it can help overcome some barriers (like poor access to CD4 testing) associated with achieving high coverage of treatment. This approach ensures that most HIV-positive women are placed on treatment immediately following diagnosis, which leads to further reduction of MTCT (Schouten et al., 2011). Moreover, the simplification of drug regimen options could make adherence easier for both mother and healthcare provider, which is likely to facilitate higher retention rates [(UNICEF, 2012); (Hirnschall & Schwartlander, 2011)]. Additionally, Option B+ provides an excellent opportunity to begin rollout of „„treatment as prevention,"" which can have a significant impact in reducing new HIV infections due to sexual transmission among serodiscordant partners (Mitiku, Arefayne, Mesfin, & Gizaw, 2016).

Studies on Option B in Malawi indicate drastic increase of ART initiations among HIV-positive pregnant women. This is recognized as a success (Tenthani et al., 2014). Full absorption of PMTCT services into activities of ANC clinics is discovered so far to be the best prospect of getting high ART uptake due to direct care offered to HIV-positive pregnant women [(Chan et al., 2016). Nonetheless, the processes of achieving this high uptake in resource constraints settings where there is high prevalence of MTCT could on the other hand be a detriment to retention. With reference to patient-level data it can be concluded that same day HIV diagnosis and ART initiation is highly associated with increased rates of defaulting among HIV-positive women non-dependent on standards of care. The potential negative impact of same day HIV diagnosis and ART initiation in an operational setting has been described before in a study that did not consider model of care

(Tenthani et al., 2014) and may have many reasons (Kim et al., 2016). Antenatal women may experience considerable peer and/or staff pressure to initiate ART (Chan et al., 2016)]

The Ministry of Health (MoH) in Malawi reported in its first year of implementation a dramatic increase in the number of HIV-infected pregnant and breastfeeding women accessing ART for their own health and to reduce MTCT. Indeed, the number of pregnant and breastfeeding women initiating ART increased 748 percent with the introduction of Option B+ compared to baseline, resulting in greater population-level ART coverage for HIV-infected women [(Chimbwandira et al., 2013), (WHO, 2013)] However, despite these impressive gains, client refusal of ART and dropout from the PMTCT cascade threaten the effectiveness of Option B+ in Malawi. As many as 15 percent and 17 percent of Option B+ clients, respectively, either do not start ART or become lost to follow-up within 6 months of ART initiation [(Tenthani et al., 2014), (Kim et al., 2015)]. Such early client drop-out from the PMTCT cascade has deleterious "downstream" effects, as inefficiencies in antenatal PMTCT service delivery manifest as obstacles to diagnosis, treatment, and care further along the cascade, ultimately resulting in higher MTCT risk [(Barker et al., 2011) (Herce et al., 2015)].

2.1.5 Individual socio-cultural, facility and service receipt factors and implementation of PMTCT Option B+

Structural, socioeconomic, and cultural factors are among troops of identified key limitations to PMTCT access in resource constraint countries [(WHO, 2010), (Luo et al., 2007)]. While primary health care system deficiencies lead to missed opportunities and low HIV testing among pregnant women [(Luo et al., 2007); (Peltzer, Mosala, Shisana, Nqueko, & Mngqundaniso, 2007); (Sprague, Chersich, & Black, 2011)]. Deficiencies in

primary health care system can cause missed opportunities in seeking health care and low rates of HIV testing among pregnant women. Larger socio-cultural factors such as low level of knowledge on PMTCT, negative perceptions, stigma (internalized, perceived or enacted), fear and lack of support prevent effective use of PMTCT services [(Peltzer et al., 2007); (Sprague et al., 2011); (van Lettow et al., 2011)]. Likewise, PMTCT-MNCH integration has its own associated healthcare delivery challenges in low-income countries, which adversely accelerate unequal PMTCT access under some conditions. Noteworthy of all maternal and child health service packages, interventions under PMTCT are to be executed in an all-inclusive and uninterrupted routine. Identified inconsistencies in the usage of approved and recommended facility-based maternal health care services, such as low four-time antenatal visits (55%) and low skilled birth attendance (50%) in WHO African Region may limit equitable access to PMTCT interventions by HIV-positive women [(WHO, 2013); (Dako-Gyeke et al., 2016)].

Scale up of PMTCT with implementation of Option B+ has recorded remarkable successes in resource-limited countries by hugely increasing the numbers of pregnant and breastfeeding women enrolled on ART (Stringer, Sinkala, Maclean, Levy, Kankasa, Degroot et al., 2005). Despite these gains access to PMTCT option B+ is challenged by high loss to follow-up (LFU) and non-adherence to treatment that significantly weakens success of Option B+ [(Barker, Mphatswe, Rollins, 2011); (Braun, Kabue, McCollum, Ahmed, Kim, Aertker et al., 1999)]. In Malawi, 17 percent of women on Option B+ are lost to follow-up six months after ART initiation (Tenthani et al., 2014).

Poor retention in care or adherence to treatment could be a threat to both HIV-positive women and their infants. Retention in HIV care is one of the crucial

indicators of the success of ART programmes [(Clouse, Pettifor, & Maskew, 2013)*;* (Crum et al., 2006)*]. Poor retention due to LFU is associated with virological failure, development of potent drug-resistant virus as well as maternal HIV disease progression and increased risk of MTCT* (Nachega et al., 2012).

Of potential threat to the effectiveness of PMTCT interventions is LFU of HIV-positive women. Some studies have identified lack of motivation to adhere to lifelong medication after a healthy delivery [(Clouse et al., 2014), (Ngarina et al., 2014)], denial or lack of disclosure of HIV status and not feeling ready to embark on lifelong medication as factors contributing to LFU under the Option B+ programme (Mitiku et al., 2016).

Among patient level factors to high defaulter rate under PMTCT programme are less spousal and family support, stigma, disclosure issues, attitudes and perceptions towards medications, denial of HIV status and the natural feeling of wellbeing and not ill-health by HIV-positive women. Spousal support plays a vital role under PMTCT such that traditionally male partners tend to have upper hand in most sectors of life including sexual and reproductive health decision-making. To access services under PMTCT may be decided on by the partners of HIV-positive women. Spousal support described as effective commitment of the male partner in his female partners‟ initiation on the treatment, basically acting as immediate caregivers showing love, accompanying them to the follow up visits, providing financial support, being reminders on times for medications, agreement to HIV Testing and Counseling (HTC) to test for HIV themselves and also agreeing to safe sexual involvements (Lawson-marriott, Washington, Chi, Mulenga, & Stringer, 2013).

In 2010, Sellier, Clevenbergh, Ljubicic, Simoneau, Evans, Delcey, Diemer, Bendenoun, & Mouly, (2006) found out that between 3.5 percent and 14.6 percent of South African women reported having been violently mistreated by their partners upon making known their HIV positive status. HIV-positive women need spousal support as well as social support from family members and the community at large but this is mostly not achieved because of refusal to disclose positive status based on the premise of being rejected or denied (stigmatized) and subsequently abused.

HIV related stigma plays a very important role in ART care and determines a patient"s ability to be retained in care. In a Malawian study done, mothers thought that when a mother comes to book her pregnancy, she is not adequately prepared for HIV testing more so for a positive result in one day. They also did not consider ART to be beneficial to them as mothers and felt they were not ready for ART as they were still well (Sellier et al., 2006). *Some women have some myths and misconceptions about HIV treatment and these can make them stop taking their drugs. Some patients who have experienced or heard of the side effects of the ART drugs have opted to stop medication to prevent them from occurring* (Munchenje, 2015).

According to the 2013 WHO guideline, many factors were identified to be associated with ART drug adherence in the health care delivery systems, which included medications (ARVs) and the person taking ARVs. Individual level factors included forgetfulness of drug doses; absenteeism from usual place of residence; variations from daily scheduled activities; depression or other opportunistic illness; loss of desire to take medicines; and substance or alcohol use [(WHO, 2013); Tsegaye, Deribe, & Wodajo, (2016)]

According to Tsegaye et al., (2016) a study carried out in Nigeria in 2012 reported that, among Nigerian HIV positive pregnant mothers one of the main reasons for good adherence was the wish to shield their unborn children from HIV infection (51.8%), which served as a motivation to adhere to treatment however, fear of being identified as HIV-positive by others was a great challenge to them (63.6%).

A qualitative study in Swaziland established that the patients were overpowered by the fact that they had to stay lifelong on ART drugs when they were "feeling healthy" and that they rather preferred short-course prophylaxis. Most women also had the fear of side effects as a result of being on the ART. Also according to the health providers, women believed that ART is for the very sick patients and that it was even more challenging for those women who were just learning their HIV status (Katirayi et al., 2016).

Tsegaye et al. (2016) measured the level of adherence and factors associated to option B+ PMTCT among pregnant and lactating mothers in Ethiopia and found it to be 87.9 percent. Women who had challenges on their day of diagnosis and those women living in rural areas were less likely to adhere to the treatment (AOR 0.08 (0.02-0.37) and (AOR 0.26 (0.1-0.73) respectively.

The results of a qualitative study on analysis of health care providers and client challenges in Ghana revealed that women on PMTCT ranged from financial to emotional factors. Some of the women could not afford transportation cost monthly to the facility for their regular services. Also instances of lack of privacy at the facility was reported by some of these clients as one participant stated "*When I'm called into that room, I feel violated*

because my status is immediately disclosed to all others seeking care at the facility" (Laar et al., 2014).

Level and determinants of loss to follow up (LFU) measured in a retrospective study among 346 pregnant and breast feeding mothers in option B+ PMTCH in Ethiopia found 16.5 percent of the women were LFU which was defined as 90 days after the last clinic visit among those who were not to have died or transferred out. Factors that were associated with LFU were; age at start of ART, facility level, started ART on day of diagnosis and weight of patient at enrolment (Mitiku et al., 2016).

2.1.6 Facility and service delivery factors and implementation of PMTCT Option+

Long distances to health centers coupled with poor road network and long waiting time at the various institutions are associated with patient defaulting rates. HIV- positive women haven struggled to health centres have to wait in long queues and for long periods of time due to reasons such as staff shortages and non-separation of ART services from other services. Clients eventually get tired and leave without their medications, who to the extreme may never ever return to the facility (Munchenje, 2015).

In some other cases, some institutions identified inadequate counseling space as a challenge base on the premise that the scale up of PMTCT bringing on board option B+ didn‟t come along with additional structures and setups. This challenge of space violates clients‟ rights to privacy and confidentiality [(Nieuwkerk & Oort, 2005); (Munchenje, 2015)] This challenge of inadequate space was reiterated by Laar et al., 2014 who reported that issues of facility layout is particularly important given the highly stigmatized nature

of HIV. Lack of privacy and conspicuous designation of consulting rooms and particular health personnel for PMTCT programs can be counterproductive. Such arrangements, a client argues, indirectly labels clients who interact with the nurse at the said consulting room as HIV-positive.

Follow up of HIV-positive clients is a key component under PMTCT with the goal that defaulter rates may be minimized. Inefficient monitoring processes and methods tend to be a barrier to success of this goal. Instances where health facilities do not keep patient follow-up registers may contribute to high defaulter rate. Clients may not even have defaulted but poor records keeping may fail to capture their follow-up visits, especially when the client skips due appointment date but comes later to access service. Such a client may be captured as a defaulter but the reverse is true just that time inconsistency has occurred (Ramadhani et al., 2007; Munchenje, 2015)

Mothers in Cote d'Ivoire dreaded being chidingly related to by health care workers at the various health facilities. It was also discovered that HIV- positive mothers were displeased about time spent before being attended to such that some clients were given special attention than others during clinic appointments. A challenge associated with counseling was inadequate number of counseling sessions, which resulted from limited number of staff and space. This challenge limited the free flow of communication between clients and care providers. Due to overload of work resulting from inadequate staff satisfactory and quality time spent with clients is not assured such that caregivers rather opt for group counseling which prevents clients from having personal contact with caregivers. Privacy, trust and confidence are not guaranteed in this instance, hence ineffective counseling (Nuwagaba-Biribonwoha, Mayon-White, Okong, & Carpenter, 2007). As reported by Laar

et al., (2014) their study confirmed prior studies that had been done which discovered that caregivers under PMTCT services do extra duties than their normal based on the increment in the numbers of pregnant women seeking care and counseling. The study specified doctor-population ratio, and nurse-population ratio in Ghana to be respectively 1:13,683 and 1:1,415 per 100 000 (GHS, 2007). It was then conclusive that nurses were being overworked during follow up visits by clients which was beyond the WHO required maximum of 30 consultations per day (Cohen, Lynch, Bygrave, Eggers, Vlahakis, Hilderbrand et al., 2009).

Services under the PMTCT programme encounter some setbacks such as inconsistent supply of commodities such as ART medicines and fixed dose combinations of ART medicines. Clients may be extremely disappointment upon arriving at their regular health facility and been told by their caregivers that there is shortage of drugs. Confidence is eventually lost in the facility, the caregiver and in the treatment itself. Until recent times, clients in the previous ART regimens had to gulp a number of tablets, which was seen as a pill burden on them (Mills et al., 2011). Just the mere thought of taking medications life long has a toll on retention in care, especially to clients who feel healthy but are still obligated to be on continuous medication (Munchenje, 2015).

Medication related factors include adverse effect, the complexity of dosing regimens, the pill burden, and dietary restrictions. Health system factors include HIV positive people to visit health services frequently to receive care and obtain refills; long distances to reach & get health care. On the other hand; lack of clear information or instruction on medication, limited knowledge on the progress of HIV infection and benefit of ART associated with non-adherence to ARV medication [(Fisher, Fisher, Amicoa, Harman, 2006); (Ebuy et al.,

2015)].

According to Laar et al., 2014 caregivers experienced a lot of challenges translating PMTCT guidelines into meaningful messages for their clients such that counseling was most often prescriptive. Counselors expressed concern on inadequate refresher programmes and on-the-job training as a key reason for their out- dated and inconsistent messages. From the findings of the study, "All the nurses disclosed that they lacked opportunities to up- date their knowledge and thus expressed the desire to have regular refresher trainings to keep them abreast of current information".

In Malawi, a health facility survey was conducted to describe and compare option B+ service delivery models. The study revealed in multivariate analysis the factors to be associated with were; number of women assigned to an HTC counselor, HIV test kit availability and the type of model of care used by the facility (A) facilities where newly identified HIV-positive women are initiated and followed on ART at the ANC clinic until delivery; (B) facilities where newly identified HIV-positive women receive only the first dose of ART at the ANC clinic, and are referred to the ART clinic for follow-up; (C) facilities where newly identified HIV-positive women are referred from ANC to the ART clinic for initiation and follow-up of ART; and (D) facilities serving as ART referral sites (not providing ANC) (Lettow et al., 2014).

Among four African countries (Uganda, Burkina Faso, Kenya and Malawi), study on women"s view on consent, counseling and confidentiality in PMTCT show that in all the countries, more than three quarters (80-90%) of them reported that health providers took some time to explain to them how HIV can be transmitted and prevented and the meaning

of test they were required to do. They were further encouraged to bring their partners. However, in the qualitative aspect of the study, some participants feel that HIV test done were coercive and disclosure was a big issue (Hardon et al., 2012).

Conclusions were drawn from the above relevant information on studies done in other countries that, PMTCT Option B+ is a sure and an effective intervention to attain virtual elimination of Mother- to- Child- Transmission (MTCT) of HIV. The successes and challenges; patient level and facility and service related level challenges associated with its implementation has been reported all around the world hence the need to determine these challenges in the Ghanaian local context, Techiman to be precise.

3.0 CHAPTER THREE

3.1 METHODOLOGY

3.1.0 Introduction

This chapter provides a brief background to the study area and the various methods that were used in collecting data for analysis in the study. The chapter is in eleven (11) sections with section one presenting on the design used in the study. Section two presents the study site where study was carried out. Section three presents the study variables that were studied. Section four presents study population. Section five presents sampling and sampling procedure adopted for the study. Section six presents sample size and section seven is on data collection techniques and tools. Section eight presents on Quality Assurance and Control measures that were ensured in the study. Section nine presents data processing and section ten presents data analysis. Section eleven looks at the ethical considerations for this study.

3.1.1 Study Design

The study was facility-based and cross sectional in design. It employed a mixed method approach to explore the challenges associated with implementation of PMTCT option B+. This involved both qualitative and quantitative approaches. Whereas facility and service related (service delivery) factors associated with option B+ were discovered using only qualitative approach, both qualitative and quantitative approaches were used to explore socio-cultural challenges and other facility and service (service receipt) related factors associated with option B+. This is similar to a study conducted in some selected clinics in Addis Ababa, Ethiopia where the researchers assessed service recipients quantitatively

through questionnaires and qualitatively using Focus Group Discussions (FGDs). Service providers under that study were studied qualitatively through in-depth interviews. (Deressa, Seme, Asefa, Teshome & Enqusellassie, 2014).

As an accompaniment to the quantitative findings on socio-cultural, facility and service receipt factors that influence implementation of PMTCT Option B+, in-depth interviews were conducted with HIV positive women attending clinic. In addition, 8 in-depth interviews were undertaken with selected service providers who deliver services under PMTCT option B+.

3.1.2 Study site

Description of Study Area

Techiman Municipality is the second biggest town after the capital of Brong Ahafo Region, Sunyani. It shares boundaries with four districts namely, Techiman North, Wenchi and Nkoranza Municipality all three in the Brong Ahafo Region and Offinso-North District in the Ashanti Region Techiman Municipality is situated in the central part of Brong Ahafo and has a landmass of approximately 649.0714 sq. km, has about 183 communities and settlements and is located 400km northwest of Ghana‟s capital, Accra. The population of Techiman, using the 2000 national census exercise is approximately 147,788 with 71,732 males and 76,056 females, which still appears to be an underestimation. It is said that the market of Techiman is the largest in Ghana, which draws people from all walks of Ghana and its surrounding countries. Food production in the area is generally satisfactory since the major economic activity of the population is agriculture. Transport goes over 120km tarred in the municipality, with the others untarred and in most cases horrible. In the rainy seasons, vehicular movement in some areas in the

municipality is hindered as a result of bad roads. Communication infrastructure is characterized by improving telephone services, FM Radio stations, TV stations, Fax services, E-mail and Internet services, among others. Total number of Health Facilities is 30 with ownership as follows: Faith-Based Hospitals - 3; Private Hospitals - 4; GHS Health Centers - 8 Private;

Clinics - 4; CHPS Compounds - 5; Private Maternity Homes – 5.

Holy Family Hospital

Holy Family Hospital is a 138 bed general hospital in Techiman. It started in 1954 by the Medical Mission Sisters, which was later handed over to the Catholic Diocese of Sunyani in 1977. It is principally a hospital with special characteristics of offering surgical, medical, emergency services, outpatient and inpatient services, among others. The status of the hospital is a municipal hospital for the Techiman Municipality. In the 55 years of its existence, the hospital has earned for itself a good name for efficient service delivery despite some hitches in its processes of health care delivery. This hospital serves as a referral centre for the municipality as well as some of its surrounding districts like, Kintampo, Nkoranza, Wenchi and some parts of the Northern and Ashanti Regions. Services provided at the hospital include: 24-Hour Emergency and Ambulance service; General and Specialized OPD and Inpatient consultation (Specialized areas – Paediatrics, Ophthalmology, O&G and Surgery); Maternal and Child Health (MCH) services; Primary Health Care services; Diagnostic services (X-ray, Laboratory, Ultrasound scan and ECG); Blood Transfusion services; HIV/AIDS services (CT, PMTCT, ART); Pastoral Care and Counseling services; TB Control Programme; Physiotherapy and Club Foot management and Mortuary services.

The hospital generally records approximately a total OPD attendance of 80, 646 annually, out of which 92.5 percent are mostly insured clients. The Half year (2015), top ten recorded diseases at the hospital are Malaria, Road traffic accidents (RTAs), Upper Respiratory Tract Infection, Anaemia, Hypertension, Diabetes, Intestinal Worms, Rheumatism/Arthritis, Gyaenacological Conditions, and Urinary Tract Infections (Hospital Records, 2015).

Top ten causes of deaths in the municipality are Respiratory failure, HIV/AIDS, Asphyxia, Anaemia, Sepsis, Pneumonia, Malaria, Meningitis, RTAs, Cardio-vascular attacks (CVA), and other diseases (Hospital Records, 2015).

3.1.3 Study variables

Table 1: Study variables

	Objective	Key challenges	Indicator/variables
1.	To examine the socio-cultural challenges associated with implementation of PMTCT Option B+	Socio-cultural challenges associated with Option B+	-Disclosure of HIV status -Socio-cultural factors (religion, family support, community support etc.) -Stigma (internalized, perceived or enacted)
2.	To assess the facility and service receipt related challenges associated with implementation of PMTCT Option B+.	Service reception and facility related challenges associated with Option B+	-Wait time -Follow-up counseling -Medical tests -Drug related factors -Inadequate service space -Inadequate information -Provider-patient relationship
3.	To determine facility and service delivery related challenges associated with implementation of PMTCT Option B+	Facility level and service related challenges associated with implementation of option B+	-Availability of operational materials (drugs, HIV test kits, CD4 cell count machines) -Training and knowledge -Inadequate staff -Staff workload -Inadequate service space -Poor follow-up strategies -Provider-patient relationship

4.	To describe the demographic characteristics of HIV-positive women on option B+	Socio-demographic characteristics of PLWH	- age of respondent - sex of respondent -marital status of respondent -educational level of respondent -occupational status of respondent -Residence of respondent -Socio-economic status of respondent

3.1.4 Study population

Service providers who provide care under PMTCT were involved in this study. PMTCT program involves a multidisciplinary team of health professionals, which include Laboratory technicians, Medical officer (MO), HIV Coordinator, Storekeeper, Pharmacist, Clinical psychologist, PMTCT in-charge.

Though there are four prongs to PMTCT, for the purpose of this study, much emphasis was placed on prong three (3); prevention of HIV transmission from women living with HIV to their children. Service recipients under this prong were HIV-positive pregnant women and HIV-positive postpartum women (approximately 6 months postpartum for this study). It is noteworthy however that, due to time constraints associated with schedule of data collection, study population was expanded to include HIV-positive nursing mothers of children aged 2 years and below.

3.1.5 Sampling and sampling procedure

Purposive sampling was used for service providers such that any service provider from various departments under PMTCT who opted to be interviewed for the study was engaged.

Academic calendar planned by the school of Public Health allocated a month for data collection. Given time constraints and the sensitivity of HIV, Convenience Sampling was employed to interview all eligible consenting service recipients within the period of one month of data collection. Based on earlier enquiries made at the hospital it was discovered that PMTCT services were provided everyday however upon field visit it was discovered that follow-up visits (refill and doctor‟s appointment days) were scheduled for Tuesdays and Thursdays. On every Tuesday and Thursday during the data collection period, HIV-positive women within the inclusion criteria presenting for follow up visits to the ART Clinic were asked to participate in the study. Consenting participants were asked to pick from a bowl of two inscribed papers (YES/NO) based on the time of first contact with the research assistants. Those who picked „YES‟ were administered questionnaire. This process was repeated till scheduled period was over.

3.1.6 Sample size

A study done in Tigray Region Public Health Hospitals, Ethiopia Ebuy et al., (2015) discovered that the proportion of pregnant women who adhere to PMTCT option B+ was 87 percent. Using adherence (87%) as proxy; confidence level of 95%, and a 5% degree of precision, sample size was calculated as follows;

Confidence level of 95%, z = 1.96

P (adherence as proxy) = 0.87

q (1-p) = 0.13

margin of error = 5%

By substitution;

$$N = \frac{Z^2pq}{d^2} = N = \frac{1.96^2\ (0.87)\ (0.13)}{(0.05)^2}$$

N = 173

N is the required sample size; z=the value of the standard normal curve score corresponding to the given confidence interval=1.96 p=proportion of HIV positive pregnant women who adhere to option B+ PMTCT drug is considered 87%; d=the permissible margin of error (the required precision) = 5%

3.1.7 Data Collection Techniques and Tools

The data collection techniques that the researcher used were surveys/structured interviews and in-depth-interviews. Structured questionnaires and interview guides were the data collection tools. HIV-positive women on option B+ who were included in the study were all administered questionnaires with open-ended questions including a brief interview guide at the ART Clinic. Service providers to these clients had in-depth interviews with the aid of an interview guide in their various offices and consulting rooms. The average duration of administering questionnaires (including interviews) to clients and interviews with service providers was 20 minutes and 24 minutes respectively. Interviews were audio-recorded and hand written as well.

3.1.8 Quality Assurance and Control measures

To ensure anonymity and confidence in respondents, questionnaires didn‟t request for the names of respondents but serial numbers to aid in reporting of data. Questions on the

questionnaire were thoroughly interpreted to supporting data collectors who in turn conveyed message to respondents to ensure proper translation of questions into the probable medium of communication (local language; Akan or Bono) during administration of questionnaires. Daily checking of filled questionnaires was done to find any missing values & incomplete data in order to enhance data quality. All questionnaires and interview responses were checked for accuracy such that all errors were appropriately identified and corrected.

3.1.9 Data Processing

Collected data were entered daily after field visit into Excel spreadsheet. Entered data were critically checked for any possible typographical errors and missing values before any use was made of data, thus data cleaning was thoroughly done to cater for all discrepancies. Well-edited data was then exported to SPSS version 22 quantitative data analysis software for analysis.

3.1.10 Data analysis

Data was first coded then cleaned using Excel spreadsheet. Using SPSS version 22 descriptive statistics was used to summarize data. To construct the socio-economic indices of respondent, Principal Components Analysis (PCA) was used with varimax rotation using variables that capture standards and household access to utilities. An individual‟s wealth was calculated based on the possession of some basic features (variables) in life such as source of drinking water, type of household fuel, type of household toilet facility, ownership of durable household assets among others. Using the Kaiser‟s criterion of eigenvalue of 1, Socio-economic status (SES) factor scores were generated then categorized into tertiles [low (40%); middle (40%); high (20%)]. Bivariate analysis was

done to establish the association between independent variables which are; educational status, socio-economic status, socio cultural status, stigma, partner support, availability of operational materials, inadequate staff, wait time, inadequate service space, poor follow up strategies and provider-recipient relationship and dependent or outcome variable (quality of care and client satisfaction). Multiple logistic regression analysis was adopted to control for confounding variables to those significantly related to the outcome variable at the bivariate regression. With reference to results of the bivariate analysis, variables that had associations with outcome variable (client satisfaction) and were considered relevant to the study were entered into multivariate logistic regression analysis to test for the strength of associations with the outcome variable. Interviews conducted for the qualitative section of the study were audio-recorded and hand written as well. These recordings were transcribed into English language and results were manually evaluated and coded into most relevant themes useful to the study.

3.1.11 Ethical Considerations

Approval to undertake this study was first sought from the School of Public Health, University of Ghana, Legon. Ethical clearance was also sought and obtained from the Ethics Review Committee of the Ghana Health Service to undertake the study.

An introductory letter was submitted to seek permission from the Holy Family Hospital where the study was carried out. Subsequent to the introductory letter was an ethical clearance letter from Ghana Health Service Ethical Review Committee to the administrator of the facility to be given permission to undertake study.

Consenting Procedure

Service providers at the PMTCT clinic and HIV-positive women attending follow up visits at the Holy Family Hospital were included in this study. An information sheet (appendix 1) was given to all prospective participants who were found eligible to read. A prospective participant who had challenges reading in English was read to the details of the information sheet in a language he or she was understands. Upon agreement to participate in the study, all participants were asked to sign or thumbprint a consent form. The interviewers too appended their signatures on the consent form.

Risks and Discomforts

Due to the sensitive nature of HIV and the anticipated stigma associated, the study was associated with some discomfort during the interview process. Questions were asked about respondents‟ background, health and social wellbeing, cultural and socio economic activities, stigma, challenges faced at facility level among other questions such that some of these questions pried a little into respondents personal lives. Respondents who felt uncomfortable to answer some questions at a point were given the option to skip any questions or absolutely opt out of the whole study whenever they felt uncomfortable.

Costs

Participants incurred no cost for accepting to participate in this study except for their time.

Benefits

Participants in this study did not enjoy any direct benefits. However the findings of this study will help identify the individual level and facility and service related challenges associated with option B+. Though benefits was not personally or out rightly felt by

participants, this research could go a long way to inform policy makers on necessary and quick adjustments that require attention such that programmatic value will be added to the whole PMTCT intervention for the benefit of all stakeholders to ensure a generation free of HIV.

Voluntary Participation and Right to Refuse or Withdraw

This study was purely an academic exercise and participation was absolutely voluntary. During the interview, participants had the choice not to answer any questions they felt not to answer. Participants also had their freewill to withdraw from the study or stop the interview at any point in time of the study period. It was however encouraged that participants‟ utmost support was required by answering to questions asked in order to be able to explore all the challenges associated with the implementation of option B+.

Privacy/Confidentiality

Respondents were assured that whatever information they provided would be handled with strict confidentiality, used purely for research purposes, and would never be used against them. Respondents‟ names or personally identifying information were not collected to further ensure anonymity. Some staff of the research team sometimes reviewed the research records during the study period, but no unauthorized individual(s) were able to access respondents‟ information. All information concerning individual subjects have and will continue to remain anonymous and confidential.

Data Storage/security and usage

Any information collected on participants (processed and non-processed data files) was password protected. Hard copy and electronic data were stored in locked file cabinets, and

access was limited to the researcher and the supervisor of the study. This was to ensure that data was inaccessible to any unauthorized person (s). Recordings will be kept for a period of 12 months, by which time all processes relating to this study would have been completed.

Compensation

No compensation was given for participation in this study. However, appreciation was accorded all participants.

Proposal and Funding

All costs from the beginning to the end of this study were borne by the PI.

Conflict of interest

The researcher declared no conflict of interest.

Contact for further information

The name and telephone number of researcher (student) and academic supervisor were provided on the consent form for participants for any further clarifications where necessary.

4.0 CHAPTER FOUR

4.1 RESULTS

4.1.0 Introduction

This chapter presents the results obtained from the study. It provides information on the socio-demographic characteristics of respondents, socio-cultural factors, service delivery, service receipt, and provider-patient relationship factors and drug related factors associated with implementation of PMTCT Option B+ among HIV positive pregnant and nursing mothers accessing PMTCT services at the Holy Family Hospital, Techiman. This chapter further presents results from the in-depth interviews conducted with service providers to determine the facility and service delivery related factors that influence implementation of PMTCT Option B+.

4.1.2 Socio-demographic characteristics of respondents

A total of 153 questionnaires were administered. The information on the socio-demographic characteristics of respondents is summarized in Table 2. The ages of respondents range from 17 years to 47 years. A little over 40 percent of the women were aged between 15 and 29 years with the others 71 (46.4%) and 15 (9.8%) aged between 30-39 years and between 45-49 years respectively. More than half (69.9%) were married with 19 (12.4%) of them separated, 9 (5.9%) never married, 8 (5.2) cohabiting, 5 (3.3%) divorced and 5 (3.3%) widowed. A little over half (51.6%) of the respondents were urban residents as opposed to 48.4 percent who were rural residents. About 70 percent of the women had some level of education as compared to 30 percent who had no formal education. For respondents‟ occupational status, more than half (75.2%) of the women

were employed whiles 24.8 percent were unemployed. Of the employed respondents 52.3 percent were traders whereas the remaining 22.9 percent were into other forms of occupation. Majority of the respondents were Christians (74.5%) whereas the others were Muslims (20.9%) and traditionalists (2.0%); 2.6% however had no religious affiliation. Of the respondents 39.9 percent belonged to the low income class with 40.5 percent and 19.6 percent belonging to the middle and high income group respectively.

Table 2: Socio-demographic characteristics of respondents (n=153)

Variable	Frequency	Percent (%)
Age of respondents		
15-19	2	1.3
20-24	20	13.1
25-29	45	29.4
30-34	40	26.1
35-39	31	20.3
40-44	11	7.2
45-49	4	2.6
Marital status		
Never married	9	5.9
Married	107	69.9
Divorced	5	3.3
Widowed	5	3.3
Separated	19	12.4
Cohabiting	8	5.2
Residence type		
Rural	74	48.4
Urban	79	51.6
Education level		
No formal education	46	30.1
Primary	20	13.1
JHS	54	35.3
SHS	28	18.3
Tertiary	5	3.3
Occupational status		
Unemployed	38	24.8
Farmer	13	8.5
Trader	80	52.3
Civil servant	4	2.6
Apprentice/student	4	2.6
Others	14	9.2
Religious affiliation		
No affiliation	4	2.6
Traditional	3	2.0
Christianity	114	74.5
Muslim	32	20.9
Socio-economic status		
Low income	61	39.9
Middle income	62	40.5
High income	30	19.6

4.1.3 Socio-cultural factors and implementation of PMTCT Option B+

In this study, respondents were probed to assess socio-cultural factors that influence implementation of PMTCT Option B+. Table 3 shows that 78.5 percent of respondents had someone knowing of their HIV status whereas 21.6 percent had no one knowing of their HIV status. Of the 78.5 percent, 48.4 percent had their partner (spouse) knowing of their HIV status with 14.4 percent and 15.7 percent having other family (not spouse) and other person aside family (friend) knowing of their HIV status respectively. A respondent had this to say on disclosure of HIV status:

"My husband took the test after my status was known and he was negative. In the initial stages he was very supportive but this was short lived… he abandoned me and the baby… I would rather keep it to myself and take my drugs to protect my baby" Respondent # 153

With regards to how confidant got to know of respondents‟ HIV status, 88.9 percent personally informed their confidant whiles 11.1 percent had their confidant discovering their HIV status either by mistake or other means such as revelations from spiritual leaders. Of the respondents close to 73 percent had their confidant initially expressing shock over knowledge of their HIV status with 23.0 percent and 4.4 percent expressing no shock and other forms of reaction respectively. Of the 153 respondents 96.3 percent per reaction from close relations indicate acceptance whereas 2.2 percent were tolerated and 1.5 percent rejected. A respondent relates:

"My mother is been extremely supportive since day one she is my hope". Respondent # 10

Of the respondents 96.3 percent had never experienced stigma from family or community members however 3.7 percent had experienced stigma as one respondent expressed:

"I have experienced stigma…yes because this condition led to my divorce. Upon testing positive at the ANC from my current pregnancy, service providers disclosed my status to my husband, which he was also counseled but tested negative. He abandoned me and later my official divorce" Respondent # 154.

Approximately 98.6 percent of respondents were not associated to any HIV support group with a few (1.4%) associated to an HIV support group.

Table 3: Socio-cultural factors and implementation of PMTCT Option B+ (n = 153 unless otherwise indicated)

Variable (subjective questions)	Frequency	Percent (%)
Who knows about your HIV status?		
No one	33	21.6
Partner (spouse)	74	48.4
Other family (not spouse)	22	14.4
Other*	24	15.7
How did your confidant get to know?		
Personally informed	120	88.9
Discovered by mistake	8	5.9
Other	7	5.2
Total	135	100
Initial reaction of confidant		
Shocked	98	72.6
Not shocked	31	23.0
Other	6	4.4
Total	135	100
Reactions from close relations		
Acceptance	129	96.3
Tolerance	3	2.2
Rejection	2	1.5
Total	134	100
Experienced stigma from family or community members		
No	129	96.3
Yes	5	3.7
Total	134	100
Association with any HIV support group		
No	143	98.6
Yes	2	1.4
Total	145	100

Other* means friend or 2 or more persons

4.1.4 Service receipt and provider-patient relationship factors and implementation of PMTCT Option B+

To determine facility and service receipt related factors that influence implementation of PMTCT Option B+, an independent variable, service receipt and provider-patient relationship was assessed. In table 4, a number of indicators of service receipt and provider-patient relationship were assessed. Out of the 153 respondents 44.4 percent spent between 30mins-1 hour, 19.6 percent spent between 1hour-2hours, 34.6 percent spent 2hours-5hours and 1.3 percent spent 6hours and more during clinic days to access care. On wait time clients expressed: *"Wait time especially at the pharmacy is a challenge"* Respondent # 45

88.9 percent of the respondents indicated they went through follow-up counseling upon re-visits to clinic however 11.1 percent indicated otherwise. A service provider reiterates on follow-up counseling that: *"…in PMTCT we say counseling is ongoing, something that is continuous so anytime we get the opportunity we counsel them" SP # 4*

61.1 percent of the respondents went through follow-up counseling very often, 33.8 percent fairly often and 5.1 percent not often went through follow-up counseling upon re-visits to the clinic. Of the respondents who went through follow-up counseling 78.7 percent reported they were very comfortable with counseling rooms and sessions, however 18.4 percent indicated they were fairly comfortable with 2.9 percent not comfortable. A client highlights:

"Group counseling is done in front of the clinic which makes me very uncomfortable because every passing individual sees you and your condition is communicated without any verbal utterance" Respondent # 45

Probing to know whether or not all medical tests requested of respondents were carried out at the facility, 88.9 percent of respondents indicated that, all their medical tests were carried out at the facility with a few (11.1%) indicating otherwise. Of the respondents 50 percent indicated non-availability of test kits and other logistics as the reason given by service provider for test not carried out at the facility with 12.5 percent indicating breakdown of laboratory machines as reason for medical tests not carried out at the facility. 37.5 percent gave other reasons (financial constraints) for medical tests not carried out at the facility. To stress these other reasons for tests not carried out at the facility, clients stated:

"I have been asked to go for a test for my child but…(tears) It has been two months now but I simply have no money meanwhile I have to bring the result today" Respondent # 86

"It is always a challenge when you have to go and do laboratory tests outside the facility… charges for test is expensive" Respondent # 88

96.7 percent of respondents had never experienced stigma from service provider nevertheless 3.3 percent had at one point or the other experienced stigma from a service provider. The level of satisfaction of respondents in service providers and services provided indicated 64.1 percent of respondents were very satisfied with 35.9 percent fairly satisfied.

Table 4: Service receipt and provider-patient relationship factors and implementation of PMTCT Option B+ (n = 153 unless otherwise indicated)

Variable	Frequency	Percent (%)
Waiting time		
30mins-1hour	68	44.4
1 hour-2 hours	30	19.6
2 hours-5 hours	53	34.6
6 hours+	2	1.3
Go through follow-up counseling upon re-visits?		
No	17	11.1
Yes	136	88.9
How often do you go through follow-up counseling?		
Not often	7	5.1
Fairly often	46	33.8
Very often	83	61.1
Total	136	11.1
Comfortable with counseling rooms and sessions		
Not comfortable	4	2.9
Fairly comfortable	25	18.4
Very comfortable	107	78.7
Total	136	100
Are all medical tests carried out at the facility?		
No	17	11.1
Yes	136	88.9
Experienced stigma from service provider		
No	148	96.7
Yes	5	3.3
Level of satisfaction in service provider and services provided		
Fairly satisfied	55	35.9
Very satisfied	98	64.1

4.1.5 Drug related factors and implementation of PMTCT Option B+

A relevant variable to assess facility and service receipt related factors that influence implementation of PMTCT Option B+ was drug related factors. All respondents 153 (100%) indicated that they were served all their prescribed drugs at the facility to which service providers confirmed that they hardly run out of medications. One commented:

"We get it within a day provided the drugs are available" SP # 4

Of the respondents 68.6 percent indicated that they were very informed on their medications with 31.4 percent indicating that they were fairly informed on their medications. 98 percent of the respondents indicated that they complied with all their medications with only 2 percent indicating they were not compliant with their medications. A respondent had this to say:

" I am a second wife so I comply with my medications because I want my baby to come out healthy else I will be a laughing stock to my rival…" Respondent # 125

82.4 percent very regularly took their medications, 17.0 fairly regularly took their medications with less than 1 percent not regularly taking their medications. In support a client said:

"My mother had a dream…I believe HIV is a spiritual disease so I find it difficult to come to terms with the condition an even taking my medications…" Respondent # 10

More than half (52.9%) of the respondents responded that they fairly missed their medications, 42.5 percent not often missed medications however only 4.6 percent very often missed their medications. Per reasons for missing medications, over half (55.6%) of the respondents answered that forgetfulness made them miss medications with others

indicating being busy (24.4%), adverse side effects (6.7%), Stigma (2.2%) and medicines out of stock (1 %) 10% of the respondents indicated other reasons other than the already indicated. To these reasons a respondent reported:

"I miss my medications very often because I live in the same room with my siblings and feel uncomfortable to take the drugs. Am shy and also scared that news will spread that I take ,,some drugs" everyday…" Respondent # 140

Of the respondents, 58.2 percent reported no experience of side effects of their medications whereas 41.8 percent answered that they experienced side effects of their medications as a respondent expressed:

"I really suffered during my pregnancy because there were complications. I was made to believe it resulted from the drugs… at a point I regretted taking the medications"

Respondent # 102

Table 5: Drug related factors and implementation of PMTCT Option B+ (n = 153 unless otherwise indicated)

Variable	Frequency	Percent (%)
Drugs served		
Yes	153	100
Information given on medications		
Fairly informed	48	31.4
Very informed	105	68.6
Compliance to medications		
No	3	2.0
Yes	150	98.0
Regularity on taking medications		
Not regular	1	0.7
Fairly regular	26	17.0
Very regular	126	82.4
Missing medications		
Not often	65	42.5
Fairly often	81	52.9
Very often	7	4.6
Reasons for missing medications		
Forgotten	50	55.6
Busy	22	24.4
Stigma	2	2.2
Adverse effects	6	6.7
Out of stock	1	1.1
Other	9	10.0
Total	90	100
Experienced side effects		
No	89	58.2
Yes	64	41.8

4.1.6 Associations between selected characteristics and client satisfaction

Another relevant objective of this study was to identify the socio-cultural, facility and service related factors that influence implementation (client satisfaction) of PMTCT Option B+. Client satisfaction was used as a proxy of good PMTCT Option B+ implementation. In view of that, a bivariate and logistic regression analyses were carried out to examine the association between selected characteristics of HIV positive women and client satisfaction. Table 6 shows the results of the bivariate and logistic regression

analysis. Of the socio-cultural factors assessed none was found to have statistical associations either significantly or otherwise with client satisfaction however facility and service related factors including waiting time ($p<0.001$), medical tests carried out at the facility ($p<0.05$), experience of side effects of medications ($p<0.05$), ever stigmatized by service provider ($p<0.05$) and information given on medications ($p<0.001$) were statistically associated with client satisfaction. All other characteristics such as follow-up counseling, how comfortable clients were with counseling rooms and sessions, whether or not clients were served all their medications among others were not statistically associated with client satisfaction. There is an 85 percent reduced odds of being very satisfied among those who spend 1 hour or more compared to those who spend on <1 hour (AOR: 0.151 95% CI. 0.066-0.347). There is a 93 percent reduced odds of being very satisfied among those who are stigmatized by service providers compared to those who are not (AOR: 0.070 95% CI. 0.007-0.731). Though statistically not significant, clients who do not get all their medical tests carried out at the facility have a 59 percent reduced odds of being very satisfied compared to those who get all their medical tests carried out at the facility (AOR: 0.405 95% CI. 0.079-2.021). Those who have never experienced side effects of medications have 1.84 times greater odds of being very satisfied compared to those who have ever experienced side effects of medications (AOR: 1.844 95% CI. 0.861-3.951) however this is not statistically significant. The only socio-demographic variable that was significantly associated with client satisfaction was residence type ($p<0.01$). The odds of an HIV positive woman who is an urban resident being very satisfied is 3.3 times higher compared to those who are rural residents (AOR: 3.256 95% CI. 1.556-6.813).

Table 6: Associations between client satisfaction and selected characteristics of HIV positive women (n = 153 unless otherwise indicated)

Characteristics	Fairly Satisfied Frequency (%)	Very Satisfied Frequency (%)	p-value	Adjusted Odds Ratio (95% CI)
Age group of respondents				
Up to 24 years (Ref)	47 (35.9)	84 (64.1)		
Over 24 years	8 (36.4)	14 (63.6)	0.965	0.896 (0.161-4.991)
Marital status				
Not married (Ref)	15 (32.6)	31 (67.4)		
Married	40 (37.4)	67 (62.6)	0.573	0.524 (0.150-1.827)
Educational status				
No education (Ref)	14 (30.4)	32 (69.6)		
Some education	41 (38.3)	66 (61.7)	0.351	0.646 (0.172-2.423)
Residence type				
Rural (Ref)	36 (48.6)	38 (51.4)		
Urban	19 (24.1)	60 (75.9)	0.002**	3.256 (1.556-6.813)
Occupational status				
Unemployed (Ref)	20 (39.2)	31 (60.8)		
Employed	35 (34.3)	67 (65.7)	0.551	0.840 (0.226-3.128)
Socio-economic status				
Low income	13 (43.4)	17 (56.7)		
High income	20 (32.3)	42 (67.7)	0.299	1.607 (0.467-5.531)
Person(s) who know of your HIV status				
No one (Ref)	16 (48.5)	17 (51.5)		
Someone	39 (32.9)	81 (67.5)	0.090	0.877 (0.256-3.003)
Waiting time				
< 1 hour (Ref)	13 (15.3)	72 (84.7)		
> 1 hour	42 (61.8)	26 (38.2)	0.001**	0.151 (0.066-0.347)

Follow-up counseling				
No (Ref)	4 (23.5)	13 (76.5)		
Yes	51 (37.5)	85 (62.5)	0.258	0.599 (0.166-2.164)
How often do you go through follow-up counseling?				
Not often (Ref)	31 (37.3)	52 (62.7)		
Often	24 (34.3)	46 (65.7)	0.694	0.966 (0.289-3.234)
How comfortable are you with counseling rooms and sessions				
Not comfortable (Ref)	47 (35.6)	85 (64.4)		
Comfortable	8 (38.1)	13 (61.9)	0.825	0.907 (0.270-3.049)
Medical tests carried out at the facility				
No (Ref)	2 (11.8)	15 (88.2)		
Yes	53 (39.0)	83 (61.0)	0.028*	0.405 (0.079-2.021)
Information given on medications				
Fairly informed (Ref)	34 (70.8)	14 (29.2)		
Very informed	21 (20.0)	84 (80.0)	0.001***	
Ever experienced side effects of medications?				
No (Ref)	38 (42.7)	51 (57.3)		
Yes	17 (26.6)	47 (73.4)	0.040*	1.844 (0.861-3.951)
Ever stigmatized by a service provider?				
No (Ref)	51 (34.5)	97 (65.5)		
Yes	4 (80.0)	1 (20.0)	0.037*	0.070 (0.007-0.731)

***p<0.001 **p<0.01 *p<0.05; p-value is from chi square analysis.

4.1.7 Facility and service delivery related factors and implementation of PMTCT Option B+

Attributes of service providers

Service providers included 2 pharmacists, a nurse midwife, a medical officer, an administrative manager, data manager, HIV Coordinator, a principal health assistant with their ages in the range of 28 and 53 years.

Three themes were developed from the data analysis: Knowledge, Service delivery and, Challenges. The theme Knowledge has two (2) sub-themes: Service provider knowledge and Training. Service delivery, a main theme also has three (3) sub-themes, which are Service delivery, Medicines and logistics and Relationship.

Knowledge

- Service provider knowledge

Most of the service providers expressed high level of knowledge on PMTCT Option B+ as stated below:

> *"… a new regimen on preventing mother to child transmission of HIV, early diagnosis, early treatment, early initiation and lifelong ART"* SP # 3

> *"Formally we use to put people, I mean pregnant women who test positive on ARVs from the 14th week of pregnancy but… no matter the gestation period we have to initiate them on HAART, it is lifelong too"* SP # 4

"It's the new guideline by WHO which indicates that regardless of CD4 cell count of HIV positive pregnant women, they are put on lifelong ARVs as soon as diagnosed" SP # 5

A few however had fair knowledge on PMTCT. A service provider stated:

"I don't know of Option B+ but I know of PMTCT… preventing the mother from giving it to the child…" SP # 7

- Training

Some of the service providers indicated they had attended trainings under Option B+. They stated as follows:

"Yes, I have been to a workshop concerning PMTCT Option B+" SP # 6

"Yeah, there was a workshop in Sunyani which I attended" SP # 4

Most of the service providers reported they had not officially undergone any training or workshops on PMTCT Option B+. In the words of some service providers:

"Well I have not been trained on Option B+…" SP # 2

"I have not personally undergone any training under PMTCT Option B+…" SP # 3

"I have not formally undergone any training but I read on my own" SP # 5

They however indicated that some few colleagues went for trainings and came back to impart knowledge to them. Below are some comments:

"The midwives go for such trainings and come back to impart knowledge to us" SP # 3

"… was imparted knowledge by my colleagues who had training" SP # 8

On how often trainings were organized they had these to say:

"Only one group has gone for a workshop and since then no other" SP # 2

"Not often, roughly once a year…" SP # 4

"I have been to a workshop once" SP # 6

Service delivery

- Service delivery

The services provided at the ART clinic under PMTCT Option B+ include counseling both individual and group counseling. Service providers reported they offered both individual and group counseling services. As one respondent put it:

"Yes we do especially the pregnant women who are yet to start medication…" SP # 1

When asked about follow-up counseling some had these to say:

"Yes we do and I call it ongoing counseling, we never stop" SP #3

"…because in PMTCT we say counseling is ongoing, something that is continuous so anytime we get the opportunity we counsel them" SP # 4

About time spent with clients during counseling sessions whether of quality or not, service providers commented:

"I will rate quality of sessions at 85-90 percent" SP # 2

"Yes because we ensure that they understand everything we tell them" SP # 4

Some respondents however differed as one stated:

"I would not say quality time is always assured because you have to attend to others too" SP # 3

Service providers were further probed to know how other health care services were integrated into PMTCT Option B+ and they reported that all other health needs of clients

were attended to except in emergency cases where the clinic is closed. Service providers responded that:

"All services needed are offered unless there is an emergency and the clinic has closed then they have to go to the main OPD" SP # 2

"Oh I see all other cases provided they complain" SP # 5

Further probing was done to know how clients were informed on their next visits either appointment or refill dates. Aside indicating in their folders and appointment cards, and verbally communicating to clients, it was discovered that service providers typically wrote on pieces of papers when clients were due to either meet a medical officer or pick up their medications. Service providers indicated:

"At the moment we give them small sheets with the dates on it and tell them as well" SP # 4

"For some we take their drugs for them and we take their numbers and the dates when is due we call them to come for their drugs or come to see a doctor" SP # 6

- Medicines and logistics

Service providers expressed that they don"t often run out of stock in relation to medicines and other operational materials. This was because medicines are supplied from Central Medical Stores, Sunyani, which is about 45 minutes drive from Techiman hence upon requisition they are promptly supplied mostly same day, provided medicines are available. As some service providers put it:

"... so if I make requisition today, I get them today" SP # 1

"Same day delivery upon requisition" SP # 2

"We get it within a day provided the drugs are available" SP # 4

It was discovered that the hospital was responsible for supplying all other operational logistics to the clinic and service providers had these to say on whether or not they often run out of operational logistics:

"Oh no, the hospital has been good to the unit on that" SP # 2

"No, I have never encountered that" SP # 5

A few differed as such:

"That is a big problem especially, BP apparatus and we have requested but no response"

SP # 6

Getting folders when they run out whiles there are a lot of patients here delay" SP # 7

- Relationship

On relationship all service providers expressed that they had cordial relationship with clients to an extent that some service providers had the personal contacts of some clients and even visited them at home. A service provider had this to say:

"Very cordial… they call me and I even „whatsapp" some of them" SP # 1

Another said:

"… because of how cordial the relationship is I identify some of them by their nicknames"

SP # 4

Challenges

Service providers expressed a couple of challenges they encountered in their line of duty covering areas of workload, operational logistics, infrastructure, and patient related challenges. Service providers reported:

"Clinic days are mostly overwhelming" SP # 2

„My workload is heavy, moving from ward to ward, bed to bed…" SP # 3

Some expressed different views on workload:

"We are able to serve clients for 3,4,6 months in that case workload reduces drastically…" SP # 4

"… because the Model of Hopes come around they help so it is not all that heavy" SP # 7

On infrastructure, some service providers commented:

"We have limited rooms for counseling and privacy is not adequate…" SP # 2

"The counseling rooms are not enough" SP # 3

"Our office is too small and our client attendance keeps increasing so a time will come when we will not get space for folders" SP # 7

Service providers classified defaulters in two ways thus, failure to honour refill dates and failure to honour appointment dates irrespective of whether a client has stock of medicines or not. Service providers responded they had various monitoring and follow-up processes for tracking defaulters through phone calls and even visits to some homes. Efforts seem to however prove futile as a service provider expressed:

"Defaulting is the greatest enemy of this concept of ART, for that matter PMTCT Option B+… sometimes I feel it is a side effect of HIV" SP # 4

Other service providers expressed other concerns as:

"We are also able to miss some of the treatment for the new borns and it is an institutional challenge, communication gap from midwife to nurses at labour ward and NICCU which mostly happens over the weekends" SP # 1

"We are supposed to do viral load every six months but sometimes you take it to Sunyani it takes months with some even getting to a year." SP # 2

"Shortage of test kits especially confirmators. Confidentiality on the part of monitors (confidants of clients). Inability of clients to undertake medical tests due to financial constraints. Workload. Partner non-disclosure for fear of divorce. Clients begging for financial assistance" SP # 3

5.0 CHAPTER FIVE

5.1 DISCUSSION

5.1.0 Introduction

This section discusses the findings of the study in relation to literature reviewed on PMTCT Option B+ and its implementation; client satisfaction. With regards to the results this chapter discusses socio-demographic characteristics, socio-cultural factors, service reception and facility related factors encountered by HIV positive women, which are statistically associated with client satisfaction. It further highlights the facility and service delivery challenges experienced by service providers under PMTCT Option B+.

5.1.1 Socio-demographic characteristics of HIV positive women

Respondents of this study were within the age range of 17-47 years with the mean age of 30.97 years (SD 6.11 years) which compares with a similar study conducted in Lilongwe, Malawi where respondents of were between the ages of 16–44, with the mean age being 29 years (SD: 7 years) (Kim, Zhou, Mazenga, Ahmed, Markham, Zomba, Simon, Kazembe &Abrams, 2016).

Type of residence of HIV positive women was discovered to be statistically significant with client satisfaction with service provider and services provided under PMTCT Option B+ (OR: 3.256 95% CI. 1.556-6.813). Clients in urban areas were 3.3 times more likely to be very satisfied compared to those in the rural areas. This may be attributed to how enlightened and the extent to which urban residents have knowledge on the importance of accessing care under PMTCT. Access to relevant information through both the print and

electronic media and now the social media informs HIV-positive women. This information received empowers these women and enable them have control over their health. HIV positive women who are from the urban centers look out for better care and are more circumspect the kind of service provider, the process through which services are provided, the kind and relevance of information given on service, integration of service among other matters. This is usually not the case for rural residents who have little or no information on health care. These women seek health care mostly disregarding the technical features of care hence as to whether or not they are satisfied with care received at the ART Clinic they may not really be able to assess.

5.1.2 Socio-cultural factors associated and implementation of PMTCT Option B+

In this study 78.5 percent of HIV positive women had disclosed their status to someone. Most of them had disclosed to their partners (48.4%), however a few had disclosed to other family members (14.4%) or other people other than family (15.7%). The findings of this study on disclosure is by far better than the study conducted in Zimbabwe where only 55 percent of women had disclosed their status to other people (Munchenje, 2015). Nonetheless a higher level of disclosure was reported in the study by Dankoli *et al* (2014) in Eastern Nigeria, where they found out that 98 percent had disclosed their HIV status. Disclosure is relatively low in this study in spite of the availability of medications. Women reported that they feared stigma and discrimination should people get to know of their HIV status. One had this to say:

"My husband took the test after my status was known and he was negative. In the initial stages he was very supportive but this was short lived… he abandoned me and the baby… I would rather keep it to myself and take my drugs to protect my baby" Respondent # 153

This may be contributing to new cases of HIV in discordant couples based on the fact that HIV positive women would secretly be on ARVs and sexual intercourse with their husbands without their knowledge of the HIV status of their wives. From the findings, HIV positive women‟ disclosure of their status had no statistical associations with client satisfaction. Regardless of non-disclosure of their status, HIV positive women were thoughtful on taking their medications with 98 percent reporting compliance to all medications. This I believe is for the motherly love they have for their babies. This is consistent with a study in Nigeria where among Nigerian HIV positive pregnant mothers one of the main reasons for good adherence was the wish to shield their unborn children from HIV infection (51.8%) though they held the fear of being identified by others as HIV positive (Tsegaye et al., 2016). Though HIV-positive women non-disclosure of their HIV status to partners is harmful it is a positive factor to eMTCT because mothers will still be on ARVs and MTCT will be reduced.

5.1.3 Service receipt and provider-patient relationship factors and implementation of PMTCT Option B+

It was discovered in this study that 64 percent of HIV positive women were very satisfied with their service providers and services provided with almost 36 percent indicating they were fairly satisfied. None however indicated they were not satisfied. This compares to the finding of a study in Ethiopia, which reported a higher (74.7%) level of satisfaction of clients in service they had received (Asefa & Mitike, 2014). In this study, the only socio-demographic characteristic that made statistically significant difference with client satisfaction was residence type however other variables; waiting time and ever stigmatized

by a service provider were statistically significantly associated with client satisfaction. On the other hand, whether or not all medical tests were carried out at the facility and information given on medications had some associations with client satisfaction though not significant. Asefa & Mitike (2014) found that there was no statistically significant difference in satisfaction among clients who experienced short waiting time and those who had to wait more. In contrast, waiting time in this study saw statistically significant difference to client satisfaction thus clients who spent <1 hour were more likely to be very satisfied compared to those who spent >1 hour ($p<0.001$; OR=0.151, CI 0.066-0.347). This association can to an extent be related to the occupational status of respondents which was discovered that 66.7 percent were employed of which 52.3 percent were traders. Trading by far is the commonly known major economic activity of the people of Techiman hence anything and for this matter wait time; that would stand in the way of the source of livelihood of respondents will definitely cause some dissatisfaction.

Going through follow-up counseling I understand is a prime component of PMTCT Option B+ such that people will consistently be informed on changing guidelines and adopting them. It was discovered in this study that almost 90 percent of HIV positive women went through follow-up counseling whenever they visited the facility which was confirmed by a service provider that:

"Yes we do and I call it ongoing counseling, we never stop" SP # 3

Among these, 78.7 percent were comfortable with counseling rooms and sessions. Whether or not HIV positive women went through follow-up counseling, the frequency of such counseling and how comfortable clients were with counseling rooms and sessions was discovered to be statistically not associated with client satisfaction. It was discovered

that group (general adherence) counseling was done at the forecourt of the clinic, which service recipients reported made them uncomfortable. How uncomfortable a client is exemplified by this quote:

"Group counseling is done in front of the clinic which makes me very uncomfortable because every passing individual sees you and your condition is communicated without any verbal utterance" Respondent # 45

A service provider also highlights:

"We have limited rooms for counseling and privacy is not adequate…" SP # 2

This qualitative aspect of the study corroborates what Laar et al., (2014) reported in their study that privacy had to be forced in most of the facilities where they carried out their study. It was further discovered in their study that counseling rooms were so open to public view that clients" privacy was not adequately ensured. HIV is still highly stigmatized irrespective of efforts to reduce this canker surrounding the condition. It is expedient to ensure that people who are bold enough to come out and seek care are comfortable. This can contribute to either reduce MTCT or increase it. An HIV woman for fear of being labeled and stigmatized would rather stay in her „closet" where no one would get know of their status than to visit a facility where all and sundry witness happenings at the clinic. Noteworthy is that clients" comfort didn"t only have to do with space but also schedule and setting as in these words:

"I have a problem with the scheduling of clinic days to Tuesdays and Thursday which makes everybody seeing you at the clinic know you have this condition" Respondent # 107

"I have a problem with where the clinic is located. It is separated from the main OPD why?" Respondent # 125

Medical test (s) carried out at the facility from the study was discovered to be statistically associated with client satisfaction however the strength of association was not significant. HIV positive women who got all their medical tests carried out at the facility were more likely to be very satisfied compared to those who do not get all their medical tests carried out at the facility (AOR=0.405 95% CI. 0.079-2.021). This may be attributed to some challenges experienced by HIV positive women receiving care under PMTCT Option B+. It was discovered during the study that, the National Health Insurance clients under PMTCT had the bills of their medical tests paid for. However not all the required tests were done at the facility, for instance CD4 cell count had to be done outside the facility. Financial constraints may account for reduced satisfaction of clients under PMTCT Option B+ as a client expressed:

"I have been asked to go for a test for my child but…(tears) It has been two months now but I simply have no money meanwhile I have to bring the result today" Respondent # 86

Experience of stigma from a service provider was discovered from the study to be statistically significant to client satisfaction. Clients who had never experienced stigma from a service provider were more likely to be very satisfied compared to those who had ever experienced stigma (OR: 0.070 95% CI. 0.007-0.731).

"In the early stages of the condition I was very deteriorated… upon admission at the facility some of you (indicating health workers) really maltreated me because I looked so ill…" Respondent # 144 recounted this awful experience with a service provider.

Stigma has since time immemorial been a barrier to the fight against HIV and it is even worse when it is exerted by service providers. This compares with similar findings of a study conducted in Nkhoma, Malawi where it was reported that some women indicated they experienced harsh words or treatment when they went to facilities to collect their medications (Iroezi, Mindry, Kawale, Chikowi, Jansen & Hoffman, 2013).

This may be attributed to staff attitude and to a greater extent staff workload as a service provider voiced out:

„My workload is heavy, moving from ward to ward, bed to bed…" SP # 3

Naturally people tend to treat people with HIV unpleasantly but heavy workload on the part of staff may put them in a state of frustration such that this frustration is lashed out on clients. This is a bad omen on PMTCT Option B+ since clients would be sick and die than seek care and be mistreated. This is reiterated by findings that mothers in Cote d'Ivoire dreaded being chidingly related to by health care workers at the various health facilities (Nuwagaba-Biribonwoha et al., 2007)

5.1.4 Drug related factors and implementation of PMTCT Option B+

All respondents indicated that they were served all their medications at the facility. This is in accordance with what service providers had to say on medications where they reported that they hardly run out of stock on medications nonetheless if they do one stated:

"… so if I make requisition today, I get them today" SP # 1

The study showed that experience of side effects from medications had some statistical associations with client satisfaction. When adjusted for, HIV positive women who had never experienced side effects of medications were two times very satisfied compared to those who had experienced side effects (OR=1.844; 95% CI. 0.861-3.951), however this

association was not statistically significant.

Availability of drugs to HIV positive women is a good will to the PMTCT Option B+ programme such that efforts to achieving eMTCT is hopeful however the fear of experiencing side effects is detrimental. This most often put people in a dilemma as to whether or not to start or even continue with medications. A study in Zimbabwe discovered that some patients who have experienced or heard of the side effects of the ART drugs have opted to stop medication to prevent them from occurring (Munchenje, 2015). A common side effect that was reported most was oversleeping which really caused most of the women inconveniences especially those who traded at night; food vending and shop attending. This can be associated to inadequate information given clients on medications as 31.4 percent HIV positive women indicated that they were fairly informed on their medications. Information on medications include dosage, time of taking drugs, possible side effects, among others. Inadequate information can be a threat to the implementation of any programme, in this case PMTCT Option B+.

5.1.5 Facility and service delivery challenges and implementation of PMTCT Option B+

Qualitatively service provider challenges were assessed and it was discovered that heavy workload is one of the challenges faced under the provision of services under PMTCT Option B+. The clinic as indicated earlier has stipulated Tuesdays and Thursdays as clinic days either for refill of their medications or appointment to see an MO. Most of the service providers reported that such clinic days were overtly demanding to an extent that until the last person leaves the service provider doesn‟t leave. There was no official closing time for the clinic. A service provider expressed:

"Clinic days are mostly overwhelming" SP # 2

This is consistent with the discovery on how integration of HIV/AIDS services into MCH has increased the workload of service providers in Kenya (The Population Council, 2001). A study in Ethiopia also discovered that, 71.0 percent of service providers reported heavy workload since the introduction of PMTCT (Asefa and Mitike, 2014). This is due to reports that the Holy Family ART clinic did not only attend to natives of the town rather people from all walks of life including other countries like Cote D'Ivoire and Burkina Faso visited the clinic for care under PMTCT Option B+. Another bearing may also be driven from the fact that services under PMTCT Option B+ including supply of ARVs are not directly paid for rather bills are catered for under NHIS. This encourages a lot of people to patronize the service and it is a good will to efforts of attaining eMTCT. On the other hand this can be detrimental to the programme as quality time spent with client is not assured as one service provider laments:

"I would not say quality time is always assured because you have to attend to others too" SP # 3

Another challenge service providers experienced was in the area of client defaulting as one highlights:

"Defaulting is the greatest enemy of this concept of ART, for that matter PMTCT Option B+… sometimes I feel it is a side effect of HIV" SP # 4

Further probing indicated that clients defaulted for many reasons such as financial constraints, seeking of spiritual remedy, lack of social support, forgetfulness, complacency on wellbeing, among others. Defaulting can be a major setback to eMTCT however it was discovered that service providers made all efforts to curb it through regular tracking of

defaulters from their registers, regular phone calls to clients and follow-up visits. This is done out of their personal resources which is unfavorable to them.

Other challenges reported by service providers were shortages in operational logistics and absence of some needed machinery. Some reported on available but faulty apparatus, others reported on shortage of test kits especially confirmators as some reported:

"We are supposed to do viral load every six months but sometimes you take it to Sunyani it takes months with some even getting to a year." SP # 2

"The hospital provides them so they don't run out. However test kits do run out sometimes especially confirmators" SP # 3

This confirms earlier statement by clients who have to make extra payments for tests to be carried out outside the facility. Similar to the findings of Nuwagaba-Biribonwoha et al., (2007) shortages and interrupted supplies of materials (laboratory re-agents, disinfectants, sterile equipment and dressings) were reported at all the five sites of their study in Uganda. Provision of service becomes difficult such that if a BP apparatus is faulty and all efforts to get it fixed or replaced fails, service providers tend to be frustrated. Another highlights:

"That is a big problem especially BP apparatus and we have constantly requested but no response" SP 6

Shortage of operational materials and malfunctioning of operational machinery and instruments can result in the situation reported in Malawi that that the proportion of women visiting ANC whose HIV status was discovered dropped from 99 percent to 84

percent post Option B+. This decline was attributable to shortages in operational materials (mainly to test kit shortages) (Kim et al., (2015). This may be detrimental to achieving virtual eMTCT.

5.1.6 Limitations

1. The time schedule given by the University of Ghana to conduct this study was limited contributing to not attaining the proposed sample size.
2. Also social desirability bias could have been recorded since the study was conducted in a health facility where service providers had assumed their normal duties. HIV positive women might have been anxious of possible repercussions from service providers should they report of actual experiences.

6.0 CHAPTER SIX

6.1.0 CONCLUSIONS AND RECOMMENDATIONS

6.1.1 Conclusion

The study sought to examine the socio-cultural, facility and service related factors that influence client satisfaction under PMTCT Option B+. None of the socio-cultural factors examined was a predictor of client satisfaction with services and service providers under PMTCT Option B+ however facility and service related factors, wait time (OR: 0.151 95% CI. 0.066-0.347) and experience of stigma from service provider (OR 0.070 95% CI. 0.007-0.731) made statistically significant difference with client satisfaction. On the other hand other variables: medical tests carried out at the facility (OR: 0.405 95% CI. 0.079-2.021), ever experienced side effects of medications (OR: 1.844 CI 95% 0.861-3.951) and information given on medications ($p<0.001$) had associations with client satisfaction however they made no statistically significant difference with client satisfaction. Of socio-demographic variables residence type made a significant difference in whether or not an HIV positive woman would be very satisfied with care under PMTCT Option B+ (OR: 3.256 95% CI. 1.556-6.813). Implementation of PMTCT Option B+ in the Techiman Municipality has seen milestones in areas of regular supply of medications, regular follow-up counseling, good provider-patient relationship among others however the aspects of stigma from service providers, long wait time at the facility, experience of side effects of medications, inadequate infrastructure and other challenges dawdles.

On the part of service providers, heavy workload, client defaulting rates, challenges with operational logistics, inadequate training and workshops on PMTCT are still some challenges that impairs all efforts to achieving eMTCT.

6.1.2 Recommendations

The following recommendations are suggested:

POLICY

1. The hospital should formulate a policy on sporadic appraisal of service providers by clients to serve as a check on good provider-patient relationship however, in the interim this appraisal of staff could be fused into the hospital‟s quality assurance systems.

PRACTICE

2. The hospital administration should constantly furnish the PMTCT and ART clinic with all necessary operational logistics to facilitate smooth delivery of services to clients.
3. It was discovered that the facility serves a larger population of people from neighbouring towns, other regions and even countries hence it may be prudent for NACP, Ghana AIDS Commission, Ghana Health Service and other key stakeholders in PMTCT Option B+ to furnish the facility with a CD4 cell count machine so that it will be useful to clients at a highly subsidized cost through the NHIS.
4. The NACP should organize regular trainings and workshops for service providers to keep them very well informed on any new interventions in the fight against HIV and AIDS especially MTCT.
5. All stakeholders should come together to discuss and establish how various forms of motivation could be put in place for staff for extra time spent at the facility on clinic days.

REFERENCE

Barker, P. M., Mphatswe, W., Rollins, N., P.M., B., W., M., & N., R. (2011). Antiretroviral drugs in the cupboard are not enough: The impact of health systems‟ performance on mother-to-child transmission of HIV. *Journal of Acquired Immune Deficiency Syndromes*, *56*(2), e45–e48. https://doi.org/10.1097/QAI.0b013e3181fdbf20

Chan, A. K., Kanike, E., Bedell, R., Mayuni, I., Manyera, R., Mlotha, W., … Van Lettow, M. (2016). Same day HIV diagnosis and antiretroviral therapy initiation affects retention in Option B+ prevention of mother-to-child transmission services at antenatal care in Zomba District, Malawi. *Journal of the International AIDS Society*, *19*(1), 1–6. https://doi.org/10.7448/IAS.19.1.20672

Chimbwandira, F., Mhango, E., Makombe, S., Midiani, D., Mwansambo, C., Njala, J., … Houston, J. (2013). Impact of an innovative approach to prevent mother-to-child transmission of HIV - Malawi, July 2011-September 2012. *Morbidity and Mortality Weekly Report*, *62*(8).

Clouse, K., Pettifor, A., & Maskew, M. (2013). Patient retention from HIV diagnosis through one year on antiretroviral therapy at a primary healthcare clinic in Johannesburg, South Africa. *Journal of Acquired Immune Deficiency Syndromes*, *62* (July 2012), 22–27. https://doi.org/10.1097/QAI.0b013e318273ac48.Patient

Clouse, K., Schwartz, S., Van Rie, A., Bassett, J., Yende, N., & Pettifor, A. (2014). “What They Wanted Was to Give Birth; Nothing Else.”*Journal of Acquired Immune Deficiency Syndromes*, *67*(1), e12–e18. https://doi.org/10.1097/QAI.0000000000000263

Crum, N. F., Riffenburgh, R. H., Wegner, S., Agan, B. K., Tasker, S. a, Spooner, K. M., … Wallace, M. R. (2006). Comparisons of Causes of Death and Mortality Rates Among HIV-Infected Persons. *Journal of Acquired Immune Deficiency Syndromes*, *41*(2), 194–200. https://doi.org/10.1097/01.qai.0000179459.31562.16

Dako-Gyeke, P., Dornoo, B., Ayisi Addo, S., Atuahene, M., Addo, N. A., & Yawson, A. E. (2016). Towards elimination of mother-to-child transmission of HIV in Ghana: an analysis of national programme data. *Int J Equity Health*, *15*(1), 5. https://doi.org/10.1186/s12939-016-0300-5

Dankoli RS, Aliyu AA, Nsubuga P, Nguku P, Ossai OP, Tukur D et al. HIV disclosure

status and factors among adult HIV patients in a secondary health facility in North Eastern Nigeria. The Pan African medical journal.2014; 18(Suppl 1):4. doi: 10.11694/pamj.supp.2014.18.1.3551

De Cock, K. M., Fowler, M. G., Mercier, E., de Vincenzi, I., Saba, J., Hoff, E., … Shaffer, N. (2000). Prevention of Mother-to-Child HIV Transmission in Resource-Poor Countries. *Jama*, *283*(9), 1175. https://doi.org/10.1001/jama.283.9.1175

Deressa, W., Seme, A., Asefa, A., Teshome, G. & Enqusellassie, F. (2014). Utilization of PMTCT services and associated factors among pregnant women attending antenatal clinics in Addis Ababa, Ethiopia. *BMC Pregnancy and Childbirth*, Vol. 14, No. 1, article 328. http://www.biomedcentral.com/1471-2393/14/328

Ebuy, H., Yebyo, H., & Alemayehu, M. (2015). Level of adherence and predictors of adherence to the Option B+ PMTCT programme in Tigray, northern Ethiopia. *International Journal of Infectious Diseases*, *33*, e123–e129. https://doi.org/10.1016/j.ijid.2014.12.026

Fisher D, Fisher A, Amicoa R, Harman J. An information–motivation–behavioral skills model of adherence to antiretroviral therapy. Health Psychol 2006;25: 462–73.

Gebrekristos, H. T., Mlisana, K. P., & Karim, Q. A. (2005). Patients‟ readiness to start highly active antiretroviral treatment for HIV. *BMJ*, *331*(7519), 772–5. https://doi.org/10.1136/bmj.331.7519.772

Ghana Health Service. The 2007 Annual Report of the Ghana Health Service. Compiled for the Ghana Health Service by the Policy Planning Monitoring and Evaluation Division, Accra Ghana. June 2007.

Hardon, A., Vernooij, E., Bongololo-Mbera, G., Cherutich, P., Desclaux, A., Kyaddondo, D., … Obermeyer, C. (2012). Women‟s views on consent, counseling and confidentiality in PMTCT: a mixed-methods study in four African countries. *BMC Public Health*, *12*(1), 26. https://doi.org/10.1186/1471-2458-12-26

Herce, M. E., Mtande, T., Chimbwandira, F., Mofolo, I., Chingondole, C. K., Rosenberg, N. E., … van der Horst, C. M. (2015). Supporting Option B+ scale up and strengthening the prevention of mother-to-child transmission cascade in central Malawi: results from a serial cross-sectional study. *BMC Infectious Diseases*, *15*, 328. https://doi.org/10.1186/s12879-015-1065-y

Hirnschall G, Schwartlander B. Treatment (2011). Catalysing the next phase of scale-up. *Lancet*; 378:209 11.

HIV Infection in Infants: Towards Universal Access - Recommendations for a public health approach. World Health Organization; (2010). [http://www.who.int/hiv/pub/guidelines/pmtctguidelines3.pdf]

Katirayi, L., Chouraya, C., Kudiabor, K., Mahdi, M. A., Kieffer, M. P., Moland, K. M., & Tylleskar, T. (2016). Lessons learned from the PMTCT program in Swaziland : challenges with accepting lifelong ART for pregnant and lactating women – a qualitative study. *BMC Public Health*, 1–11. https://doi.org/10.1186/s12889-016-3767-5

Kim, M. H., Ahmed, S., Hosseinipour, M. C., Giordano, T. P., Chiao, E. Y., Yu, X., … Abrams, E. J. (2015). Implementation and operational research: the impact of option B+ on the antenatal PMTCT cascade in Lilongwe, Malawi. *Journal of Acquired Immune Deficiency Syndromes (1999)*, *68*(5), e77-83. https://doi.org/10.1097/QAI.0000000000000517

Kim, M. H., Zhou, A., Mazenga, A., Ahmed, S., Markham, C., Zomba, G., … Abrams, E. J. (2016). Why did I stop? Barriers and facilitators to uptake and adherence to ART in option B+ HIV care in Lilongwe, Malawi. *PLoS ONE*, *11*(2), 1–16. https://doi.org/10.1371/journal.pone.0149527

Laar Amos, Amankwa Belynda, A. C. (2014). Prevention-of-Mother-To-Child-Transmission of HIV Services in Sub- Saharan Africa : A Qualitative Analysis of Healthcare Providers and Clients Challenges in Ghana Prevention-of-Mother-To-Child-Transmission of HIV Services in Sub-Saharan Africa : A Qualit. *International Journal on MCH and AIDS*, *2*(2), 244–249.

Lawson-marriott, S., Washington, S., Chi, B. H., Mulenga, L., & Stringer, J. S. A. (2013). NIH Public Access, *49*(2), 1–13. https://doi.org/10.1097/QAI.0b013e31818455d2.A

Lettow, M. Van, Bedell, R., Mayuni, I., Mateyu, G., Landes, M., Chan, A. K., … Mganga, A. (2014). Towards elimination of mother-to-child transmission of HIV : performance of different models of care for initiating lifelong antiretroviral therapy for pregnant women in Malawi (Option B ‟).

Luo, C., Akwara, P., Ngongo, N., Doughty, P., Gass, R., Ekpini, R., … Hayashi, C. (2007). Global Progress in PMTCT and Paediatric HIV Care and Treatment in Low- and Middle-Income Countries in 2004-2005. *Reproductive Health Matters*, *15*(30), 179–189. https://doi.org/10.1016/S0968-8080(07)30327-3

Medley, A., Garcia-Moreno, C., McGill, S., & Maman, S. (2004). Rates,barriers and outcomes of HIV serostatus disclosure among women in developing countries:implications for prevention of mother-to-child transmission programmes. *Bulletin of the World Health Organization*, *82*(4), 299–307. https://doi.org/10.1590/S0042-96862004000400013

Mclntyre, J. (2014). Update on Option B + Successes and Challenges. Retrieved from http://regist2.virology-education.com/2014/6thHIVped/21_McIntyre.pdf

Mills, E. J., Bakanda, C., Birungi, J., Chan, K., Ford, N., Cooper, C. L., … Hogg, R. S. (2011). Life expectancy of persons receiving combination antiretroviral therapy in low-income countries: A cohort analysis from Uganda. *Annals of Internal Medicine*, *155*(4), 209–217. https://doi.org/10.7326/0003-4819-155-4-201108160-00358

Mitiku, I., Arefayne, M., Mesfin, Y., & Gizaw, M. (2016). Factors associated with loss to follow-up among women in Option B+ PMTCT programme in northeast Ethiopia: A retrospective cohort study. *Journal of the International AIDS Society*, *19*(1), 1–9. https://doi.org/10.7448/IAS.19.1.20662

Munchenje, E. (2015). Factors Associated with Defaulting Among Women Initiated on Option B + in Urban Clinics ; 1–138.

Nachega, J. B., Uthman, O. A., Anderson, J., Peltzer, K., Wampold, S., Cotton, M. F., … Mofenson, L. M. (2012). Adherence to antiretroviral therapy during and after pregnancy in low-income, middle-income, and high-income countries. *Aids*, *26*(16), 2039–2052. https://doi.org/10.1097/QAD.0b013e328359590f

Ngarina, M., Tarimo, E. A. M., Naburi, H., Kilewo, C., Mwanyika-Sando, M., Chalamilla, G., … Ekstrom, A. M. (2014). Women"s preferences regarding infant or maternal antiretroviral prophylaxis for prevention of mother-to-child transmission of HIV during breastfeeding and their views on option B+ in Dar es Salaam, Tanzania. *PLoS ONE*, *9*(1). https://doi.org/10.1371/journal.pone.0085310

Nieuwkerk, P. T., & Oort, F. J. (2005). Self-reported adherence to antiretroviral therapy for HIV-1 infection and virologic treatment response: a meta-analysis. *Journal of Acquired Immune Deficiency Syndromes (1999)*, *38*(4), 445–448. https://doi.org/10.1097/01.qai.0000147522.34369.12

Nuwagaba-Biribonwoha, H., Mayon-White, R. T., Okong, P., & Carpenter, L. M. (2007). Challenges faced by health workers in implementing the prevention of mother-to-child HIV transmission (PMTCT) programme in Uganda. *Journal of Public Health*, *29*(3), 269–274. https://doi.org/10.1093/pubmed/fdm025

Onyango, R.O. 2006. Mother-to-child transmission (MTCT) of HIV/AIDS. Women

and Health Learning Package. Available:http://www.thenetworktufh.org/sites/default /files/attachments/basic_pages/WHLP%20MTCT%20HIV_AIDS.pdf? &sessionid=f185833ca5b03f5f07 e2f6892e631835

Pell, C., Meñaca, A., Were, F., Afrah, N. A., Chatio, S., Manda-Taylor, L., … Pool, R. (2013). Factors Affecting Antenatal Care Attendance: Results from Qualitative Studies in Ghana, Kenya and Malawi. *PLoS ONE*, *8*(1). https://doi.org/10.1371/journal.pone.0053747

Peltzer, K., Mosala, T., Shisana, O., Nqueko, A., & Mngqundaniso, N. (2007). Barriers to prevention of HIV transmission from mother to child (PMTCT) in a resource poor setting in the Eastern Cape, South Africa. *African Journal of Reproductive Health*, *11*(1), 57–66. https://doi.org/10.2307/30032488

Ramadhani, H. O., Thielman, N. M., Landman, K. Z., Ndosi, E. M., Gao, F., Kirchherr, J. L., … Crump, J. A. (2007). Predictors of Incomplete Adherence , Virologic Failure , and Antiviral Drug Resistance among HIV-Infected Adults Receiving Antiretroviral Therapy in Tanzania. *Clinical Infectious Diseases*, *45*, 1492–1498. https://doi.org/10.1086/522991

Rosenberg, N. E., van Lettow, M., Tweya, H., Kapito-Tembo, A., Bourdon, C. M., Cataldo, F., … Phiri, S. (2014). Improving PMTCT uptake and retention services through novel approaches in peer-based family-supported care in the clinic and community: a 3-arm cluster randomized trial (PURE Malawi). *Journal of Acquired Immune Deficiency Syndromes (1999)*, *67 Suppl 2*(0 2), S114-9. https://doi.org/10.1097/QAI.0000000000000319

Schouten, E. J., Jahn, A., Midiani, D., Makombe, S. D., Mnthambala, A., Chirwa, Z., … Chimbwandira, F. (2011). Prevention of mother-to-child transmission of HIV and the health-related Millennium Development Goals: Time for a public health approach. *The Lancet*, *378*(9787), 282–284. https://doi.org/10.1016/S0140-6736(10)62303-3

Sellier P1, Clevenbergh P, Ljubicic L, Simoneau G, Evans J, Delcey V, Diemer M, Bendenoun M, Mouly S, B. J. (2006). Comparative Evaluation of Adherence to Antiretroviral Therapy in Sub-Saharan African Native HIV-Infe.pdf. *Clinical Infectious Diseases*, *43*(5), 654–7.

Sprague, C., Chersich, M. F., & Black, V. (2011). Health system weaknesses constrain access to PMTCT and maternal HIV services in South Africa: a qualitative enquiry. *AIDS Research and Therapy*, *8*, 10. https://doi.org/10.1186/1742-6405-8-10

Stringer JS, Sinkala M, Maclean CC, Levy J, Kankasa C, Degroot A, et al. Effectiveness of a city-wide program to prevent mother-to-child HIV transmission in Lusaka, Zambia. AIDS (London, England). 2005;19(12):1309–15.

Tenthani, L., Haas, A. D., Tweya, H., Jahn, A., van Oosterhout, J. J., Chimbwandira, F., … Ministry of Health in Malawi and IeDEA Southern Africa. (2014). Retention in care under universal antiretroviral therapy for HIV-infected pregnant and breastfeeding women ("Option B+") in Malawi. *AIDS*, *28*(4), 589–98. https://doi.org/10.1097/QAD.0000000000000143

The Population Council: Integrating HIV Prevention and Care into Maternal and Child Health Care Settings: Lessons Learned from Horizons Studies. Maasai Mara and Nairobi, Kenya. Consultation report. Washington DC: The Population Council; 2001.

Tsegaye, D., Deribe, L., & Wodajo, S. (2016). Level of Adherence and Associated Factors to Option B + PMTCT among Pregnant and Lactating Mothers in Selected Government Health Facilities of.

UNAIDS/WHO (2007). Report on the global AIDS epidemic, *Sub Saharan Africa HIV & AIDS Statistics, AVERT.* Org

UNICEF. Options B and B+: Key considerations for countries to implement an equity-focused approach. 2012. http://www.unicef.org/aids/files/hiv_-Key_considerations_options_B.pdf.

UNICEF. Options B and B : key considerations for countries to implement an equity-focused approach: eliminating new HIV infections among children and keeping mothers living with HIV alive and well July 2012 [Internet]. [cited 2015 Sept 10]. Available from:http://www.unicef.org/aids/files/hiv_Key_ considerations_options_B.pdf

van Lettow, M., Bedell, R., Landes, M., Gawa, L., Gatto, S., Mayuni, I., … Schouten, E. (2011). Uptake and outcomes of a prevention-of mother-to-child transmission (PMTCT) program in Zomba district, Malawi. *BMC Public Health*, *11*, 426. https://doi.org/10.1186/1471-2458-11-426

VanDeusen, A., Paintsil, E., Agyarko-Poku, T., & Long, E. F. (2015). Cost effectiveness of option B plus for prevention of mother-to-child transmission of HIV in resource-limited countries: evidence from Kumasi, Ghana. *BMC Infectious Diseases*, *15*(1), 130. https://doi.org/10.1186/s12879-015-0859-2

World Health Organisation. (2013). Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. *WHO Guidelines*, (June), 272. https://doi.org/978 92 4 150572 7

WHO: Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants: guidelines on care, treatment and support for women living with HIV/AIDS and their children in resource-constrained settings. Geneva, Switzerland: WHO Press; 2010. 9.

APPENDICES

Appendix 1: Consent form

RESEARCH TOPIC: IMPLEMENTATION OF PMTCT OPTION B+ IN THE TECHIMAN MUNICIPALITY: CLIENT SATISFACTION AND SERVICE PROVIDER CHALLENGES

Principal Investigator (Student): Deborah Serwaah Baafi

Current Address: School of Public Health, University of Ghana, Legon

Tel: 0243312659 Email: nasbaafi21@yahoo.ca

General Information and choice of participation

This is purely an academic exercise and the researcher would be very pleased if you could provide answers to the following questions. I am soliciting for information from HIV-positive women and some of the challenges they have come across upon the programmatic shift of PMTCT to option B+. To attain this purpose, your sincere participation by responding to the question prepared is very important and highly appreciated. Strict confidentiality would be maintained so feel free to express your opinion, but questions you do not feel comfortable to answer can be ignored for your comfort. You are free to choose to participate or not to participate. If you decide not to participate, this will not affect the care you receive in any way. If you agree to participate, you are free to opt out at any point in time of this exercise

Procedures

Service providers at the PMTCT clinic and HIV-positive women attending follow up visits at Holy Family Hospital will be included in this study. Participant if found eligible

and agrees to participate, will be asked to sign or thumbprint a consent form. A participant who is unable to read will be read to the details of the form who after understanding signs or thumbprint. The interviewer too will append his/her signature on the consent form.

Possible Risks and Discomforts

Due to the sensitive nature of HIV and the anticipated stigma associated, the study may involve some discomfort during the interview process. Questions will be asked about respondents‟ background, health and social wellbeing, cultural and socio economic activities, stigma, challenges faced at facility level among other questions such that some of these questions may pry a little into one‟s personal life. Respondents may feel uncomfortable to answer some questions at a point but they will be given the utmost option to skip any questions or absolutely opt out of the whole study whenever they feel uncomfortable.

Possible Costs

Participants will not have to incur any cost for accepting to participate in this study however their time will be required.

Possible Benefits

The findings of this study will help identify the individual level and facility and service related challenges associated with option B+. Though benefits may not be personally or out rightly felt by participants, this research will go a long way to inform policy makers on necessary and quick adjustments that require attention such that programmatic value will be added to the whole PMTCT intervention for the benefit of all stakeholders to ensure a generation free of HIV.

Voluntary Participation and Right to Refuse

This study is purely an academic exercise and participation is absolutely voluntary. During the interview, participants have the choice not to answer any questions they feel not to answer. Participants also have their freewill withdraw from the study or stop the interview at any point in time of the study period. It is however encouraged that, participants utmost support is required by answering to questions asked in order to be able to explore all the challenges associated with the implementation of option B+.

Privacy/Confidentiality

We would like to assure you that whatever information you provide will be handled with strict confidentiality, will be used purely for research purposes, and will never be used against you. Data analysis will be done at the aggregate level to ensure anonymity. Your name or personally identifying information will not be published in any report. Some staff of the research team may sometimes review the research records, but no unauthorized individual(s) will be able to access your information.

Compensation

No compensation would be given for participation in this study however, appreciation would be accorded all participants.

Conflict of interest

The study declares no conflict of interest.

If you have questions later, you may contact:

Deborah Serwaah Baafi
Department of Population, Family and Reproductive Health
University of Ghana School of Public Health
College of Health Sciences

P. O. Box LG 13, Legon
Mobile 024 3312659
Email: nasbaafi21@yahoo.ca or dsbaafi@st.ug.edu.gh

Your rights as a Participant

If you have any questions about your rights as a research participant, you can contact the Administrator of the GHS Ethical Review Committee at the following address:

Hannah Frimpong
GHS-Ethical Review Committee
Research and Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Office: 0302 681 109
Mobile: 024 451 6482
Email: Hannah.Frimpong@ghsmail.org

VOLUNTARY CONSENT

I _____, declare that the above document describing the purpose, procedures as well as risks and benefits of the research titled "Stigma as a Barrier to Family Planning among Young Women in Ghana" has been thoroughly explained to me in English/Twi/Ga language. I have been given the opportunity to have any questions about the research answered to my satisfaction. I hereby voluntarily agree to participate as a subject in this study.

_____ _____/_____/_____

Signature or Mark of Participant Dat

If participant cannot read the form themselves, a witness must sign here.

I, _____ was present while the purpose, procedures as well as risks and benefits were read to the participant. All questions were answered and the participant has voluntarily agreed to participate as a subject in this research study.

_____ _____/_____/_____

Signature of Witness Date

Interviewer's statement:

I, _____, certify that the nature and purpose, the potential benefits and possible risks associated with participating in the study have explained to the above individual in the English/Twi/Ga language. The participant has freely agreed to participate in the study.

_____ _____/_____/_____

Signature of person who obtained consent Date

FACILITY AND SERVICE DELIVERY RELATED CHALLENGES ASSOCIATED WITH THE IMPLEMENTATION OF PMTCT OPTION B+.

Interview guide for Service providers

Section A: Attributes of Respondent

Age (at last birthday) [ ]

Sex

Rank of Service Provider- Community Health Nurse -1
General Nurse (state rank)-2
Nurse Midwife (state rank)-3
Physician Assistant- 4
Pharmacist- 5
Medical Officer-6
Other

Section B: Staffing issues

1. What do you know about PMTCT Option B+?

Probe to find following

- General knowledge on PMTCT Option B+

2. Are you trained in Option B+?

- How often do service providers undergo refresher courses related to HIV/AIDS or PMTCT Option B+?
- Has your training in PMTCT Option B+ been beneficial to your delivery of service in Option B+?
- What are some of the areas under PMTCT Option B+ you feel you need further training?

3. How many service providers including you are assigned to Maternal and Child Health (MCH) department?

Probe to find the following:

- Staff work load under PMTCT Option B+?
- A typical working day in the life of staff under PMTCT Option B+.

Section C: Infrastructure

4. Do you have separate facilities/ rooms for various activities under Option B+?

Probe to find especially about counseling sessions

- Group counseling
- Individual counseling
- How long each session take either group or individual
- Would you say quality time is accorded clients?

Section D: Medicines and logistics

5. How long does it take to receive supplies of medicines upon requisition?

Probe to find:

- Processes involved in acquiring new stock
- Where supplies come from and how they are stored

6. Have you had ART medicines run out of stock at any point in time since introduction of option B+ to date?

Probe to find

- Which medicines often run out of stock?
- Stock keeping processes (to track stock outs, expiry dates, etc)

7. Do you often run out of operational logistics (HIV test kits, reagents, gloves, stationary etc)?

- How often?
- Which items do you most often run out?
- What processes do you go through to get new supplies?
- How prompt are supplies delivered?

Section E: Service delivery

8. How many minutes/hours do you spend with a client? On

- First visit
- Follow – up visits

9. Do you give follow – up counseling to clients on follow –up visits?

Probe to find if enough information is given on :

- The benefits of adherence to treatment
- Medicine contraindications
- Advantages and disadvantages of medications
- Experienced and potential side effects
- The need for continuing of care

10. Do you communicate follow – up visits to clients?

Probe to find:

- How do clients know their next pick up dates?
- Do you give a grace period when giving the resupply date?
- If yes, how long is the grace period/ buffer supply?

11. When do you classify someone as having defaulted treatment?

Probe to find:

- How many clients were registered for Option B+ at onset of program?
- How many of the registered actually initiated lifelong ART?
- How many of the clients who registered are still coming for their supplies?
- How many of those who initiated have since missed at least one scheduled medicine pick up visit?
- Approximate proportion?

General comments (reasons) for the above

12. What are your monitoring and follow – up processes and methods?

Probe to find:

- How do you identify those who miss scheduled follow - up visits?
- How do you follow up those who miss their scheduled resupply visits?
- What are the reasons why mothers initiated on Option B+ miss follow – up visits?
- What do you think can be done to retain mothers on lifelong treatment?

13. How are other services integrated into PMTCT Option B+?

- Probe to find out about:
- Family planning
- STIs
- TB
- General ailments (malaria, diarrhea, dermatitis, ulcers, dental care, eye care etc)

14. How would you describe your general relationship with your clients?

- How many clients do you know their names off-head?
- How many clients do you have their personal contact numbers
- How many clients do you know their residence?
- Any visits to any clients?

15. Any suggestions on how to improve PMTCT Option B+?

16. May I know other challenges you face under PMTCT Option B+?

Thank you for your participation.

IMPLEMENTATION OF PMTCT OPTION B+

Questionnaire

Date of Research…… Respondent Number……

A. PATIENT LEVEL FACTORS ASSOCIATED WITH UTILIZATION OF PMTCT OPTION B+

I. SOCIO-DEMOGRAPHIC DATA

No	QUESTIONS	RESPONSES	CODES
1.	Age (as at last birthday)	Write in years	[ ][ ]
2.	Marital status	Never married Married Divorced Widowed Separated Cohabiting	1 2 3 4 5 6
3.	Place of residence	Rural Urban	1 2
4.	Level of Education	No Formal Education Primary JHS SHS Tertiary	1 2 3 4 5
5.	Occupational Status	Unemployed Farmer Trader Civil servant Apprentice/student Others (specify)	0 1 2 3 4
6.	Religion	No Affiliation Traditional Christianity Muslim Others (specify)	1 2 3 4

II. SOCIO-ECONOMIC STATUS OF RESPONDENTS

NO.	QUESTIONS	RESPONSES	CODES	
1.	Type of accommodation you live in	Rented Owned apartment Shared apartment Other (specify)	1 2 3	
2.	Does your household have:		YES	NO
	Electricity? A radio? A television? A video deck or CD/DVD player? A refrigerator? A freezer? A mobile telephone? A non-mobile telephone? A Desktop Computer? A Laptop Computer A Tablet Computer A fan? A bicycle? A motorbike? A car? A tractor?	Electricity Radio Television Video deck/CD/DVD player Refrigerator Freezer Mobile Telephone Non-mobile Telephone Desktop Computer Laptop Computer Tablet Computer Fan Bicycle Motorbike Car Tractor	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
3.	Main material of the floor of your home	Earth/Sand/Mud Wood/Palm/Bamboo Cement floor Terrazzo Ceramic tiles	1 2 3 4 5	
4.	Main source of drinking water for household members	River/stream/spring/pond/lake Water from open well Water from covered well/borehole Piped water Bottled/sachet water	1 2 3 4 5	
5.	Main method for sewage disposal	Dumped around house Refuse damp Burned/buried Car Collection	1 2 3 4	
6.	Main toilet facility for household members	No facility/bush Pit latrine with slab Ventilated Improved Pit latrine (KVIP) Flush toilet	1 2 3 4	
7.	What type of fuel does your household normally use for	Firewood Saw Dust	1 2	

	cooking?	Charcoal Kerosene LP Gas Electricity Other_____	3 4 5 6 7

III. SOCIO-CULTURAL FACTORS

NO.	QUESTIONS	RESPONSES	CODES
1.	Who knows about your HIV status?	No one Partner (spouse) Other family (not spouse) Friend Other (specify)	1 2 3 4
2.	How did your confidant get to know?	Personally informed Discovered by mistake Other (specify)	1 2
3.	Initial reaction of confidant over knowledge of your HIV status	Shocked Not shocked Other (specify)	1 2
4.	Reactions from close relations over your HIV status	Acceptance Tolerance Humiliation Rejection	1 2 3 4
5.	Ever experienced stigma from family and community members?	No Yes	0 1
6.	If NO, skip to next question If YES to Q5. Probe for experiences		
7.	Associated with any HIV support groups in the community?	No Yes	0 1

B. FACILITY AND SERVICE RELATED CHALLENGES

I. SERVICE RECEPTION AND PROVIDER-PATIENT RELATIONSHIP

NO.	QUESTIONS	RESPONSES	CODES
1.	How much time do you spend at the facility?	30mins – 1 hour 1 hour – 2 hours 2 hours - 5 hours 6 hours +	1 2 3 4
2.	Do you go through follow – up counseling when you re - visit facility?	No Yes	0 1
3.	How often do you go through follow – up counseling?	Not often Fairly often Very often	1 2 3
4.	How comfortable are you with counseling rooms and sessions?	Not comfortable Fairly comfortable	1 2

		Very comfortable	3
5.	Are all required medical tests carried out at the facility?	No Yes	0 1
6.	If NO, what are some of the reasons given?	Non-availability of test kits and other logistics Breakdown of laboratory machines Extra charges demanded Other (specify)	1 2 3
7.	Ever stigmatized by a service provider?	No Yes	0 1
8.	If No, skip to next question If yes, probe for experiences		
9.	How will you rate your level of satisfaction in your service provider?	Not satisfied Fairly satisfied Very satisfied	1 2 3

II. DRUG RELATED FACTORS

NO.	QUESTIONS	RESPONSES	CODES
1.	Are you served all medications at the facility?	No Yes	
2.	If NO to Q1. What are some of the reasons given?	Medications out of stock Demand for extra payment Negligence of service provider Other (specify)	1 2 3
3.	How do you pay for extra cost of medications?	Personal funds Family (spouse) support Household budget Other (specify)	1 2 3
4.	How informed are you about medications prescribed? (dosage, side effects)	Not well informed Fairly informed Very informed	1 2 3
5.	Do you comply with all medications?	No Yes	0 1
6.	How regular do you take your medications?	Not regular Fairly regular Very regular	1 2 3
7.	How often do you miss medications?	Not often Fairly often Very often	1 2 3

8.	Reasons for missing medications	Forgotten Busy Stigma Adverse effects Out of stock Feeling well Other (specify)	1 2 3 4 5 6	
9.	Do you show any of these side effects?		Yes	No
		Hypersensitivity syndrome (fever, myalgia, malaise, nausea, vomiting, symptoms suggestive of upper respiratory tract infection, anorexia) Rash Headache and dry mouth Hyperpigmentation of palms and soles (occurs most frequently in dark-skinned people) Acute renal insufficiency, Fanconi syndrome Chronic renal insufficiency Others (specify) ……	1 1 1 1 1 1	0 0 0 0 0 0
10.	How prompt do you report side effects or drug complications?	Not prompt Fairly prompt Very prompt	1 2 3	

Interview guide for HIV-positive women

1. 8. What are the social and cultural challenges that influence your utilization of services under PMTCT Option B+?

2. 10. What are the service reception and facility related challenges you encounter under PMTCT Option B+?

3. What other drug related challenges do you face under PMTCT Option B+?

4. Enlighten me on other challenges you face accessing care under PMTCT Option B+.

5. Any recommendations to improve the PMTCT Option B+ Program.