

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI**

**DEPARTMENT OF COMMUNITY HEALTH
SCHOOL OF MEDICAL SCIENCES**



**ACCEPTANCE OF HIV COUNSELLING AND TESTING AMONG
PREGNANT WOMEN IN THE KUMASI METROPOLIS**

By Dr Gabriel Sakyi Kwofie

MPH (Population & Reproductive Health)

September, 2008

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**A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES,
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR
THE AWARD OF MPH DEGREE IN POPULATION AND
REPRODUCTIVE HEALTH.**

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September, 2008

DECLARATION

Except for the specific references which have been duly acknowledged, I declare that this work is the result of my own field research, and it has not been submitted either in part or whole for any other degree elsewhere.

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DEDICATION

To my wife, Gladys, and child, Nana Kojo Sakyi.

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It is the DIVINE hand of the Lord that gave me the impetus to sail through this course and to HIM I am particularly grateful.

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DEFINITION OF TERMS

Pregnant women:	Female subjects who have missed their menstruation and tested positive for pregnancy
Confidentiality:	Agreement between client and provider that all conversations will be kept private unless the client gives explicit permission.
Acceptance:	Willing to go through HIV testing before or after counseling without coercion.
No formal education:	Person has never been to school before.
Formal education:	Any duration of classroom education.
Basic education:	Any duration in the classroom before entering J.S.S level.
Secondary education:	Going through JSS, SSS, and Vocational or Technical School.
Tertiary:	Any educational education beyond secondary school.
Mother-To-Child:	Transferring of HIV from an infected mother to the unborn Transmission of HIV or the breastfeeding child
Counseling and Testing:	Going through a counseling session followed by HIV testing when a person has freely decided to do the test.
Prevention Of Mother-To Child-Transmission of HIV	Strategies aimed at reducing the risk of transferring HIV - from an infected mother to the unborn or breastfeeding child.
Predictors of acceptance:	Factors associated with HIV counseling and testing acceptance such as patient variables, knowledge level on HIV/AIDS and Mother-to-child-transmission of HIV and husband's consent.

ABBREVIATIONS / ACRONYMS

AAACP	The Academic Alliance for AIDS Care and Prevention
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AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral therapy
ARR	Adjusted Risk Ratio
CT	Counseling and Testing
MHMT	Metropolitan Health Management Team
GAC	The Ghana AIDS Commission
GDHS	The Ghana Demographic and Health Survey
GHS	The Ghana Health Service
GSS	The Ghana Statistical Service
HIV	Human Immunodeficiency Virus
IATT	The Inter Agency Task Team on Prevention of HIV Transmission in Pregnant Women, Mothers, and Their Children
JSS	Junior Secondary School
KATH	The Komfo Anokye Teaching Hospital
MCH	Maternal and Child Health
MOH	The Ministry of Health
MTCT	Mother-to-child transmission of HIV
NACP	The National AIDS Control Programme
OR	Odds Ratio
PMTCT	Prevention of MTCT
RH	Reproductive Health
SSS	Senior Secondary School
UNAIDS	The Joint United Nations Programme on HIV/AIDS
UNGASS	The United Nations General Assembly Special Session
VCT	Voluntary Counseling and Testing
WHO	The World Health Organization

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ABSTRACT

In Ghana, as in most parts of Africa, south of the Sahara, HIV/AIDS account for a lot of mortality and morbidity in children. Children born to infected mothers acquire infection and progress to clinical diseases. This mother-to-child-Transmission (MTCT), accounts for most of the cases in children less than 15 years. To help address this problem, the Ghana National Policy on HIV/AIDS and STIs has come out with strategies that

include the use of routine Counseling and Testing (CT) as a tool for the prevention of MTCT (PMTCT).

The main objective of this study was to determine the level of acceptance of this routine HIV CT, as well as factors associated with acceptance among pregnant women in Kumasi Metropolis.

The study was a descriptive cross-sectional type, with structured questionnaire as the data collection tool served on 200 pregnant women attending Antenatal Clinic (ANC) in the Kumasi Metropolis. The sampling frame was pregnant women attending ANC at the three hospitals in the metropolis. The 200 ANC attendants were selected by a systematic random sampling technique.

Findings include a high level of acceptance, with 87.5% of respondents accepting to undergo HIV testing either before or after counseling. The effects of socio-demographic characteristics on acceptance of HIV CT were not statistically significant.

The knowledge level of pregnant women on HIV/AIDS and Prevention of mother to Child transmission (PMTCT) significantly affected HIV CT acceptance ($p = 0.000$); Those with adequate knowledge levels were twenty four times more likely to accept HIV CT than those with inadequate knowledge levels. Seeking Spousal permission did not significantly affect acceptance ($p = 0.86$). However, spousal involvement significantly encouraged HIV CT ($p = 0.04$)

Given the high, level of acceptance which is consistent with high acceptance levels in some African studies, the existing strategy of routine HIV CT, as a tool for PMTCT of HIV, should be sustained, and if possible improved upon.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) was first noticed internationally in 1981 and poses a great problem in most parts of the

world today, with about 95.0% of the 36.1 million estimated people living with HIV/AIDS found in the developing world; especially the sub-Saharan Africa (UNAIDS, 2000). HIV was first identified in Ghana in March 1986 and has since spread slowly but steadily. In Ghana, as in the rest of Africa, sexual (especially heterosexual) contact and mother-to-child transmission (MTCT) are the most common ways HIV/AIDS infections are spread (Ghana Statistical Service et al, 2004). Children born to infected mothers acquire infection and progress to clinical disease. This MTCT account for most of the cases in children less than 15 years. The 2003 Ghana Demographic and Health Survey (GDHS) report indicates that 98.0% of women and 99.0% of men have heard of AIDS, indicating that the awareness of AIDS is universal.

Controlling the spread of HIV is one of the major objectives in the fight against HIV infection. This is done through the promotion of safer sexual behavior including abstinence, condom use, and promoting sex with a single partner who is not infected and who has no other partners. A mother can transmit HIV infection to her child during the pregnancy or delivery, or through breastfeeding (i.e. mother-to-child-transmission-MTCT). The rates of HIV-1 transmission from the infected mother range from 25.0-40.0% in less developed countries, and from 15.0-25.0% in more developed countries (National AIDS/STI Control Programme, 2005). The risk of transmission is affected by factors related to the virus, the mother, the delivery process, and infant feeding practices. The factors explain the differences between the rates in the developed and under-developed countries (National AIDS/STI Control Programme, 2005).

According to the Ghana HIV/AIDS Strategy Framework (2004), MTCT is estimated to account for about 15.0% of all HIV transmissions in Ghana and one of the key interventions of the strategy is to prevent MTCT through Voluntary Counseling and Testing (VCT).

Comprehensive programmes on VCT, Prevention of MTCT (PMTCT) and ART have been carried out in Atua Government Hospital in the Manya Krobo District and the St Martin's Hospital at Agormanya with encouraging results (National AIDS/STI Control Programme, 2005).

The result of the 2005 HIV sentinel Survey showed an improving HIV infection situation compared to the situation three years earlier. Prevalence declined by 13.0% from 2004 to 2005 and 20.0% from 2003 (NACP/GHS, 2006).

The decline was observed in 23 out of 35 sites in 2004 and 22 out of 40 in 2005. Although, according to the report, the decline in the prevalence could not be attributed to a single factor, it was relevant to note that the national response through the expansion of VCT and PMTCT services from a total of 89 sites in 40 districts in 2004 to 169 in 82 districts in 2005 played a significant role in arriving at the 2.7% prevalence in 2005 (NACP/GHS, 2006).

In recent years, perinatal HIV-1 transmission rates in the United States have declined markedly because of several factors that include enhanced voluntary counseling and HIV-1 testing (VCT) for pregnant women, widespread use of antiretroviral prophylaxis or combination antiretroviral therapy, avoidance of breastfeeding, and elective cesarean delivery (Shetty, 2005). Perceived high personal susceptibility to HIV/AIDS, barriers related to confidentiality and partner involvement, self-efficacy regarding alternative feeding methods and religion were all shown to be associated with willingness to accept VCT.

The women's acceptance of VCT seems to depend upon their perception that VCT and alternative feeding strategies provide clear benefits, primarily for the child. Whether a positive attitude to VCT and alternative feeding strategies are transformed into actual behavior depends on a set of complicated decisions in which several potential psychological consequences are assessed.

Sharing the diagnosis with partners may not have the intended effect if there is a lack of sensitivity to the women's fear of blame and rejection. If pregnant women are to fully participate in and benefit from mother-to-child-transmission prevention efforts, their partners must be committed and involved in the process (de Paoli et al., 2004).

Baiden et al., (2005) also conducted a cross-sectional study whose results suggest that for pregnant women in the Kasena-Nankana District, the willingness to get tested for HIV does not equate with the perception of the test's usefulness, and that spouses are likely to exert strong influence on the attitude of pregnant women towards VCT. Couple counseling facilitated through couple-friendly ANC services should be explored as strategy for VCT programme in the district.

Provision of VCT as a PMTCT measure is one of the key strategies of the Ghana National Policy on HIV/AIDS and STIs (Ghana AIDS Commission, 2004).

The programme for PMTCT of HIV aims at reducing the number of new HIV infections in children occurring through MTCT of HIV. The programme offers HIV counseling and testing services to pregnant women as a gateway to free antiretroviral regimen aimed at reducing the chances of MTCT of HIV.

The objectives of offering CT services to the pregnant women include acceptance of the test, provision of care for HIV-infected persons, prevention of MTCT, and psychological support for infected individuals. While the PMTCT and CT services have been integrated into Antenatal Program, low acceptance rate of CT among pregnant women and manpower shortages are major constraints to this all important programme, meant to control the pandemic.

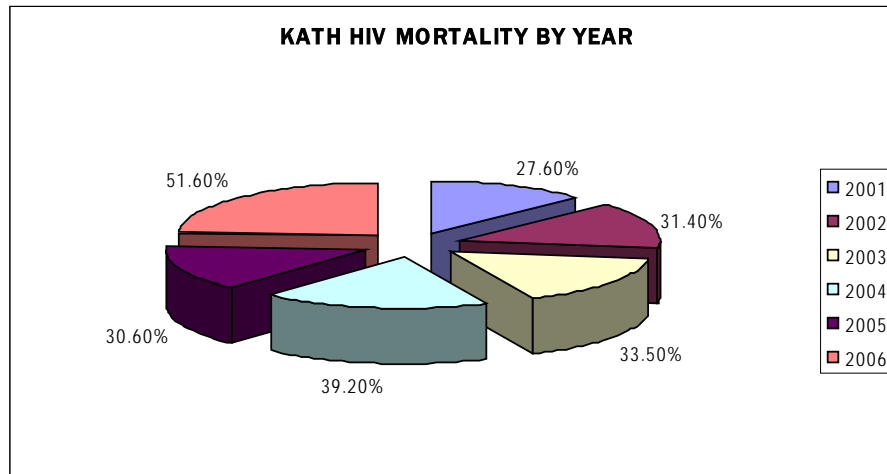
1.2 PROBLEM STATEMENT

The need for CT as an effective tool of Prevention of Mother to Child Transmission (PMTCT) cannot be overemphasized. In Kumasi metropolis although access to CT and other Prevention of Mother to Child Transmission (PMTCT) interventions have improved considerably, the same cannot be said of mortality and morbidity of HIV-related conditions in children.

According to unpublished data from the Biostatistics Department of the Komfo Anokye Teaching Hospital (KATH), mortality among children with HIV-related conditions

admitted to the hospital is increasing steadily; ranging from 27.6% in 2001 to 51.6% in 2006.

Figure 1.1



Source: KATH Biostatistics Department, 2006.

PMTCT interventions including routine HIV CT is available to pregnant women attending antenatal clinics in the Kumasi Metropolis, but its acceptance is low.

With such increasing HIV-related morbidity and mortality conditions among children, there is the need to assess the acceptability of this all important strategy of routine HIV counseling and testing among pregnant women.

Hence, this study was undertaken to determine the level of acceptability and potential predictors of acceptance of routine HIV CT among pregnant women attending antenatal clinic in the Kumasi Metropolis.

1.3 RATIONALE OF THE STUDY

The growing HIV/AIDS epidemic threatens to halt social and economic progress in many countries, especially Africa with Ghana not left out. MTCT comes second only to sexual contact as the major cause of the spread of HIV/AIDS in Ghana (GSS et al., 2004). In 2001, the United Nations General Assembly Special Session (UNGASS) placed a clear emphasis on the effect of HIV/AIDS on the health of the mother and the

child. The final declaration of commitment by the assembly was that the proportion of infants infected with HIV should be slashed by 20.0% in 2005 and 50.0% by 2010. This goal was to be achieved by ensuring that HIV prevention services are available to 80.0% of women who visit the antenatal clinic (UNGASS., 2001).

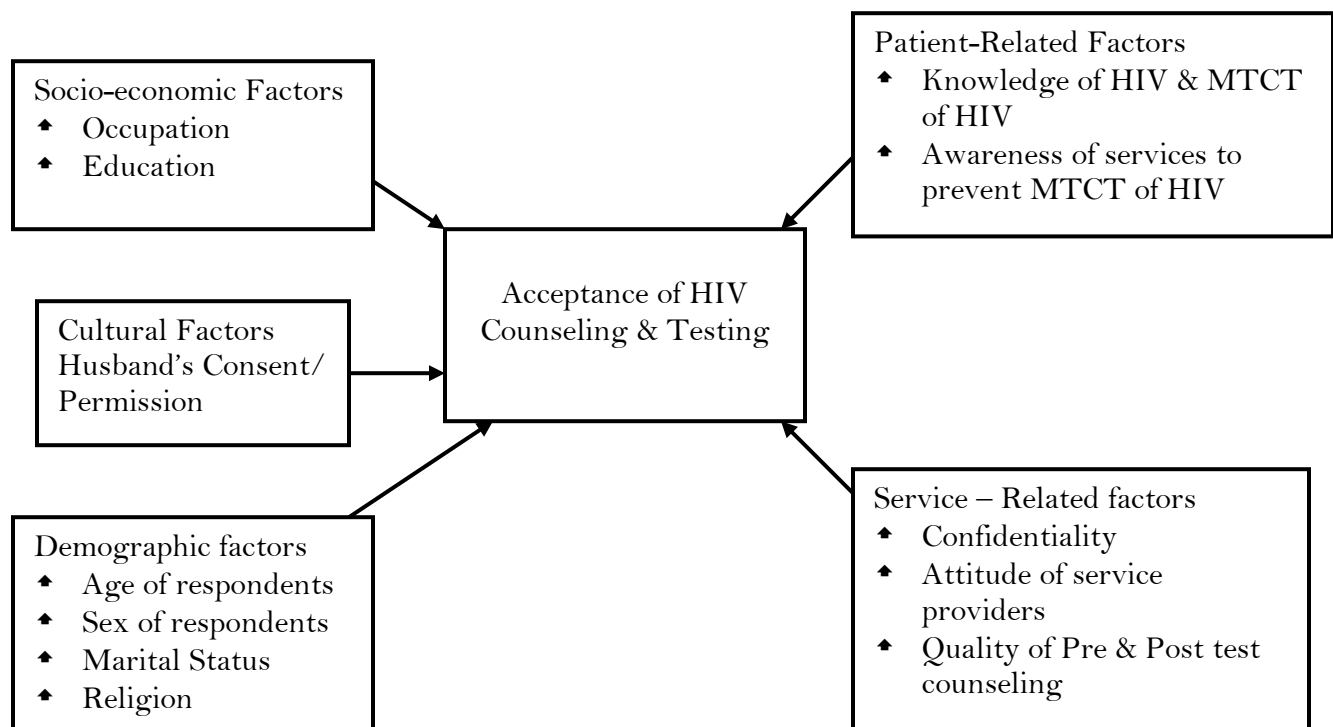
Routine HIV CT, with opt-out option, is a key strategy in the Ghana National HIV/AIDS and STI policy and the Inter Agent Task Team formed by the UNAIDS secretariat and other international bodies to fight the spread of HIV among children.

Review of available literature indicates scanty published data on the acceptability of this key strategy since its introduction in the country.

It is in this light that this study was undertaken to determine the acceptability and potential predictors of acceptance of routine HIV CT among pregnant women attending antenatal clinic in Kumasi Metropolis.

The outcome of this study would go a long way in improving the acceptability of this key intervention under PMTCT of HIV/AIDS.

1.4 CONCEPTUAL FRAMEWORK ON ACCEPTANCE OF HIV COUNSELLING & TESTING



Source: Author's Own Construct, 2008.

The level of acceptance would depend on the following:

1. The socio-demographic characteristics of the individual. For instance, women 35 years and more, the educated and those in gainful employment or those with skilled partners are believed to be more opened to accepting health interventions including PMTCT/VCT than the teenagers/young adults, the less educated and those who are not gainfully employed or with partners unemployed.
2. The knowledge level of the pregnant woman on HIV/AIDS, as well as MTCT of HIV issues.
3. Cultural factors: For instance some pregnant women required to seek permission of husband before engaging in sensitive test such as HIV testing.

1.5 Research Questions

- (1) What is the level of acceptance of HIV counseling and testing among pregnant women?
- (2) What socio-demographic characteristics are associated with acceptance of HIV counseling and testing in pregnant women?
- (3) What are the predictors if any of acceptance of HIV counseling and testing among pregnant women?

1.6 General Objective

To determine the level of acceptance of HIV counseling and testing, as well as identify factors influencing acceptance among pregnant women in the Kumasi metropolis.

1.7 Specific Objectives

- (1) To identify the socio-demographic characteristics associated with acceptance of HIV CT among pregnant women.

- (2) To determine the level of acceptance of HIV CT among pregnant women.
- (3) To identify predictors if any of acceptance of HIV CT.

1.8 BACKGROUND OF STUDY AREA

1.8.1 Introduction

Kumasi is the capital city of the Ashanti region. Because of the varied plant life that used to characterize the area, it is known as "The Garden City." It is the second largest city in Ghana.

The Kumasi metropolis is bounded by four (4) districts: Kwabre to the north, Bosomtwe and Atwima Kwanwoma to the south; on the east is Ejisu and Atwima is on the west of the metropolis.

Politically, the metropolis is divided into ten (10) sub-metropolises: Manhyia, Tafo, Nhyiaso, Subin, Oforikrom, Bantama, Asawase, Kwadaso, Suame and Asokwa. However, for purposes of health services, it is divided into five (5) sub-metropolitan areas namely Bantama, Asokwa, Manhyia North and South, and Subin.

1.8.2 The People, Religion and Culture

The Kumasi metropolis is the largest of the twenty-seven (27) political divisions (metropolis, municipality, districts) in Ashanti Region. It has an estimated population of 1,430,241 with an annual growth rate of 3.4 percent. This is probably applicable to the night since daytime population which includes traders from the rural areas, and adjoining communities is estimated to be above 2 million. This population is distributed in about seventy-six (76) communities in the metropolis.

Kumasi is a cosmopolitan city. It has members of most ethnic groups from the West African sub-region. However, the indigenous Asante people predominate. Even though the migrant communities maintain their language and cultural identity, the Asante Twi is universally spoken and understood.

The major religious groups in the metropolis include Christianity, Islam, Traditional religion, Paganism, and Faith-based organizations.

The people of Kumasi in particular and Ashantis in general are known for their rich cultural festivals. These include Odwira and Akwasidae festivals which are celebrated every fourty days and yearly (usually in December), respectively.

1.8.3 Geography

The city of Kumasi is about 300km from the nation's capital, Accra. It is 150 square kilometers in size. The Metropolis rises northwards to the Mampong scarp at about 350m above sea level.

The physical feature of the Metropolis is of an original plateau, which is as a result of erosion over the years, has become a dissected upland. Two ridges exist along the western and eastern boundaries and are 75m and 310m high respectively.

The Metropolis is dissected by several streams which drain into four main drainage basins namely Kwadaso, Subin, Aboabo and Susan/Weewee. The Susan/Weewee basin occupies the largest area and drains the western part of the Metropolis and is flanked on the left and right by the Kwadaso and Aboabo drainage basins respectively.

The topography and drainage system facilitate the excellent storm and waste drainage throughout the city centre and relatively large flood plains adjoining the system of rivers which dissect the city.

1.8.4 Infrastructure

The road network in the city has been rehabilitated. This has led to the improvement in the transportation system and an improved access to the outlying fringes of the city. Electricity supply to the city is through the national grid. There is a relatively good supply of potable water for domestic and industrial uses.

The city has the second largest airport currently used for domestic flights. Kumasi forms the northern apex of a triangular railway network which links the port city of Takoradi and the capital, Accra.

There are several markets serving the city. The largest, the Central market, is the largest in West Africa.

1.8.5 Economic activities

The main occupation of the people are trading and farming. The main trading centers are the Adum, the Central market, the Asafo market, the Kejetia and the Race course markets. There are other satellite trading centres located in the various sub-metropolis. Farming activities are done mainly by communities at the outskirts of the city.

1.8.6 Health and Health Services

Table 1.1 HEALTH FACILITIES IN KUMASI METROPOLIS

Health Facility	N (%)
Teaching hospital	1(0.5)
Quasi-government health institution	4(2.0)
CHAG institutions	3(1.5)
MCH clinics	2(1.0)
Community clinic	1(0.5)
Government/public hospitals	5(2.6)
Private health institutions	180(91.8)
Total	196(100.0)

Source: Kumasi Metropolitan Annual Health Report (KMAHR), 2006.

There are both public and private health facilities in the metropolis. These are organized around the five sub-metropolitan health teams. These include the Komfo Anokye Teaching Hospital which serves as the only teaching hospital in the region and the northern sector of the country, and the Kumasi South Hospital which has been designated as the Regional hospital. Majority of the health institutions in the metropolis are privately owned with 13 out of the 180 private health institutions being industrial clinics.

Table 1.2 Top Ten (10) Causes of OPD attendance, 2006.

DISEASES	N (%)
Malaria	272584 (52.0)
Common Cold	59,442(11.3)
Skin Diseases	31,434(6.0)
Diarrhoea with No Dehydration	29,340(5.6)
Home/Occupational Injuries	22,286(4.3)
Hypertension	17,698(3.4)
Acute Urinary Tract Infections	10,125(1.9)
Rheumatic & Other Joint Conditions	6,653(1.3)
Other Diseases	74,484(14.2)
Total	524046(100.0)

Source: Kumasi Metropolitan Annual Health Report, 2006

Even though HIVAIDS is not part of the first ten causes of OPD attendance in the Metropolis, it is known to underlie some of the conditions presented at OPD. Malaria forms majority of cases presented to the OPD with severe malaria forming 2.8% of malaria cases and 1.5% of all cases.

Table 1.3 Top Ten (10) Causes of Admissions, 2006.

DISEASES	N (%)
Malaria	7218 (64.3)
Diarrhoea with No Dehydration	1758(15.7)
Hypertension	607(5.4)
Anaemia	400(3.6)
Diarrhoea with Some Dehydration	333(3.0)
Typhoid fever	324(2.9)
Pneumonia	304(2.7)
Acute Urinary Tract Infections	281(2.5)
Total	11225(100.0)

Source: Kumasi Metropolitan Annual Health Report, 2006.

Uncomplicated malaria and diarrhoea were the highest causes of admissions in the Metropolis. Severe malaria forms 9.9% of malaria cases and 6.4% of all admission cases in the metropolis. This correlates with the most common presentations at OPD attendance.

**TABLE 1.4 Top Ten (10) Causes of Death,
2006.**

DISEASES	N (%)
Malnutrition	29(38.7)
Malaria	18(24.0)
Pneumonia	9(12.0)
HIV/AIDS-related conditions	6(8.0)
Diarrhoea with Some Dehydrations	5(6.7)
Diarrhoea with Severe Dehydration	3(4.0)
Hypertension	3(4.0)
Malaria with Severe anaemia	2(2.7)
Total	75(100.0)

Source: Kumasi Metropolitan Annual Health Report, 2006.

HIV/AIDS-related condition is the fourth most important cause of mortality in the Metropolis. Even though it does not appear as one of the causes of hospital attendance or admissions, it is an underlying factor of most other presentations which thus present as opportunistic infections.

HIV/AIDS continues to be a major challenge to health professionals in the metropolis (KMAHR, 2006). Voluntary Counseling Test (VCT) activities are carried out at ten (10)

centers in the metropolis including K.A.T.H. Out of a total of 1,394 people tested in the Metropolis in 2006, 453 (32.5%) tested positive for the disease.

Antiretroviral treatment is offered at three (3) centers namely KATH, Kumasi South Hospital and Bomso Clinic. The Metropolitan Health Directorate works with the Metropolitan HIV/AIDS Committee to implement HIV/AIDS activities such as training of committee members, sensitization and education of the public on HIV/AIDS through the media, and by the use of audio-visuals at public fora.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 LEVEL OF ACCEPTANCE TO HIV COUNSELLING AND TESTING

HIV counseling and testing (CT) serve as the entry point for PMTCT among pregnant women attending antenatal clinic. Irrespective of its immense benefit, the overall acceptability ranges from 33.0 – 95.0%, as shown by an international survey carried out in 13 studies located in West Africa (Abidjan, Bobo Dioulasso), East Africa (Nairobi, Mombasa, Dar Es Salaam, Blantyre, Lusaka, Harare), South Africa (Soweto, Durban) and Thailand (Bangkok) from September – October 1997 (Cartoux *et al.*, 1998).

In Brazil, a population – based cross-sectional study conducted among pregnant women attending antenatal clinic revealed an HIV testing acceptance rate of 92.5% (Velooso *et al.*, 2008). The wide availability of free HIV prevention and care services, which include potent antiretroviral therapy and HIV testing, as well as routine offering of HIV testing of pregnant women, are among the several factors contributing to the high rate of HIV testing acceptance as seen in the study.

A survey done at the Komfo Anokye Teaching Hospital (KATH) showed that 90.0% of the pregnant women attending ANC were willing to undergo Voluntary Counseling and Testing (VCT), provided confidentiality and other benefits of PMTCT would be made available to them (Addo, 2005).

In order studies, relatively higher acceptance rates were observed. In a study carried out among 345 pregnant women attending antenatal clinics at two health facilities in Lagos, Nigeria, almost all the women (96.1%) were willing to undergo HIV testing in

pregnancy particularly if it would assist preventing transmission of HIV to their babies (Ekanemm et al., 2004).

A similar study was carried out in Kumasi Ghana among pregnant women in antenatal clinics in the year 2003 and 2005, before and after the introduction of VCT and Antiretroviral therapy (ART) respectively by the Ghana Health Service (GHS). In 2003, 97.0% of women accepted counseling and testing. However, in 2005, acceptance rate was reduced to 73.0% (Holmes et al., 2008).

In a study to evaluate the attitude of pregnant women towards HIV testing in two cities of West Africa: Abidjan, Côte d'Ivoire and Bobo-Dioulasso, Burkina Faso; a total of 9724 pregnant women were interviewed from January 1995 in September 1996. In Abidjan (n = 5766) and Bobo-Dioulasso (n = 3958), 78.0% and 92.4%, respectively of women consented to HIV testing (Cartoux et al., 1998).

In Botswana, a study to determine uptake and socio-demographic predictors of acceptance of VCT among postpartum women revealed that only 54.0% of those approached accepted VCT (Thior et al 2007).

A study by Martin-Herz et al (2000) among pregnant women attending antenatal clinic in Chitungwiza, Zimbabwe showed only 40 out 186, representing 23.0% accepted HIV CT.

A randomized controlled trial in the city of Edinburgh, United Kingdom of 3024 pregnant women booking in at the hospital antenatal clinic over a 10-month period revealed that uptake rates of HIV CT were 6.0% for those in the control group and 35.0% for those directly offered the test (Simpson et al., 1998).

2.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS AND ACCEPTANCE

Understanding socio-demographic and cultural characteristics for acceptance of CT among pregnant women could assist in successful implementation of PMTCT of HIV intervention programs.

In a study to assess individual-level predictors for HIV testing among antenatal attendees in Lusaka, Zambia, Thierman *et al* (2006) found that women younger than 20 years old (Adjusted Risk Ratio (ARR) = 1.14), Unmarried (ARR = 1.14), lower in educational attainment (ARR = 1.15) and lower in income (ARR = 1.14) were more likely to undergo HIV testing.

In Botswana, another South African country, a cross-sectional study to determine uptake and socio-demographic predictors of acceptance of VCT among postpartum women revealed that younger maternal age, unmarried, and with less formal educational postpartum women were more likely to undergo CT (Thior *et al.*, 2007).

In West Africa, specifically Kumasi, Ghana, Homes *et al.*, (2008) in a cross-sectional study to assess acceptance of HIV VCT and antiretroviral therapy (ART) by pregnant women between educational level and acceptance of HIV testing. In the 2003 study, women with secondary education were 88.0% less likely to accept testing than those with no formal or primary education ($P > 0.05$). In the same study age was found to be positively associated with acceptance to HIV CT ($P = 0.01$) with median age of 28 years and a range of 15 – 37 years.

Cartoux *et al.*, (1998) in a clinical trial to evaluate the attitude of pregnant women towards HIV testing in two cities of West Africa: Abidjan, Cote d'Ivoire and Bobo-Dioulasso, Burkina Faso, high educational (40% illiterate versus 65%) appeared to be significantly related to refusal of HIV testing ($P < 10^{-8}$). In the same study, the mean age of respondents is 23.5 years (range 18-29 years) but age had no statistical significance with acceptance to HIV testing ($P = 0.89$)

Bajunirwe *et al.*, (2005) in a cross-sectional study of four Hundred and four women at a large urban hospital and three rural clinics in Uganda, found that post-primary education (OR = 3.1, 95% C.I 1.2, 77) was a significant predictor of willingness to test for HIV.

2.3 POTENTIAL PREDICTORS OF ACCEPTANCE TO HIV COUNSELING AND TESTING

Varied factors influence the extent of acceptance to HIV CT among pregnant women. Factors associated with high acceptance rates include knowledge on mother-to-child transmission of HIV, client's perceptions of HIV risk, confidentiality protections, husband's permission, risk behaviours and awareness of PMTCT services.

Factors associated with reluctance to HIV testing include fear of HIV positive test results, stigmatization discrimination, domestic violence and separation or divorce (Cartoux *et al.*, 1998).

2.3.1 KNOWLEDGE ON HIV/AIDS AND PMTCT OF HIV AND ACCEPTANCE

The Ghana Demographic and Health Survey (GDHS), 2003 report shows that 98 percent of women and 99 percent of men have heard of HIV/AIDS, indicating that awareness of HIV/AIDS in Ghana is universal. The GDHS report of 2003 showed that general knowledge about HIV transmission during pregnancy, delivery and breastfeeding is relatively high and ranges between 69 and 75 percent among women. However, few women (16 percent) know that the risk of MTCT can be reduced if a mother takes special drugs during her pregnancy (GDHS, 2003).

A cross sectional study was conducted by the Academic Alliance for AIDS care and Prevention in Africa (AAACP) in Kampala, Uganda. In that study, 1491 respondents were interviewed, using a semi-structured questionnaire. The results showed that adequate knowledge on HIV/AIDS was a strong predictor of acceptance of HIV CT ($P=0.04$). Sexual intercourse was the most known mode of HIV transmission (97%). Only 16% knew MTCT as a mode of HIV transmission. The percentage increased to 70% after probing and this was positively associated with the level of education and gender ($P = 0.000$). Knowledge about when MTCT can occur was 73.8% during pregnancy, 90.7% during delivery and 60.0% during breastfeeding. The knowledge on HIV/AIDS prevention methods was 75.0% for abstinence, 59.0% being faithful and 79.0% condom. PMTCT was not mentioned.

After probing, 80.0% said PMTCT was possible. PMTCT interventions known were the use of ARVs (31.0%), not breastfeeding (62.0%) and Caesarian section (27.0%). PMTCT was said to be possible during pregnancy (74.0%), during delivery (91.0%) and during breastfeeding (60.0%). (Najjemba *et al.*, 2004).

A study carried out among 345 pregnant women attending antenatal clinics at two health facilities in Lagos, Nigeria to determine their knowledge and acceptability of HIV CT in pregnancy as a strategy for PMTCT of HIV showed that the majority of the women (89.0%) had good knowledge of the modes of HIV transmission. Knowledge on HIV/AIDS was related to acceptance of HIV testing ($P=0.002$). However, knowledge on specific aspects of PMTCT was poor. Close to half of the women (41.7%) were not aware of the association between breast milk and HIV transmission. Many of the women would still prefer breastfeeding even if they were found to be HIV positive. Awareness of antiretroviral drugs among the study group was very poor. (Ekanemm *et al.*, 2004)

In a cross-sectional study to assess pregnant women's knowledge of HIV/AIDS and attitude towards antenatal HIV testing, and its acceptability to them, the eight hundred and forty-three women attending antenatal clinics at Guy's hospital, six community clinics and maternity homes, all in London were interviewed using a questionnaire. Knowledge related to HIV was good, the median knowledge score being 6 out of a possible 8. Acceptance of HIV testing was low, with 35.0% accepting the offer of HIV testing. Knowledge on HIV/AIDS was not related to Uptake of HIV testing. (Duffy *et al.*, 1998).

2.3.2 PERMISSION FROM SPOUSE AND ACCEPTANCE

Bajunirwe *et al.*, (2005) in a study to examine potential barriers to the implementation of programmes for the PMTCT of HIV in rural and urban Uganda, undertook a cross sectional survey of four hundred and four women at a large urban hospital and three rural clinics that had recently started implementing PMTCT. In this study the strongest predictor of willingness to accept an HIV test was the woman's perception that her husband would approve of her testing for HIV ($P < 0.05$). Women who thought their husbands would approve were almost six times more likely to report a willingness

to be tested compared to those who thought their husbands would not approve (OR = 5.6, 95% CI 2.8, 11.2).

In Nigeria, a study to assess Knowledge, Attitude and Practices among pregnant women attending specialist antenatal clinics in Calabar, found that spousal disapproval of 23.1% was the main reason for unwillingness to undergo HIV testing (Ekabua *et al.*, 2006).

Martin-Herz *et al.*, (2000) in a study to determine predictors of acceptance of HIV counseling and testing by pregnant women in Zimbabwe, six hundred and five pregnant women at a large urban clinic and four rural clinics were interviewed. In this study, pregnant woman's perception of spousal approval was not related to uptake of HIV testing ($P = 0.68$). Spousal involvement in HIV counseling and testing was a strong predictor of acceptance. Women whose spouses were involved were almost four times more likely to report a willingness to be tested compared to those whose spouses were not involved (OR = 3.8, 95% C.I 2.6, 11.4).

Baiden *et al.*, (2005) also conducted a cross-sectional study whose results suggest that for pregnant women in Kasena-Nakana District, the willingness to get tested for HIV does not equate with the perception of the test's usefulness, and that spouses are likely to exert strong influence on the attitude to pregnant women towards VCT. Couple counseling facilitated through couple-friendly ANC services should be explored as a strategy for VCT programme in the district.

In a cross-sectional interview survey of 500 pregnant women, complemented by focus group discussions, conducted in Kilimanjaro region of Tanzania, perceived high personal susceptibility to HIV/AIDS, barriers related to confidentiality and partner involvement were all shown to be associated with willingness to accept VCT (de Paoli *et al.*, 2004).

CHAPTER THREE

3.0 METHODOLOGY

3.1 RESEARCH METHODS AND DESIGN

The study was descriptive and the design was cross-sectional, whereby data were collected on a section of the population at a point in time and then analyzed.

3.2 DATA COLLECTION TECHNIQUES AND TOOLS

Interview was the data collection technique and the tool used was a structured questionnaire. Both open- and closed-ended questions were included in the questionnaire. Field workers were selected from the paramedics in the hospital, but were dressed in plain clothes during the time of interview to ensure anonymity and confidence in respondents. Questions on the questionnaire were interpreted to field workers to ensure appropriate translation into the local language during interviews. Forty questionnaires were pre-tested at Kumasi South Hospital using mainly open- and closed-ended questions and the outcome used to modify the final questionnaire to be used in the study.

3.3 STUDY POPULATION

Pregnant women attending antenatal clinic at Komfo Anokye Teaching Hospital, Suntreso Hospital and Manhyia hospital in the Kumasi Metropolis were studied from September 18, 2008 to October 20, 2008.

3.4 STUDY VARIABLES

Table 3.1 Study variables

Variables	Operational	Scale of measurement	Specific objective being
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	definition		addressed
<p>Socio-demographic</p> <ul style="list-style-type: none"> ♦ Age ♦ Education ♦ Occupation 	<p>Age in completed years.</p> <p>Highest level of education reached.</p> <p>Acquisition of some form of employment.</p>	<p>Continuous</p> <p>Ordinal:</p> <ul style="list-style-type: none"> ♦ No education-never been to school. ♦ Basic education-before entering JSS. ♦ Secondary-secondary, vocational, technical education. ♦ Tertiary-post-secondary. <p>Nominal:</p> <p>Not employed- not in any form of income earning venture.</p> <p>Employed- in some form of income earning venture.</p> <p>.</p>	1
Level of acceptance of CT	Responses to questions asked on acceptability.	<p>Nominal:</p> <ul style="list-style-type: none"> ♦ Not accepted- Undecided or objects to HIV testing; even after counseling. ♦ Accepted-Agree to HIV testing, before or after counseling 	2
<p>Potential predictors of acceptance.</p> <ul style="list-style-type: none"> ♦ Knowledge level of 	<p>Factors that can possibly influence acceptance of HIV CT.</p>	<p>Nominal</p> <p>Ordinal:</p>	3

HIV/AIDS &PMTCT.	Answers to questions.	<ul style="list-style-type: none"> ♦ Inadequate:- ≤ 5 ♦ Adequate:- >5 	
<ul style="list-style-type: none"> ♦ Permission of Spouse. 	Answers to questions	Nominal	

Source: Author's own construct, 2008.

3.5 SAMPLE SIZE AND SAMPLING TECHNIQUE

The sampling frame comprised pregnant women attending antenatal-clinics at the three hospitals in the Metropolis. A sample size of 200, was determined based on a 95% confidence level with a 5% allowable margin of error, and with the proportion of pregnant women in the Metropolis put at 4% (Sample size, $n = z^2 pq/d^2$, where z is the reliability co-efficient (1.96) at 95% confidence level, d the allowable error margin, p is the proportion of pregnant women in the population, $q=1-p$). Sampling technique employed was a systematic random sampling; where, on ANC days (during the study period), pregnant women presenting to the antenatal clinics were given numbers based on the time of first contact with the field workers. These numbers were then put into a bowl and clients were asked to pick without replacement. Those with odd numbers were then interviewed using a questionnaire.

3.6 DATA HANDLING AND ANALYSIS

At the end of each day, questionnaires were checked for completeness and internal errors during data collection. Questionnaires were then sorted, numbered and kept in

files labeled per hospital from which the participants were recruited. Data was then coded before entering into Microsoft Excel Version 8.0.

Analysis of the data was then carried out with EPI-Info Version 3.3.2. The main results were descriptive showing the acceptance level and potential predictors of acceptance of HIV Counseling and Testing among pregnant women attending antenatal clinic in Kumasi Metropolis.

3.7 Ethical Considerations

Ethical clearance was first sought from the ethical review board of the school of medical sciences-KNUST.

Permission was then sought from Metropolitan Health Director – Kumasi and medical superintendent of hospitals involved in the study. Before administering questionnaires, informed consent was sought from participants involved in the study after carefully explaining to them, the relevance of the study.

3.8 Limitations of the Study

The sample size was not large due to limited resources, as well as the short duration of the study. Surveys pertaining to HIV/AIDS are characterized by stigma, and as a result respondents give socially desirable answers rather than truthful ones.

3.9 DELIMITATIONS

Studies on PMTCT OF HIV/AIDS could look at varied aspects of the control measures, including evaluation, cost-effectiveness and other factors related to the control measure. This study was however, concerned with the level of acceptance to HIV CT among pregnant women.

3.10 BASIC ASSUMPTIONS

To achieve the objectives of the study, the following assumptions were made:

1. That the respondents understood the questions.

2. That the field workers were careful in the administration of the questionnaire and that the answers provided by respondents were not altered prior to entry.
3. That respondents were truthful and did not give socially desirable answers.
4. That data entry for analysis was correctly done.
5. Knowledge of HIV status had no relationship with acceptance of HIV CT.

CHAPTER FOUR

4.0 RESULTS

4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

The mean age of respondent was 26.79 ± 5.78 years (95% C.I: 25.98, 27.59) with 53.0% falling into the ages of 20 - 29 years. Out of the 200 respondents, 69.0% were married and 77.0% were Christians. With respect to the last educational level obtained, 56.0 % had secondary education and 8.0% had had no formal education. About fifteen percent (14.5%) and 15.0% were unemployed and students, respectively. Among those who were employed, 114 representing 57.0% were self employed as detailed in table 4.1 below.

Table 4.1 Socio-demographic characteristics of respondents

Variable	Frequency (N=200)	Percentage (%)
Age		
< 20 years	28	14.0
20 – 24 years	31	15.5
25 – 29 years	75	37.5

30 – 34 years	49	24.5
35 years and above	17	8.5
Total	200	100
Marital status		
Married	139	69.5
Single	60	30.0
Divorced	1	0.5
Total	200	100
Religion		
Christians	154	77.0
Moslems	41	20.5
Traditionalist	4	2.0
Other	1	0.5
Total	200	100
Educational level		
None	16	8.0
Basic	46	23.0
Secondary	112	56.0
Tertiary	26	13.0
Total	200	100
Occupation		
Unemployed	29	14.5
Student	30	15.0
Self employed	114	57.0
Government worker	27	13.5
Total	200	100

Table 4.2: Socio-demographic Characteristics and Acceptance

Variable	% accepted (n = 174)	% not accepted (n=26)	Chi square or Fisher exact test; (p-value)	OR [95% C.I.]
Age				
> 25yrs	86.15	13.85	0.69	0.83
< 25yrs	88.15	11.85	(0.78)	[0.41,1.68]

Marital status				
Married	81.3	73.9	0.55	0.76
Not married	76.6	26.1	(0.47)	[0.36, 1.58]
Education				
No formal education	8.4	6.5	0.45	1.32
Formally educated	91.6	93.5	(1.00)	[0.36, 4.85]
Occupation				
Not employed	28.6	32.6	0.27	0.83
Employed	71.4	67.4	(0.71)	[0.41, 1.68]

None of the background characteristics, marital status ($p=0.47$), having formal education or not ($p=1.00$) and employment status ($p=0.71$) had a significant relationship with clients acceptance of HIV counselling and testing.

4.2 LEVEL OF ACCEPTANCE

Table 4.3 Willingness to undergo HIV testing [before counseling]

Variable	Frequency(N=200)	Percentage (%)
Willingness to test before counseling		
Willing	154	77.0
Not willing	46	33.0
Undecided	0	0

The level of willingness to undergo HIV testing without counseling was high among respondents, with 77.0% willing to do the test and 33.0% unwilling to do the test, as shown in table 4.3 above.

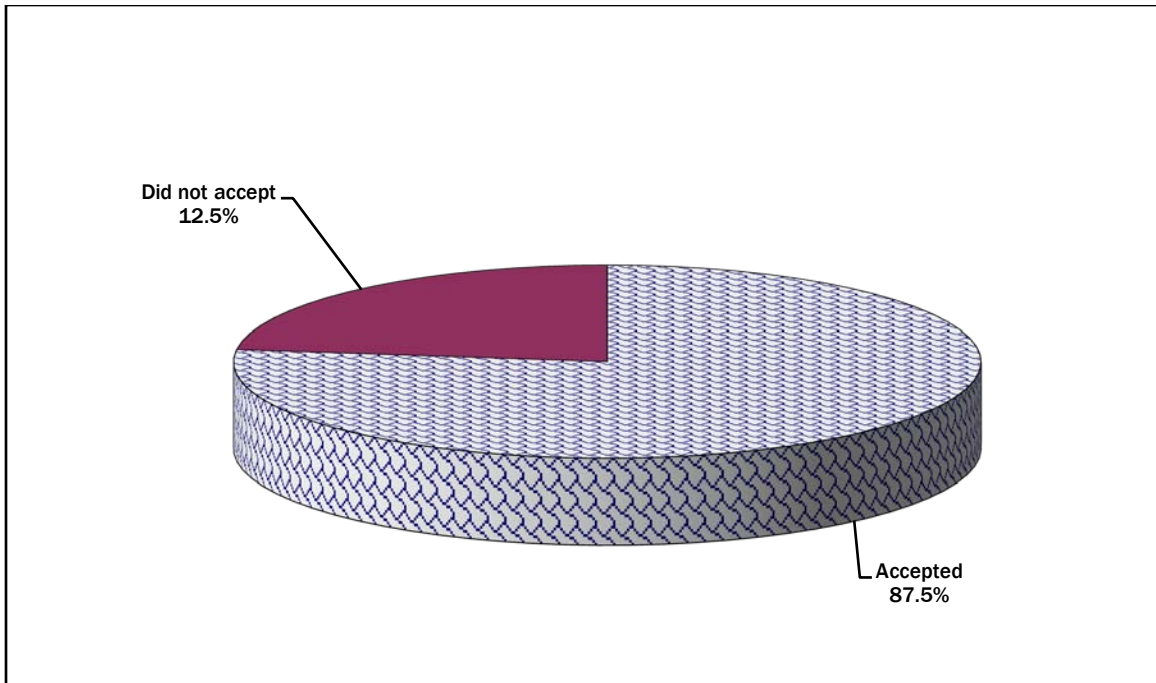
Table 4.4: Willingness to undergo HIV testing [after counseling]

Variable	Frequency (n=46)	Percentage (%)
Willingness to test after counseling	21	45.7
Willing to do test	16	34.8

Not willing to do test	9	19.6
Undecided		

Out of the 46 who did not accept HIV testing BEFORE counselling, 21(45.7%) said they would test for their status after being counseled by a midwife counsellor whilst 34.8% said they would not test. Nine or (34.8%) were undecided, as shown in table 4.4 above.

Figure 4.1: Acceptance of HIV counseling and testing during ANC



Source: Author's Field Data, 2008

One hundred and seventy four (174) out of two hundred (200) respondents accepted to undergo HIV testing before or after counseling.

Acceptance level of HIV counseling and testing was 87.5% as graphically shown in figure 1 above. Twelve and half percent (12.5%) did not accept.

4.3 POTENTIAL PREDICTORS OF ACCEPTANCE OF HIV CT

4.3.1 KNOWLEDGE LEVEL OF HIV/AIDS & PMTCT

Table 4.5: Knowledge about HIV/AIDS & PMTCT of HIV

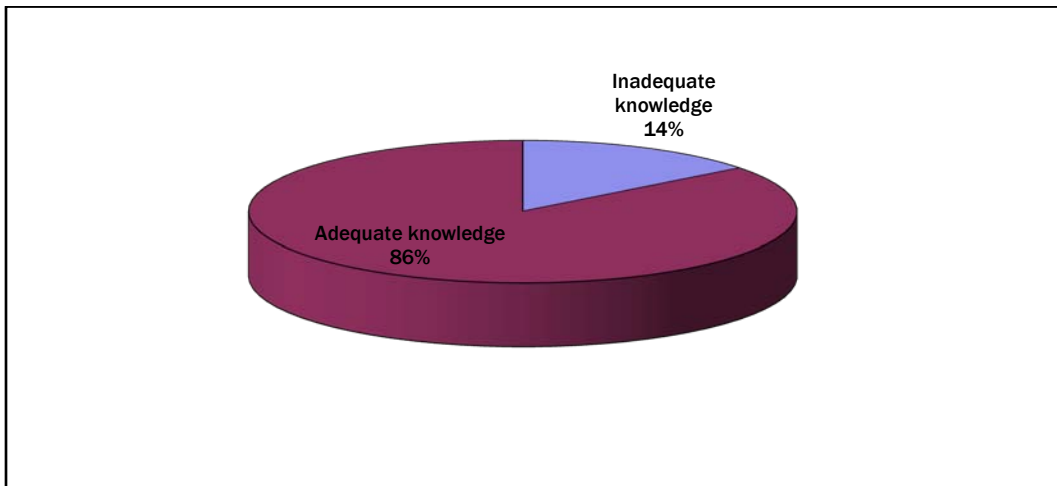
Variable	Frequency (N=200)	Percentage (%)
Heard of HIV		
Heard	200	100.0
Mode of spread		
Heterosexual intercourse	194	97.0
Blood transfusion	62	31.0
Unsterile instrument	163	81.5
Injection	76	38.0
Transplacental	43	21.5
Breast milk	26	13.0
Homosexual intercourse	3	1.5
Mother to child transmission		
Possible	150	75.0
Not possible	16	8.0
Don't know	34	17.0
Mode of spread of mother to child	(n>150)	
In the womb (intrauterine)	130	65.0
During delivery	48	24.0
Through breastfeeding	51	25.5
HIV/AIDS preventable		
Preventable	148	74.0
Not preventable	9	4.5
Don't know	43	21.5
Infected mother to child preventable	(n=148)	
Preventable	120	81.5
Not preventable	7	4.7
Don't know	21	14.2
Means of preventing mother to child transmission	(n>120)	
Give special drug to them	105	87.5
Avoid breastfeeding	45	37.5
No idea	6	5.0
Opt for C/S delivery	13	10.8

Source: Author's field data, 2008

All the clients had heard about HIV/AIDS. Heterosexual transmission, (97.0%) and the use of unsterile instrument, (81.5%) were the major modes of transmission of HIV/AIDS identified by the respondents. The rest included injection, (38.0%), blood transfusion, (31.0%) and transplacental, (21.5%). Over seventy percent (75.0%) of the

respondents perceived that mother-to-child transmission of HIV/AIDS was possible, whereas (17.0%) did not consider that as a possibility. As detailed in table 4.5 above, out of the 150 clients who perceived that mother-to-child transmission is possible, (65.0%) and (25.0%) respectively identified intrauterine and breast milk as the modes of spread. Over seventy percent (74.0%) knew that HIV/AIDS was preventable and that the mode of prevention was through special drugs, (87.5%), avoiding breastfeeding, (37.5%) and opting for C/S delivery, (10.8%). Five percent (5.0%) had no idea on how the disease could be prevented.

Figure 4.2: Knowledge level on HIV/AIDS&PMTCT of HIV (N = 200)



Source: Author's Field Data, 2008

Out of the 200 respondents, 171 representing 85.0% had adequate knowledge about HIV/AIDS and PMTCT of HIV while the rest, 15.0% had inadequate knowledge as graphically shown in Fig. 4.2 above.

Table 4.6 Relationship between Knowledge levels on HIV/AIDS & PMTCT and Acceptance of HIV Counseling and Testing

Knowledge level on HIV/AIDS & PMTCT	Acceptance of HIV Counseling and Testing			
	Yes	No	Total	$\chi^2_{df=1}$ OR (95% CI)
Adequate	142 (83.0%)	29 (17.0%)	171 (100%)	24.18 6.94 (0.000) [2.78,17.51]
Inadequate	12 (41.3%)	17 (58.7%)	29 (100%)	
Total	154	46	200	

Source: Author's Field Data, 2008

As detailed in table 4.6 above, 83.0% of respondents who had adequate knowledge accepted HIV counseling and testing as compared to 41.3% among those who had inadequate knowledge. The differences between the two groups were statistically significant (Chi square = 24.18; p = 0.000). Respondents with adequate knowledge were 6.94 times more likely to accept HIV counseling and testing, compared to those with inadequate knowledge.

4.3.2 PERMISSION FROM SPOUSE

Out of the 200 respondents, 117 representing 58.5% indicated that they would need permission from their partners before engaging in HIV counseling and testing. Seventy five and half percent (75.5%) indicated that they would be encouraged to undergo HIV counseling and testing if their partners were involved in the process. As detailed in table 4.7 below, 36.5% claimed that their partners would be angry if not consulted before the test is done, while 25.0% of partners would be indifferent.

Seeking permission from partner did not, however inform the indication for acceptance ($p=0.86$) to undergo HIV counseling and testing. Thus, seeking permission or not did not show a difference ($OR = 1.11$; 95% C.I. $[0.57, 2.16]$) in terms of respondent's decision or intention to undergo HIV counseling and testing. Worthy of note is the fact that those who desired to accept HIV counseling and testing felt that they would significantly ($p=0.04$) be encouraged to do the test if their partners were involved in the process. Perceived feelings of partners could not influence ($p=0.34$) acceptance of the test as shown in table 4.8 below.

Table 4.7: Permission from Spouse

Variable	Frequency (N=200)	Percentage (%)
Permission before HIV testing		
Permission needed	117	58.5
Permission NOT needed	83	41.5
Partner involvement encourage HIV testing		
Will encourage HIV testing	151	75.5
Will not encourage HIV testing	41	20.5
Undecided	8	4.0
Feeling of partner if not consulted before HIV testing		
Angry	73	36.5
Indifferent	50	25.0
No idea	77	38.5

Source: Author's Field Data, 2008

Table 4.8: Relationship between HIV counseling and testing and influence of permission of partners

Variables	Accepted (n = 154)	Not accepted (n=46)	Chi square or Fisher exact test; (p-value)
Permission before HIV testing			

Permission needed	59.1	56.5	0.09
Permission NOT needed	40.9	43.5	(0.86)
Partner presence encourage HIV testing			
Will encourage HIV testing	58.4	54.3	5.44
Will not encourage HIV testing	22.1	37.0	(0.05)
Undecided	19.5	8.7	
Feeling of partner if not consulted before HIV testing			
Angry	38.3	30.4	2.00
Indifferent	22.1	34.8	(0.75)
No idea	37.0	32.6	

Source: Author's Field Data, 2008

CHAPTER FIVE

5.0 DISCUSSION

5.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS AND ACCEPTANCE

The age distribution shows that more than one in two respondents (53.0%) is less than 30 years. This is consistent with the findings of the 2003 GDHS where over half (55.0%) of the female respondents were under 30 years of age. The proportion tends to decrease with increasing age after the 20-29 age groups. The minimum age was 14 years and the maximum age was 40 years, with the median age at 27.5 years.

Age was not significantly associated with acceptance of HIV CT ($p=0.78$). This is similar to that of Cartoux *et al.*, (1998) and Bajunirwe *et al* (2005), where in both cases age was not significantly related to acceptance of HIV CT. On the contrary, studies by Thierman *et al.*, (2006) and Thior *et al.*, (2007) revealed that younger maternal age in both studies was significantly related to acceptance.

The mean age of 26.8 years appeared to be similar to the mean age of 23.5 years obtained in the clinical trial study by Cartoux *et al.*, (1998) where age was not related to acceptance. The median age of 27.5 years was almost the same as the median age of 28.0 years of the 2003, Kumasi study by Holmes *et al* (2008). This may result from the fact that a lot of young pregnant women attend antenatal clinic in Kumasi metropolis.

Sixty-nine percent of the respondents were married. This figure is consistent with the findings of the 2003 GDHS, where over three out of every five respondent (62.0%) were married. Marital status was not significantly related to acceptance of HIV testing ($p=0.47$) in this study. This is contrary to the findings of other studies, (Thierman *et al*, 2006, Bajunirwe *et al*, 2005) where acceptance of HIV testing was significantly associated with unmarried, pregnant women. This result may be accounted for by the fact that both married and unmarried pregnant women in the metropolis consider themselves at risk of HIV infection and therefore consider HIV testing as important.

Seventy-seven percent (77%) and 20.5% of the respondents are Christians and Moslems respectively. This is quite consistent with the 2003 GDHS figures of (77.0%) Christians and (16.0%) Moslems.

Majority of respondents (56.0%) had secondary school education. This is consistent with the 2003 GDHS report, where 49.5% had secondary school education. This is not surprising since in Metropolitan areas most people are likely to have completed junior secondary school education.

Education was not significantly associated with acceptance of HIV testing ($p=1.00$). This may result from the fact that, the high awareness of HIV in the country has resulted in both the educated and uneducated pregnant woman considering themselves as been at risk of HIV infection and therefore both categories considering HIV testing as a necessity.

This is dissimilar to Thierman *et al.*, (2006), and Thior *et al.*, (2007), where in both studies no formal education was significantly associated with acceptance.

About fifteen percent (14.5%) of the respondents were unemployed. More than three quarters pregnant women (85.5%) were employed, with most of the respondents being self-employed. This is similar to the 2003 GDHS report which showed that more than three quarters of women were employed with female unemployment being 1 out of 5.

Employment was however not significantly related to acceptance of HIV counseling and testing ($p=0.71$).

5.2 LEVEL OF ACCEPTANCE OF HIV CT

Acceptance of HIV counseling and testing was high with 87.5% of respondents accepting to undergo HIV testing during antenatal care. This is in accordance with available international literature of most acceptance levels which ranges from 33.0-95.0% (Cartoux *et al.*, 1998).

The high acceptance level was similar to studies carried out in Brazil and Nigeria by Veloso *et al.*, (2008) and Ekanemm *et al.*, (2004) respectively. Acceptance among

pregnant women was as high as 92.5% in Brazil (Veloso et al., 2008) and 96.1% in Lagos, Nigeria (Ekanemm et al., 2004).

Similarly, high acceptance level seen in this study was observed in two other cities of West Africa by Cartoux et al., (1998); with acceptance of 78.0% and 92.4% observed among pregnant women in Abidjan, Côte d'Ivoire and Bobo-Dioulasso, Burkina Faso respectively.

Similar high acceptance levels were also seen in Kumasi by Holmes et al (2008) in the year 2003 and 2005, where acceptance rates were 97.0% and 73.0% respectively. In the study at Komfo Anokye Teaching Hospital, Kumasi, acceptance level of 90% observed by Addo (2005) is similar to the high acceptance level of 87.5% obtained in this study.

However, the level of acceptance obtained in this study is dissimilar to, and higher than that of 35.0% obtained in the United Kingdom by Simpson et al., (1998), 54.0% obtained in Botswana by Thior et al., (2007), and 23.0% obtained in Zimbabwe by Martin Herz et al., (2000).

The high acceptance level obtained in this study is probably due to the high confidentiality provided during HIV testing as well as the availability of potent antiretroviral therapy to reduce the risk of MTCT of HIV. This is similar to results obtained in the KATH, Kumasi, where 90.0% of pregnant women attending ANC were willing to undergo CT provided confidentiality and other benefits of PMTCT such as potent antiretroviral therapy will be made available to them (Addo, 2005).

5.3 POTENTIAL PREDICTORS OF ACCEPTANCE OF HIV CT

5.3.1 Knowledge Level on HIV/AIDS PMTCT

In this study, awareness of HIV/AIDS was high, 100% (i.e. all respondents had heard of HIV). This is similar to the GDHS 2003 report which revealed that 98.0% of women and 99.0% of men had heard of HIV/AIDS, indicating a universal awareness of HIV/AIDS in Ghana.

Knowledge on mode of transmission of HIV was also high, (85.0%) with 97.0% identifying heterosexual transmission and over 70.0% identifying MTCT of HIV as possible mode of transmissions of HIV. This is similar to GDHS 2003 report where general knowledge about HIV transmission during pregnancy, delivery and breastfeeding ranged between 69.0 and 75.0% among women, and AAACP study where 97.0% identified sexual intercourse as a mode of transmission and 70% identifying MTCT as a mode of HIV transmission (Najjemba et al., 2004).

Knowledge of pregnant women on HIV/AIDS and PMTCT was significantly associated with acceptance of HIV counseling and testing ($p=0.000$) Respondents with adequate knowledge were almost seven times more likely to accept HIV counseling and testing as compared to those with inadequate knowledge.

This is similar to the Najjemba et al., (2004) study, where adequate knowledge on HIV/AIDS was a strong predictor of acceptance of HIV counseling and testing ($p=0.04$) and Ekanemm et al., (2004) study, where knowledge level on HIV/AIDS was related to acceptance of HIV testing ($p=0.002$).

In the Kumasi metropolis, most pregnant women participate in HIV/AIDS educational activities organised by midwives in various hospitals during antenatal care. These educational activities (notably health talks and video shows) educate women on HIV/AIDS, and the benefits of undergoing HIV counseling and testing as a pregnant woman. This may account for the high number of respondents with adequate knowledge and its significant relationship with acceptance of HIV counseling and testing.

Three main modes of MTCT of HIV identified by respondents in this study are during pregnancy (65.0%), during delivery (24.0%) and during breastfeeding (25.5%). This findings was similar to 73.8% during pregnancy (Najjemba et al., 2004) but relatively lower to 90.7% during delivery and 60.0% during breastfeeding in AAACP study by Najjemba et al., (2004).

In this study 81.5% said PMTCT was possible. This is similar to AAACP study where 80.0% said PMTCT was possible (Najjemba *et al.*, 2004). However, this significant relationship between adequate knowledge on HIV/AIDS and acceptance is dissimilar to the Duffy *et al.*, (1998) study where although knowledge relating to HIV was good; uptake of HIV testing was not related to knowledge on HIV/AIDS ($p=0.443$).

5.3.2 PERMISSION FROM SPOUSE

Pregnant woman seeking permission from spouse before engaging in HIV testing was not related to acceptance of HIV counseling and testing ($p = 0.86$) in this study. Although 58.5% indicated that they would need permission from their partners before engaging in HIV counseling and testing, seeking permission or not did not show any difference (OR = 1.11; 95% CI (0.57, 2.16) in terms of the women's intention to undergo HIV testing.

This is similar to studies carried out in Zimbabwe by Martin-Herz *et al.*, (2000), where pregnant woman's perception of spousal approval was not related to uptake of HIV testing.

However, seeking spousal approval and its insignificant association to acceptance of HIV Counseling and testing in this study is not consistent with the results of Ekabua *et al.*, (2006) where spousal disapproval of 23.1% was the main reason for unwillingness to undergo HIV testing, and that of Bajunirwe *et al.*, (2005) study where women who thought that their husbands would approve of her testing for HIV were almost six times more likely to report a willingness to be tested compared to those who thought their husbands would not approve.

This relationship between seeking permission from spouse and acceptance of HIV counseling and testing in this study, is probably due to the fact that urban women are independent in their decision making process.

Partner's involvement in the process during HIV counseling and testing significantly influenced acceptance ($p = 0.04$) in this study. This is similar to results obtained by

Baiden et al., (2005) in Kasena – Nakana district of Ghana and de Paoli et al., (2004) study in Kilimanjaro region of Tanzania, where partner involvement were shown in both cases to be associated with willingness to accept VCT.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

From the foregoing discussion, the following conclusions can be made:

- ◆ That the level of acceptance among pregnant women is quite high (87.5%).
- ◆ There is no association between the socio-demographic variables – age, marital status, education, employment and acceptance of HIV counseling and testing among pregnant women in this study.
- ◆ Knowledge level on HIV/AIDS and PMTCT significantly affected acceptance; with pregnant women having adequate knowledge levels being almost seven times more likely to accept HIV CT than those with inadequate knowledge levels ($p = 0.000$).

- ◆ Spousal permission did not significantly affect acceptance ($p = 0.86$). However, spousal involvement in HIV counseling and testing significantly encouraged acceptance of HIV counseling and testing ($p = 0.04$)

6.2 Recommendations

The following are made to the National AIDS Commission and Ministry of Health based on the above findings:

- ◆ The existing strategy of universal offer of HIV counseling and testing is acceptable to pregnant women. This strategy which is used as a tool for PMTCT of HIV should be sustained, and if possible be improved upon.
- ◆ The current HIV/AIDS campaign momentum in the country should be sustained. Attention on creating awareness on PMTCT measures and improving knowledge on HIV/AIDS and PMTCT should still be on-going. Low emphasis should be placed on spousal permission before HIV counseling and testing by pregnant women.
- ◆ Partner involvement in the process of HIV counseling and testing is essential if pregnant women are to fully participate in and benefit from MTCT transmission prevention efforts. Hence, couple-friendly ANC services should be explored as a strategy for the intended HIV counseling and testing programme of pregnant women.

Further Research

There is the need to research into reasons for refusal of HIV counseling and testing in order to improve upon acceptance by pregnant women.

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QUESTIONNAIRE

Introduction

(We want to know if we can do more to improve upon the acceptance of HIV Counseling & testing among pregnant woman)

Socio – Demographic:

1. Age:
2. Marital status: (a) ☐ Married (b) ☐ Single (c) ☐ Divorced
(d) ☐ Widowed
3. Religion: (a) ☐ Christian (b) ☐ Moslem (c) ☐ Traditionalist
(d) ☐ Others
4. Highest Education: (a) ☐ None (b) ☐ Primary (c) ☐ Secondary/
Technical (d) ☐ Tertiary
5. Occupation: (a) ☐ Unemployed (b) ☐ Student (c) ☐ Self –
Employed (d) ☐ Government work (e) ☐ Others

Acceptance:

6. Will you be willing to undergo HIV Counseling and Testing during Antenatal care? (a) ☐ Yes (b) ☐ No (c) ☐ Undecided

- (If No or undecided about question 6 or 7, let the client see a midwife counsellor)
7. After counseling, will you be willing to undergo HIV testing?
- ☐ Yes ☐ No ☐ Undecided

Potential Predictors :

Knowledge level of HIV / AIDS / PMTCT

8. Have you heard about HIV/AIDS? (a) ☐ Yes (b) ☐ No
9. How does one get HIV / AIDS? (a) ☐ Sexual intercourse (Heterosexual)
- (b) ☐ Blood transmission
- (c) ☐ Unsterile instruments
(barbering instruments, blades, circumcision instruments),
- (d) ☐ Injections (unsterile needles)
- (e) ☐ Transplacental (in mothers womb)
- (f) ☐ Breast milk
- (g) ☐ Homosexual
- (h) Others (Specify)
11. Can a woman infected with the HIV virus transmit it to her baby?
- (a) ☐ Yes (b) ☐ No (c) ☐ Don't know
12. If yes to question 12, how can it be transmitted?
- (a) ☐ In the womb (intrauterine)
- (b) ☐ During delivery
- (c) ☐ through breastfeeding
- (d) Others (Specify).....
13. Is HIV / AIDS preventable?
- (a) ☐ Yes (b) ☐ No (c) ☐ Don't know
- If yes to question 13, please answer questions 14 & 15

14. Can transmission of HIV be prevented from an infected pregnant woman to the baby? (a) Yes ☐ (b) No ☐ (c) Don't know ☐
15. If yes to question 14, how can the transmission of HIV be prevented from an infected woman to the baby?
- (a) ☐ Giving special drugs to pregnant woman and the new baby
- (b) ☐ Avoid breastfeeding
- (c) ☐ No idea
- (d) ☐ Opt for C/S delivery

Permission of Spouse

16. Do you need the permission of your husband or the father of your baby before engaging in HIV testing? (a) ☐ Yes (b) ☐ No
17. Will the involvement of your husband or the father of your baby encourage you to undergo HIV testing?
- (a) ☐ Yes (b) ☐ No (c) ☐ Indifferent
18. How will your husband or father of your baby feel if you undergo HIV testing without his knowledge / permission/consent?
- (a) ☐ Angry (b) ☐ Indifferent (c) ☐ No idea (d) ☐ Others