KNOWLEDGE, ATTITUDE AND USE OF HIV COUNSELLING AND TESTING SERVICES BY FEMALE NURSES IN IBADAN METROPOLIS, NIGERIA

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Certification

I hereby certify that this study was carried out by Motunrayo V. AKINIOGUNLA in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria, under my supervision.

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Dedication

This research work is dedicated to God Almighty, Lord Jesus Christ and The Holy Spirit and also to my late mother Mrs Janet Olufunmilayo Abosede Abe

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Abstract

The impact of HIV/AIDS on the health sector including the health professionals is alarming. HIV Counselling and Testing (HCT) is one of the cornerstones of HIV prevention efforts. Although nurses have important roles to play in promoting the adoption of HCT services among their clients, there is dearth of information on the uptake of this service by the nurses. This study was therefore designed to assess knowledge, attitude and use of HCT services by nurses in Ibadan metropolis, Nigeria.

The study was a cross-sectional survey. A two-stage random sampling technique was used to select 13 facilities from 87 government owned healthcare facilities: 1 tertiary, 4 secondary and 8 primary facilities. A total of 391 registered nurses were randomly selected from the selected health facilities: 277 nurses from the 6 Departments in tertiary, 88 from the secondary and 26 nurses in primary health facilities respectively. Data were collected using a validated questionnaire which included a 14-point knowledge and 12-point attitude scales and use of HCT. Knowledge scores >7 was categorised as good while attitude scores of >6 was rated as positive. Data were analysed using descriptive statistics, Chi-square and logistic regression with level of significance set at 5%.

Respondents' age was 34.7±0.1 years, 60.1% were married and 37.3% were staff nurses. Respondents' knowledge score was 7.5±2.2 with 67.3% having poor knowledge of HCT. The attitude score was 7.5±1.9 and 74.7% of them had positive attitude towards use of HCT. Approximately 77% of the respondents had utilised HCT services. Among 300 (76.7%) who had ever been tested for HIV, 42.9% did so during routine antenatal care attendance while 57.1% did so voluntarily in HCT centres. The reasons adduced for getting tested included curiosity (66.1%) and antenatal requirements (18.2%). Majority (76.3%) received pre- and post-test counselling while 23.7% did not. Out of 91 respondents who had never received HCT service 68.7% reported a willingness to do so in future. A condition given by 78.8% of respondents with intention to get tested for HIV in future was assurance of confidentiality of result. Reasons given by 76 respondents for unwillingness to utilise HCT services included, not regarding the test as a priority (40.8%), perceived non-vulnerability (28.9%) and fear of a positive result

(13.2%).Significantly, more respondents aged 20-29years (67.3%) used HCT compared to other age groups. Also more respondents aged 20-29 years (76.2%) had positive attitude to the use of HCT compared to other age groups. Similarly, significantly more staff nurses (68.5%) used HCT services than other cadres of nurses. Nurses in secondary health facilities were 2.4 times more likely to have good knowledge of HCT compared to those in tertiary (OR= 2.4, CI = 1.3-4.4).

Nurses had both inadequate knowledge and low uptake of HIV Counselling and Testing. Health education strategies such as sensitisation and training are recommended for improving nurses' knowledge and promoting the utilisation of HIV Counselling and Testing services among them.

Key words: HIV counseling and testing, Female nurses, Utilisation of HCT services

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ACRONYMS

HIV	-	Human Immune-deficiency Virus
AIDS	-	Acquired Immune Deficiency Syndrome
ANC	-	Antenatal Clinic
ARV	-	Anti-RetroViral
CDC	-	Center for Disease Prevention and Control
CNO	-	Chief Nursing Officer
FMOH	-	Federal Ministry of Health
HCT	-	HIV Counseling and Testing
HIV	-	Human Immunodeficiency Virus
NDHS	-	National Demographic Health Survey
NPC	-	National Population Commission
PMTCT	-	Prevention of Mother-to-child Transmission of HIV
UNDP	-	United Nations Department of Public Information
UNGASS	-	United Nations General Assembly Special Session
UNICEF	-	United Nations International Children Education Fund
WHO	-	World Health Organization
SNO	-	Senior Nursing Officer
ANO	-	Assistant Nursing Officer

CHAPTER ONE
INTRODUCTION

1.1 Background to the study

The burden of HIV/AIDS goes far beyond the health sector, with negative effects on the economy and educational systems of poor countries. Of the 33.3 million people living with HIV/AIDS today, the majority will become patients with limited access to health care and dependent on their family members to look after them. They will be unable to work putting financial strains on their families (WHO, 2010).

Children often leave school in order to take care of their sick parents or go to work to make up for lost income (WHO 2010). And the stigma attached to HIV/AIDS is still so strong that many people will not even use the word, isolating the infected and the sick, making prevention ever more difficult (Cohen et al. 2011). HIV/AIDS has constituted one of the most difficult challenges for the health care profession (Duyan, Agalar and Sayek, 2001) and it has been declared the worst disaster to befall mankind in recorded human history.

At the end of 2013, an estimated 35 million people were living with HIV. The number of people dying of AIDS related causes was 1.5 million and there were 2.1 million new HIV infections or about six thousand new infections per day (UNAIDS 2014). Sub-Saharan Africa remains the region most heavily affected by HIV with about 71% of all people living with HIV residing in sub-Saharan Africa. Most children with HIV (91%) also live in this region (UNAIDS 2014). Although HIV testing capacity has increased overtime enabling more people to learn their HIV status, approximately half of all people living with HIV are still unaware they are infected (WHO, 2014).

There were 35.0 million people living with HIV in 2013, up from 29.8 million in 2001, this is as a result of continuing new infections, people living longer with HIV, and general population growth (UNAIDS 2014). Half, (50%) of all adults living with HIV worldwide are women. HIV is the leading cause of death among women of reproductive age. Gender inequalities, differential access to service, and sexual violence increase

women's vulnerability to HIV, and women, especially younger women, are people dying more from AIDS-related causes (UNAIDS, 2014)

Most people infected with HIV do not know that they are infected. HIV infected persons develop antibodies to HIV antigens usually 6 weeks to 3 months after being infected. In some individuals, the test for the presence of these antigens may not be positive until 6 months or longer (WHO, 2000). It has been estimated that in the European Union around a third of those infected are not aware of their serostatus, (ECDC, 2006) while in some countries in Eastern Europe and central Asia, more than 60% of people with HIV remain undiagnosed (Hamers and Philips, 2008). Lack of knowledge of HIV status is a key issue for both individuals and society.

HIV Counseling and Testing (HCT) is a dialogue between a counselor and client, the objective of which is to provide client with information on the test so as to have informed consent (UNAIDS, 2002). The process of HCT services also provide information on the disease itself, encourages and maintains a safe behaviour to avoid future infection or to prevent further spread (UNAIDS, 2002). HCT also helps client to handle possible emotional reaction to the result of the test and to discuss available course of action (UNAIDS, 2002).

HIV counseling and testing refers to the process by which an individual, couple or family receives HIV testing and counseling on HIV prevention, treatment, care and support (USAID, 2010). HCT includes four different activities namely pre-test counseling, risk behavior assessment, informed consent and post-test counseling (USAID, 2010)

HCT is described as the gateway to treatment, care, support and prevention interventions for those who have HIV, an opportunity for HIV prevention counseling particularly for couples where one partner is HIV positive (sero-discordant couples) and for those with high risk of acquiring HIV, for those who test negative, counseling focuses on prevention messages (USAID, 2010).

Tests for HIV detect the presence of antibodies to HIV and not the virus itself. Although these tests are very sensitive, there is a window period which is the period between the onset of infection with the HIV and the appearance of detectable antibodies to the virus (WHO. 2000). HIV testing in the past was used mostly for clinical confirmation of suspected cases of HIV infection, but more recently people have been encouraged to receive HIV counseling and testing services to know their HIV status (WHO. 2000). It is hoped that if people know their HIV status and are sero-negative, they will adopt preventive measures to prevent future infection and if sero positive, it is hoped that they will learn to live positively, accessing care and support at an earlier stage (UNAIDS. 2002).

Voluntary counseling and testing has become very important and cost effective in preventing and controlling HIV/AIDS globally, it motivates people to adopt safe sexual behaviour and safe injecting practices (UNAIDS. 2002). HIV counseling and testing also allows people with high risk behaviour to know their HIV status thus helping to break the chain of transmission of the infection (UNAIDS. 2002). HCT is a very important factor in enabling people living with HIV/AIDS to access interventions such as medical and supportive services, prevention of mother to child transmission of HIV/AIDS and prevention of opportunistic infections so as to be able to live healthier and longer lives (WHO. UNAIDS. 2002)

HCT is more than drawing and testing blood and offering few counseling sessions. It is a vital point of entry to other HIV/AIDS services, including prevention and clinical management of HIV related illnesses, TB control, psychological and legal support and prevention of mother to child transmission of HIV (FHI. 2002). High quality HCT enables and encourages people with HIV to access appropriate care and is an effective HIV prevention strategy (UNAIDS. 2000). HCT offers holistic approach that can address HIV in the broader context of people's lives, including the context of poverty and risk practice (FHI. 2002). HCT offers benefits to those who test positive or negative as it alleviates anxiety and increases individuals' perception of their vulnerability to HIV/AIDS

Exposure to blood or other body fluids among health care workers (HCW) in healthcare settings constitute a small but significant risk of transmission of HIV and other blood-borne infections (United States Center for Disease Control and Prevention, 2001). Health care workers who are exposed to needle stick involving HIV infected blood at work have 0.23% risk of becoming infected, in other words 2.3 of every 1000 of such injuries if untreated results in infection (USCDC, 2015). Also such exposures can result in tremendous anxiety, fear and stress among healthcare workers and this can have negative effects on their families and colleagues alike. The World Health Organization (WHO, 2005) estimates that 3 million percutaneous exposures occur annually among 35 million HCW globally, with over 90% occurring in resource-constrained countries (Pruss Ustun, Rapiti and Hutin, 2005). As a consequence of these exposures, an estimated 66,000 hepatitis B, 16,000 hepatitis C, and up to 1000 HIV infections occur each year (Pruss Ustun, Rapiti and Hutin, 2005).

According to WHO (2002), the risk of HIV transmission for a percutaneous needle stick accident is around 0.3%, less for solid needles, shallow needle sticks or mucosal exposure and more for deep injury, the needle visibly contaminated with blood directly into an artery or vein. The WHO 2002 reported that of 35 million health care workers, 2 million experience percutaneous exposure to blood borne diseases every year. Two and a half percent of HIV/AIDS in health care workers worldwide is thought to be due to needle stick injuries.

Health care workers are perceived to be at substantial risk of contracting HIV in the course of their work as a result of accidental needle pricks and exposure to blood and body fluids. Among health care workers, nurses are in the forefront among those who educate clients on the need for use of HCT services. Nurses also come in direct contact with patients, blood and body fluids as most times they are always the first to come in contact with clients coming to the hospital the first time. According to Ehlers, 2006 all these account for why nurses are at greater risk of contracting the disease than other health care professionals. This study therefore seeks to assess the knowledge, attitude and uptake of HIV counseling and testing among Nurses in selected hospital in Ibadan Area.

1.2 Statement of problem

The World Health Organization (WHO) estimates that as few as 10 per cent of people living with HIV in low and middle-income countries know their HIV status. Knowing one's HIV status is very important as it enhances one's ability to reduce the risk of acquiring or transmitting HIV, to access HIV-specific care, treatment and support, and to make informed decisions about other aspects of one's life (IPPF, 2007).

Stigma and fear of disclosure may be major obstacles to health worker's access to HIV conselling and testing (HCT) and other HIV services (WHO, 2006). The National HIV /AIDS and Reproductive Health Survey of 2012 found very low uptake of HIV testing in Nigeria, only 23% of males and 27% of females had tested in the last year and less than 70% of these people had received their results (Nigeria Federal Ministry of Health (2012).

There are also other number of reasons why more people are not testing for HIV in Nigeria, these include supply problems of testing kits and logistic issues in getting further supplies. There is also common belief that HCT centres are where HIV positive individuals go to access care rather than being testing centres (NACA 2014).

International Council of Nurses (ICN) establishes that nurses and midwives as a professional group are at risk of getting infected with rising HIV/AIDS infections. This is due to close contact with blood, risk of getting stung by contaminated needles and instruments, especially in health care settings with shortages of staff, lacking protective equipment and cleaning materials (Kumakech, Achora, Berggren and Bajunirwe, 2011)

Nurses have the duty of constantly reassuring the public and educating them on how HIV infection can and cannot be contracted. Nurses can also address the issues of risk taking behaviours, false perceptions and the myths that people hold about HIV/AIDS. Nursing, as a profession has traditionally been engaged in health promotion and working with a preventive aim. Researchers have found out that among the general public in the fight against HIV/AIDS, the behaviours of health professionals affects the public behaviours and the quality of services provided (Anthony, 2008, Lucyida 2016, Hamil, Green and

Murphy 2006). Although nurses are expected to play important role in educating and promoting use of HCT services among their clients little is known on the uptake of this service by nurses. Hence the need for this study.

1.3 Justification

Nurses work in many different settings such as community health clinics, schools, family planning centers, community mental health clinics and substance abuse treatment centers. Therefore nurses are a great resource in the preventive HIV work as they can provide preventive care to people in different circumstances. Nurses in sub-Saharan Africa play an important part in health education against HIV as they are a majority of the health care workers and familiar with the local cultures, taboos and speaks community languages (Ehlers, 2006).

This study is important for two reasons. First, the result of this study will help the management of the health institutions where the respondents work in understanding the health needs of this group of professionals. This will in turn assist them in designing strategies to reverse negative attitudes if this exists or in strengthening positive attitudes. Moreover it will also help in planning ways of improving HCT for all levels of staff if not already in existence leading to improve in house HIV/AIDS interventions.

Second, this study will go a long way in providing evidence based data needed for designing appropriate intervention for policies and programmes for people in this profession. The findings will hopefully suggest directions on how best to increase knowledge about HCT if deficit in knowledge exists as the findings from this study has the potential of providing results that can be generalized. Not only this, the outcome of the study may help in designing programme that can increase access to post exposure prophylaxis.

1.4 Research questions

1. What is the level of knowledge on HIV counseling and testing among nurses in selected hospitals from the five Local Government Areas in Ibadan metropolis.
2. What is the attitude of nurses in these selected hospitals towards the use of HCT services?
3. What proportion of the nurses in these selected hospitals use HCT?
4. What are the viewpoints of respondents on the use of HCT in these selected hospitals?
5. What is the intention of nurses in these selected hospitals on the use of HCT?

1.5 Objectives of the study

The broad objective of the study was to assess the knowledge, attitude and use of HIV counseling and testing among nurses in selected hospitals from the five Local Government Areas of Ibadan urban.

The specific objectives are to:

1. Determine the level of knowledge of HCT among nurses in selected hospitals from the five Local Government Areas of Ibadan urban.
2. Examine the attitude of the nurses towards the use HCT services.
3. Indicate the proportion of nurses that use HCT in these selected hospitals.
4. Describe respondents' viewpoints on the use of HCT services.
5. Examine the intention of the users on the use HCT.

1.6 Hypotheses

1. There is no significant association between level of knowledge of nurses on the use of HCT and socio-demographic characteristics of nurses.
2. There is no significant association between socio-demographic characteristics of nurses in selected hospital and their attitude towards the use of HCT.
3. There is no significant association between the socio-demographic characteristics of the nurses and use of HCT.
4. There is no significant association between level of knowledge of nurses on the use of HCT and the use of HCT.

4. There is no significant association between level of knowledge of nurses on the use of HCT and the use of HCT.
5. There is no significant association between nurses' knowledge and attitude towards the use of HCT.

CHAPTER TWO

LITERATURE REVIEW

2.1 Nature and extent of the problem

HIV is a virus that gradually attacks the immune system, which is the body's natural defense against illness. A person infected with HIV will find it harder to fight off infections and diseases. The virus destroys a type of white blood cell called T-helper cell and makes copies of itself inside them. T-helper cells are also referred to as CD4 cells (UNAIDS, 2014).

Acquired immune-deficiency syndrome (AIDS) is a fatal illness caused by the retrovirus known as the Human immune deficiency virus (HIV) which breaks down the body's immune system, leaving the victim vulnerable to a host of life threatening opportunistic infections, neurological disorders or unusual malignancies (WHO). HIV is transmitted through direct contact of the mucous membrane or blood stream with specific body fluid containing HIV such as blood, semen, pre-seminal fluid, rectal fluids, vaginal fluids, and breast milk from an HIV infected person (USCDC, 2015). These fluids must come in contact with mucous membrane or damaged tissue or directly injected into the bloodstream (from a needle or syringe) for transmission to possibly occur (USCDC, 2015). This transmission can be through anal, vaginal, or oral sex, blood transfusion, contaminated hypodermic needles, exchange between mother and baby during pregnancy, childbirth, breastfeeding or other exposure to one of the above body fluids.

A UNAIDS (2014) report shows that 19 million of the 35 million people living with HIV today do not know that they have the virus. The HIV epidemic not only affects the health of individuals, it impacts on households, communities and the development and economic growth of nations. Many of the countries hardest hit by HIV also suffer from other infectious diseases, food insecurity and other serious problems (UNAIDS, 2014). According to US CDC 2014 ,out of the 1.2 million people living with HIV in the united states nearly one in seven, that is more than 168,000 individuals do not know they are infected because many new infections are transmitted by people who do not know they are infected. Undiagnosed infection remains a significant factor fuelling HIV epidemic

(US CDC, 2011). A lot of people who engage in high risk behaviour do not get tested because they do not believe they are at risk of HIV, others are concerned that other people will find out they have tested positive or that they sought testing at all, although testing is completely confidential some may even avoid testing simply because they are afraid their test will be positive (Mackellar, Hou and Whalen, 2011). HIV/AIDS also put series of pressure on the health sector, particularly hospital recourses (UNAIDS, 2014) . Moreover there is chronic shortage of health care workers, who themselves are sometimes living with HIV though antiretroviral therapy is relieving this burden in many parts of sub-Saharan Africa (UNAIDS, 2014).

Infection with HIV, however, also has an impact on the individual's family (Bor, du Plessis and Russell, 2004). Family members are burdened by care giving as the disease progresses, and they may be affected by the stigma often attached to HIV infection (Snyder, Omoto, Crain, 1999). In the first 15 years of the AIDS epidemic, families had to deal with death and the loss of family members. As a result of decline in economic stability in the household or increased pressure to care for siblings and ailing parents, children may be forced to withdrawal from school (UNICEF, 2004).

The AIDS pandemic, previously seen as mainly a health crisis, has become a major threat to all sectors of socio-economic development and reversing decades of economic and social progress, reducing life expectancy by years, deepening poverty, and contributing to food shortages. AIDS is undermining the progress towards the Millennium Development Goals (MDGs), particularly those related to poverty reduction, achieving universal primary education, promoting gender equality, reducing child mortality and improving the health of mothers (The Millennium Development Goals Report, 2006). More than 60% of people living with HIV inhabit the world's poorest region, sub-Saharan Africa (UNAIDS 2007).

HIV primarily affects young adults. Unlike many other infectious diseases which tend to have their biggest impacts on the very young or very old, HIV primarily affects adults in their most sexually active years which coincide with their most economically productive

and reproductive years. Both the peak age of HIV infection and the greatest mortality are among those between the ages of 20 and about 40 years (UNAIDS, 2006, WHO, 2004). Of the estimated 2.9 million deaths due to AIDS in 2006, most (90%) were among adults, aged and over 15 years and over (UNAIDS, 2006).

2.2 Global Situation

The global prevalence rate which is the percentage of people aged 15-49 who are infected has leveled since 2001 and was 0.8% in 2014. About 1.2 million people died of AIDS in 2014, a 42% decrease since 2004. Deaths have declined due in part to antiretroviral treatment (ART) scale-up. HIV is a leading cause of death worldwide and the number one cause of death in Africa (UNAIDS, 2015).

New HIV infections globally have declined by 35% since 2000. In 61 countries, new HIV infections have decreased by more than 20%. Still, there were about 2.0 million new infections in 2015 or about 5,600 new infections per day (UNAIDS 2015). Most new infections are transmitted heterosexually, although risk factors vary. In some countries, men who have sex with men, injecting drug users, and sex workers are disproportionally affected by HIV (UNAIDS, 2015). Young people, ages 15-24, account for approximately 30% of new HIV infections (among those 15 and over). In sub-Saharan Africa, young women account for 63% of young people living with HIV.

Globally, there were 2.6 million children living with HIV in 2014, 220,000 new infections among children, and 150,000 AIDS deaths (UNAIDS 2015). Although HIV testing capacity has increased over time, enabling more people to learn their HIV status, nearly half of all people with HIV are still unaware they are infected. Sub-Sahara Africa is the highest hit region with about 70% of people living with HIV worldwide and adult prevalence rate of 4.7% (UNAIDS 2015) see Table 2.1.

Table 2.1: HIV Prevalence and Incidence by Region, 2013			
Region	Total No. (% Living with HIV)	Newly Infected	Adult Prevalence Rate
Global Total	36.9 million (100%)	2.0 million	0.8%
Sub-Saharan Africa	25.8 million (71%)	1.4 million	4.7%
Asia and the Pacific	5.0 million (14%)	340,000	0.2%
Western and Central Europe and North America	2.4 million (7%)	85,000	0.3%
Latin America	1.7 million (5%)	87,000	0.4%
Eastern Europe and Central Asia	1.5 million (3%)	140,000	0.9%
Caribbean	280,000 (<1%)	13,000	1.1%
Middle East and North Africa	240,000 (<1%)	22,000	0.1%

SOURCE: The Global HIV/AIDS Epidemic (UNAIDS, 2015).

2.2.1 The Situation in Sub-Sahara Africa

In 2011 there was an estimated 23.5 million people living with HIV in Sub-Saharan Africa (UNAIDS, 2012). This has increased since 2009, when an estimated 22.5 million people were living with HIV, including 2.3 million children (UNAIDS, 2012).

The increase in the number of people living with HIV could be partly due to a decrease in AIDS-related deaths in the region. There were 1.2 million deaths due to AIDS in 2011 compared to 1.8 million in 2005 (UNAIDS, 2012). Almost 70% of people living with HIV worldwide live in sub-Saharan Africa (UNAIDS, 2012). The latest figures for each sub-Saharan African country were published in 2012 and refer to the end of 2011. They are shown below (UNAIDS, 2012) (see Table 2.2).

Table 2.2: Demographics: HIV/AIDS – people living with HIV/AIDS (2012) in Sub-Saharan Africa

Country Name	HIV/AIDS - people living with HIV/AIDS	Year of Estimate
South Africa	5,600,000	2012
Nigeria	3,300,000	2012
Kenya	1,500,000	2012
Mozambique	1,400,000	2012
Tanzania	1,400,000	2012
Uganda	1,200,000	2012
Zimbabwe	1,200,000	2012
Zambia	980,000	2012
Malawi	920,000	2012
Cameroon	610,000	2012
Cote d'Ivoire	450,000	2012
Botswana	320,000	2012
Lesotho	290,000	2012
Ghana	260,000	2012
Chad	210,000	2012
Angola	200,000	2012
Burundi	180,000	2012
Namibia	180,000	2012
Swaziland	180,000	2012
Rwanda	170,000	2012
Central African Republic	130,000	2012
Togo	120,000	2012
Burkina Faso	110,000	2012
Guinea	79,000	2012

Table 2.2: Demographics: HIV/AIDS – people living with HIV/AIDS (2012) in Sub-Saharan Africa (cont'd)

Country Name	HIV/AIDS - people living with HIV/AIDS	Year of Estimate
Congo, Republic of the	77,000	2012
Mali	76,000	2012
Niger	61,000	2012
Benin	60,000	2012
Senegal	59,000	2012
Sierra Leone	49,000	2012
Gabon	46,000	2012
Liberia	37,000	2012
Papua New Guinea	34,000	2012
Guinea-Bissau	22,000	2012
Equatorial Guinea	20,000	2012
Gambia, The	18,000	2012
Mauritania	14,000	2012
Mauritius	8,800	2012

Source: CIA World Factbook - Unless otherwise noted, information in this page is accurate as of January 2012

Sub Saharan Africa has the most serious HIV and AIDs epidemic in the world. In 2013, an estimated 24.7 million people were living with HIV, accounting for 71% of the global total. In the same year, there were an estimated 1.5 million new HIV infections and 1.1 million AIDS – related deaths (UNAIDS 2014).

HIV prevalence varies greatly between regions as well as individual countries within the sub-Saharan Africa region. For example, Southern Africa is the worst affected region and is widely regarded as the 'epicentre' of the global HIV epidemic. Swaziland has the highest HIV prevalence of any country worldwide (27.4%) while South Africa has the largest epidemic of any country – 5.9 million people are living with HIV. By comparison, HIV prevalence in Western and Eastern Africa is low to moderate ranging from 0.5% in Senegal to 6% in Kenya (UNAIDS 2014).

The HIV incidence appears to have peaked in the mid-1990s, and there is evidence of declines in incidence in several countries in Sub-Saharan Africa (UNAIDS, 2010). Between 2001 and 2009, the incidence of HIV infection declined by more than 25% in an estimated 22 countries. With an estimated 5.6 million (5.4 million-5.8 million) people living with HIV in 2009, South Africa's epidemic remains the largest in the world (UNAIDS, 2010). The epidemics in East Africa have declined since 2000 but are stabilizing in many countries. The national HIV prevalence in Kenya fell from about 1.4% in the mid-1990s to 5% in 2006 (UNAIDS 2010).

HIV related stigma and discrimination remains a major barrier in tackling the HIV and AIDS epidemic in sub-Saharan Africa. Cultural beliefs about HIV and AIDS around contamination, sexuality and religion have played a crucial role in the development of HIV-related discrimination. In many places, it is thought to have actually increased the number of HIV infections by preventing people from accessing HIV services (Mbonu, Borne and Vries, 2009).

2.2.2 The Nigerian situation

The first AIDS case was reported in Nigeria in 1986. Sentinel survey data showed that over a ten year period from 1991 to 2001 HIV prevalence increased from 1.2% in to 5.8% respectively. The prevalence declined to 4.4% in 2005 and slightly increased to 4.6% in 2008 (FMOH 2010). National HIV/AIDS and reproductive health survey conducted in 2012 revealed a national prevalence rate of 3.4%, this was a slight decline from previous estimate of 3.7% in 2007. Prevalence was highest among those aged 35-39(4.4%) and lowest among 15-19 age group (2.9%). Prevalence for females aged 30-34 was 4.2%. Geographically the HIV prevalence was highest in the South South zone (5.5%) and lowest in the South East zone (1.8%), also there were variations between urban and rural areas with prevalence figures in urban being 3% and rural area 4% (NARHS 2012). The size of Nigeria's population at July 2013 was 177,071,561 million and based on projected HIV estimates of 2013 about 3,229,757 people live with HIV while it is estimated that 220,394 new HIV infections occurred in 2013. A total of 210,031 people died from AIDS related cases and an estimate of 1,476,741 persons required antiretroviral drugs (Table 2.3).

Table 2.3: Sub-Sahara Africa's HIV and AIDS Statistics 2013

Statistics	HIV prevalence
In 2013, there were 24.7 million [23.5 million – 26.1 million] people living with HIV in sub-Saharan Africa.	➢ Women account for 58% of the total number of people living with HIV in sub-Saharan Africa
In 2013, there were an estimated 1.5 million [1.3 million – 1.6 million] new HIV infections in sub-Saharan Africa.	➢ New HIV infections declined by 33% between 2005 and 2013. ➢ Sub-Saharan Africa accounts for almost 70% of the global total of new HIV infections.
In sub-Saharan Africa, 1.1 million [1.0 million – 1.3 million] people died of AIDS-related causes in 2013.	➢ Between 2005 and 2013 the number of AIDS-related deaths in sub-Saharan Africa fell by 39%.
Treatment coverage is 37% of all people living with HIV in sub-Saharan Africa.	➢ 67% of men and 57% of women were not receiving ART in sub-Saharan Africa in 2013 ➢ Three out of four people on ART live in sub-Saharan Africa. ➢ In Nigeria 80% of people do not have access to treatment.
There were 210 000 [180 000 – 250 000] new HIV infections among children in sub-Saharan Africa in 2013.	➢ Since 2009, there has been a 43% decline in new HIV infections among children in the 21 priority countries of the Global Plan in Africa.

Source: Fact Sheet 2014 UNAID

Epidemic in Nigeria was attributed to low personal risk perception, transactional sex inefficient and ineffective services for sexually transmitted infections (STIs) and inadequate access to and poor quality of health care services, gender inequalities, poverty, stigma and discrimination (Table 2.4).

Table 2.4: Trend in estimated new HIV infection from 2009 - 2013

	Female	Male	Total
2009	157,976	130,893	288,869
2010	154,973	128,616	283,589
2011	149,864	124,504	274,368
2012	130,497	109,209	239,706
2013	120,003	100,390	220,393

Source: FMOH AND NARHS (2014)

The report of the National HIV/AIDS and Reproductive Health Survey (NARHS) which is a population based survey conducted in 2007 shows that more females were infected with HIV than males. Prevalence was slightly higher in the urban than the rural areas. Prevalence was highest in the North Central (5.7%) and lowest in the South East (2.6%). The NARHS report further shows that HIV prevalence in the general population was higher among those with tertiary education (4.0%) compared to those without formal education (2.7%) (Table 2.5).

Table 2.5: Findings of Year 2007 population based National HIV/AIDS and Reproductive Health survey

Variable	Male	Female
% of those who accepted to be tested in the study	78.6	78.5
% of HIV testing coverage in the rural areas	81	79
% of HIV testing coverage in the urban areas	75	78
% of those who tested positive	3.2	4
Prevalence among those who had sex in the last 12 months	3.9	4.4
Prevalence among those that ever had sex	3.8	4.7
Prevalence among those that never had sex	1.7	1.7
Prevalence among those that exchanged sex for gifts	5	5.2
Prevalence among those that did not exchange sex for gifts	3.9	3.9
Prevalence among those with two or more non marital sexual partners	1.5	14.5

Note: The survey only reported the actual occurrence

Source: FMOH and NARHS, (2007)

2.3 Occupational exposure to HIV among health workers

A health care facility is a workplace as well as a place for receiving and giving care. Health care facilities around the world employ over 59 million workers who are exposed to a complex variety of health and safety hazards everyday including biological hazards such as Tuberculosis, Hepatitis, HIV/AIDS and SARS (WHO, 2005).

Globally, it is estimated that sharps injuries cause about 66 000 HBV, 16 000 HCV and 200 - 5000 HIV infections among health-care workers each year (WHO, 2005). For health-care workers worldwide, the attributable fractions for percutaneous occupational exposure to HBV, HCV and HIV are 37%, 39% and 4.4%, respectively. These blood

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borne infections have serious consequences, including long-term illness, disability and death (WHO, 2005).

A study involving 322 participants who are health workers carried out in tertiary health institutions in India revealed that 79.5% of the participants reported having had one or more needle stick injuries in their career. Approximately 22% had one in the last month and among those who have ever had needle stick injuries 17% involved high risk patients which are patients with history of HIV and Hepatitis B or C (Rahul, Anita, Rasonia and Saudan, 2010).

The result of a similar study carried out in United Arab Emirate involving 994 health care workers from two private health care organisation shows that 19.3% of participants sustained sharps injuries in one calendar year and 101 of these sharps injuries were from blood contaminated sharps (Jacob, Newson Murphy and Dick, 2010).

WHO estimates that 2.5% of HIV infections among health workers are a result of needle-stick injury. However, the majority of HIV infections among health workers are acquired through unprotected sex (WHO, 2006). Health workers are exposed to the same social and economic pressures as the general population and they are vulnerable to HIV in the workplace and in their personal lives outside the workplace (Conelly, 2006; Shisana, 2004).

Human immunodeficiency virus (HIV) post-exposure prophylaxis (PEP) involves taking a brief course (usually 28days) of antiretroviral drugs (ARVs) as soon as possible after exposure to HIV to reduce and if possible eliminate the possibility of acquiring HIV infection. Exposure to HIV can occur in an occupational or non-occupational setting. Use of ARVs following exposure to HIV is a form of secondary HIV prevention that has been shown to reduce the incidence of HIV infections (Young, Arens, Kennedy, Laurie and Rutherford, 2007)

An evaluation study of HIV- Post Exposure Prophylaxis programme for occupational injuries at Queen Elizabeth Central Hospital in Malawi, reported an alarmingly high incidence of occupational injuries among nurses in the clinical department (Van Oosterhout, Nyireda, Beadsworth and Kumwenda, 2007). The research which was done in the year 2005 shows that majority of the participants (69%) had a needle stick injury. However, this is likely to be an under estimation as nurses may not have recalled injuries sustained several months earlier. Twenty eight nurses (76%) reported a total of 56 injuries in 2004, which translates into an incidence rate of 1.5 occupational injuries per person per year assuming all worked throughout 2004. Only one of the 28 nurses who had an occupational injury sought advice for PEP. In the majority (74%), the reason for not seeking help was being unaware about the PEP programme, four (15%) did not want an HIV test, while three thought the occupational injury was not serious.

Health workers are at risk from occupational exposure to HIV though needle stick and other injuries or accidents, and early post exposure prophylaxis (PEP) is recommended (Young et al, 2007). Howeveruptake of PEP is reported as being low. A study carried out in Kenya found that only 4% of health workers accessed PEP following needle stick injuries and fear of testing was cited as an important barrier to accessing PEP (Toegimeyer, Suckling, Nguku, Meredith and Chokoya, 2008). Similarly, reluctance to test was reported as a barrier to accessing PEP from a small study from Malawi (Van Oosterhout et.al, 2007). It is possible that greater access to self-testing could be an important factor to help health workers access PEP following occupational exposure. While AIDS is causing an increased demand for health services, large numbers of healthcare professionals are being directly affected by the epidemic. Botswana, for example, lost 17% of its healthcare workforce due to AIDS between 1999 and 2005 (UNAIDS, 2006). A study in one region in Zambia found that 40% of midwives were HIV-positive and staff loss rates by cadre were 30% for doctors, 36% for midwives and 33% for nurses (UNAIDS, 2006). All infected and affected workers are likely to take time off work and further absenteeism may result from psychological impacts.

2.1 HIV Counseling and Testing

HIV counseling and testing (HCT) refers to the process by which an individual, couple, or family receives HIV testing and counseling on HIV prevention, treatment, care, and support (UNAIDS, 2006). There are many approaches to HCT, but generally, the intervention includes four activities which are pretest counseling on the testing process, risk-behaviour assessment, each participant's informed consent, and post-test counseling based on the test result or results (UNAIDS, 2006).

HIV testing and counselling (HTC) is a critical and essential gateway to HIV prevention, treatment, care, and support services. It is now known that early knowledge of one's positive HIV status maximizes opportunities for the people living with HIV (PLHIV) to access treatment, thereby greatly reducing HIV-related morbidity and mortality, and/or preventing mother-to-child transmission of HIV (WHO, 2012). Being on effective HIV treatment reduces, by up to 96%, the likelihood that someone living with HIV will transmit HIV to his/her sexual partner (WHO, 2012). Those who are HIV negative can continue to make efforts to protect themselves from acquiring HIV through evidence-based prevention methods: safer sex, use of condoms, voluntary medical male circumcision, safe injecting equipment, reduced number of sexual partners (WHO, 2012).

HIV counseling and testing is the gateway to treatment, care, support, and prevention interventions for those who have HIV (UNAIDS, 2006). It is a critical opportunity for HIV prevention counseling, particularly for couples where one partner is HIV positive known as sero-discordancy and for others with a high risk of acquiring HIV (UNAIDS, 2007). For those who test negative, counseling focuses on prevention messages tailored to the client's or patient's risk behaviour(s) and provides referrals to prevention interventions, such as male circumcision clinics and support groups (UNAIDS, 2006).

HIV Counseling and testing is a strategy that enables individuals to know their HIV Status and be able to avoid being infected if negative or prevent re-infection and spreading the infection if positive (UNAIDS, 2000). In addition, wider access to HCT

may lead to greater openness about HIV/AIDS and less stigma and discrimination, (UNAIDS. 2002).

HIV counseling and testing is the process by which an individual undergoes counseling enabling him or her to make an informed choice about being tested for HIV. This decision must be entirely the choice of the individual and he or she must be assured that the process will be confidential (UNAIDS. 2000). HCT has a vital role to play within a comprehensive range of measures for HIV/AIDS prevention and support, and should be encouraged. The potential benefits of testing and counseling for the individual include improved health status through good nutritional advice and earlier access to care, prevention and treatment for HIV related illness (UNAIDS, 2010).

HCT also allows individual to have access to emotional support, improves ability to cope with HIV related anxiety, provides awareness of safer options for reproduction and infant feeding and motivation to initiate or maintain safer sexual and drug related behaviours (UNAIDS, 2000). Other benefits include safer blood donation. HIV counseling has been defined as a confidential dialogue between a person and a care provider aimed at enabling the person to cope with stress and make personal decisions related to HIV/AIDS. The counseling process includes an evaluation of personal risk of HIV transmission and facilitation of preventive behavior (UNAIDS, 2002). HIV counseling and testing has been declared to play a paramount role among the interventions that play pivotal role both in treatment and in prevention of HIV/AIDS (UNAIDS & WHO, 2005).

UNAIDS/WHO do not support coercive or mandatory HIV testing as these are neither effective. UNAIDS/WHO (2004) policy on HIV counseling and testing recommends four types of HIV counseling and testing, the first type of HCT is the voluntary counseling and testing also known as client-initiated HIV counseling and testing enables an individual to know his HIV status. This remains critical to the effectiveness of HIV prevention. UNAIDS/WHO advocate for the effective promotion of knowledge of HIV status among any population that may have been exposed to HIV through any mode of

transmission. Pre-test counseling may be provided either on an individual basis or in group settings with individual follow-up. UNAIDS/WHO (2004) encourage the use of rapid tests so that results are provided in a timely fashion and can be followed up immediately with a first post-test counseling session for both HIV-negative and HIV-positive individuals.

The second type of HCT is the diagnostic testing which is carried out whenever a person shows signs or symptoms that are consistent with HIV-related disease or AIDS in order to assist clinical diagnosis and management. This includes HIV testing for all tuberculosis patients as part of their routine management (UNAIDS/WHO, 2004).

Routine offering of testing by health care providers or Provider-initiated testing and counseling is the third type of HCT. This is made available to all patients being assessed in a sexually transmitted infection clinic or elsewhere for a sexually transmitted infection (UNAIDS/WHO, 2004). This is done in order to facilitate tailored counseling based on knowledge of HIV status. Routine HCT is seen in the context of pregnancy in order to facilitate an offer of prevention of mother to child transmission. It is also done in clinical and community based health service settings where HIV is prevalent and antiretroviral drug is available. Such places are injecting drug use treatment services, hospital emergencies, hospital wards and consultations even though the patients are asymptomatic (UNAIDS/WHO, 2004).

Explicit mechanisms are necessary in provider-initiated HIV testing to promote referral to post-test counseling services emphasizing prevention for all those being tested and medical and psychosocial support for those testing positive. The basic conditions of confidentiality, consent and counseling apply but the standard pre-test counseling used in VCT services is adapted to simply ensure informed consent, without a full education and counseling session (UNAIDS/WHO, 2004). The minimum amount of information that patients require in order to be able to provide informed consent include: the clinical benefit and the prevention benefits of testing, the right to refuse, the follow-up services that will be offered. Also in the event of a positive test result, the importance of

anticipating the need to inform anyone at ongoing risk who would otherwise not suspect they were being exposed to HIV infection (UNAIDS/WHO. 2004).

For provider-initiated testing, whether for purposes of diagnosis, offer of antiretroviral prevention of mother-to-child transmission or encouragement to learn HIV status, patients retain the right to refuse testing, i.e. to 'opt out' of a systematic offer of testing (UNAIDS, WHO. 2004).

The fourth type of HCT supported by UNAIDS/WHO (2004) is the mandatory screening for HIV and other blood borne viruses of all blood that is destined for transfusion or for the manufacture of blood products. Mandatory screening of donors is required prior to all procedures involving transfer of bodily fluids or body parts, such as artificial insemination, corneal grafts and organ transplant.

Couples counselling and testing has been introduced in many countries in recognition of the importance of disclosure to family members and sexual partners, where couples can learn their results together with the assistance of a trained counsellor or health worker (WHO, 2015). Sharing serostatus allows couples to plan, make important life decisions, including making HIV prevention choices, and seeking care and support together (WHO, 2015). Services targeting other groups have also been introduced, including for adolescents and people from key populations, such as services for sex workers, injecting drug users, and men who have sex with men and transgender people (WHO. 2015). It is imperative that these services are provided within a context of respect, non-discrimination, and protection of privacy and confidentiality (WHO. 2015).

Early knowledge of one's positive HIV status maximizes opportunities for the people living with HIV (PLHIV) to access treatment, thereby greatly reducing HIV-related morbidity and mortality, and/or preventing mother-to-child transmission of HIV (UNAIDS/WHO. 2012).

Being on effective HIV treatment reduces, by up to 96%, the likelihood that someone living with HIV will transmit HIV to his/her sexual partner (UNAIDS/WHO. 2012).

Those who are HIV negative can continue to make efforts to protect themselves from acquiring HIV through evidence-based prevention methods such as safer sex, use of condoms, voluntary medical male circumcision, safe injecting equipment, reduced number of sexual partners (UNAIDS, 2012).

HIV testing services include the full range of services that should be provided together with HIV testing, this includes pre-test information, post-test counselling, linkage to appropriate HIV prevention, care and treatment services (WHO, 2015). The services also include clinical and support services, quality HIV testing, accurate test results and diagnosis, and coordination with laboratory services to support quality assurance (WHO, 2015).

The development and use of HIV rapid diagnostic tests in the late 1990s have facilitated expansion of HIV testing services. These rapid diagnostic tests can be performed with a finger-prick blood sample collected and processed by a trained community worker and can be conducted outside of health facilities and traditional testing sites (WHO, 2015).

The informed consent of the person being tested has generally been considered essential in HIV testing to ensure that the person understands what the test means, is prepared for potential positive result and provides permission to be tested (UNAIDS/WHO, 2004).

UNAIDS does not support mandatory testing on public health grounds, and recommends to countries that all HIV testing be confidential, subject to the provision of informed consent (UNAIDS, 2004). HCT should also include pre- and post-test counseling for both HIV positive and HIV negative individuals, and that those testing positive be referred to medical and psychosocial services (UNAIDS, 2004).

The task shifting/sharing policy is being finalized and will be implemented for trained HIV counselors as soon as it is adopted. This policy will result in the following changes:

- A trained health care worker, enrolled nurse, community health worker or counselor may then be authorized, in terms of the task shifting policy to administer the HIV test.

- All health-care workers who administer the test will receive required training to ensure adherence to the standard operating procedures, utilization of approved testing kits, and quality assurance of HIV testing.
- HIV testing conducted by a health-care worker, should be under the supervision of a health-care professional (i.e., registered nurse, doctor, dentist, oral therapist, or oral hygienist).
- A trained health-care worker/counselor will be responsible for performing the test, interpreting and confirming the results of the test, as well as informing the client of the result.
- A trained registered nurse will supervise the question and answer processes for HIV testing. In provider initiated counseling and testing, a trained registered nurse should always be the first person initiating HCT with the patients. In addition, the following points should be adhered to:
- Verbal Informed consent should be obtained before testing as outlined in the policy guideline
- The counselor must adhere to the National Quality Assurance Programmed, and this should cover the counseling process as well as the use of rapid test kits.
- The national department of health will facilitate quality control measures and adherence to testing protocol.
- Disclosure of test results and the implications thereof should comply with the promotion and protection of human rights.

Source: National strategic plan for HIV/AIDS and STIs in South Africa (2012).

2.5 Recommended HIV Testing Algorithm

The HIV testing algorithm that should be implemented for all HIV testing is the serial testing algorithm as discussed in Figure 2.1

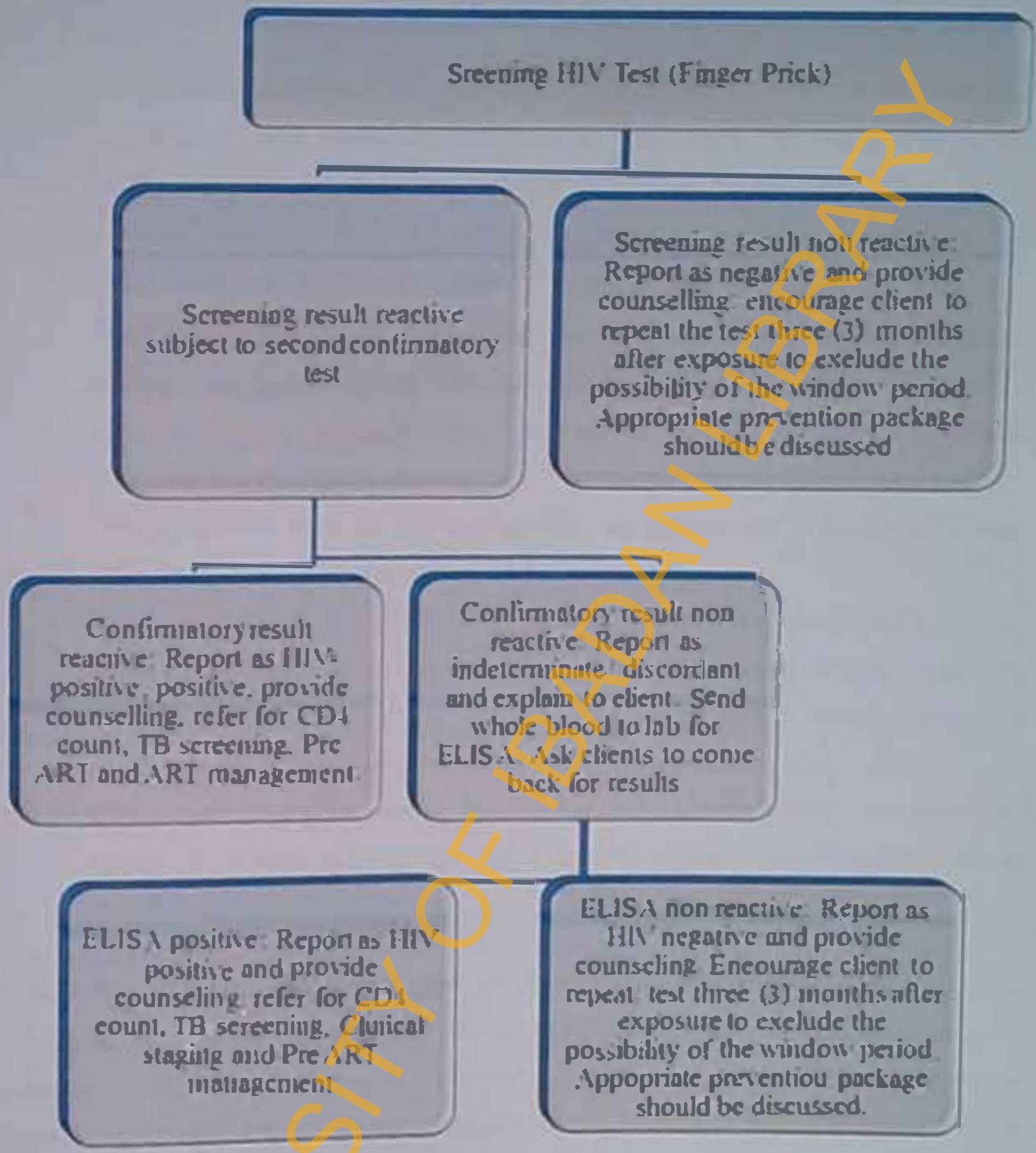

Figure 2.1: Procedures for HIV test results
Source; South Africa National Strategic plan for HIV/AIDS (2007-2011)

2.6 The "5 Cs"

WHO (2015) has defined five key components—the "5 Cs"—that must be respected and adhered to by all HCT services. These components are consent, confidentiality, counselling, correct test results and connection/ linkage to prevention, care and treatment.

The five Cs. and the key principles they entail. apply to all models of HTC services as listed below:

- People being tested for HIV must give informed consent to be tested. They must be informed of the process for HTC. the services that will be available depending on the results. and their right to refuse testing. Mandatory or compulsory (coerced) testing is never appropriate. regardless of where that coercion comes from: health-care providers, partners, family members. employers. or others
- Testing services must be confidential. meaning that the content of discussions between the person tested and the health-care worker. testing provider. or counselor. as well as the test results. will not be disclosed to anyone else without the consent of the person tested.
- Testing services must be accompanied by appropriate and high-quality pre-test information or pre-test counseling. and post-test counseling.
- Provision of correct test results. Testing must be performed and quality assurance measures followed according to internationally-recognized testing strategies. norms. and standards based on the type of epidemic. Results must be communicated to the person tested unless that person refuses the results.
- Connections to HIV prevention. treatment and care and support services should be supported through concrete and well-resourced patient referral. support. and/or tracking systems.

The UNAIDS World AIDS Day Report 2012 provides evidence that adhering to these principles and practices for HTC and linking those tested to HIV prevention. treatment. care. and support can enable countries to reduce the incidence of new HIV infections and reduce HIV-related morbidity and mortality. These gains are further enhanced when countries take steps to increase access to: voluntary HTC. including for key at-risk and vulnerable populations. prevention of mother-to-child transmission of HIV (PMTCT). and ARV treatment to all those who need it.

WHO recommends that voluntary HTC be available through a wide range of services delivery models and approaches. These include provider-initiated testing and counseling

(PITC), which involves the routine offer of testing to all people receiving medical care in high-prevalence settings and in clinical sites, such as sexual health and tuberculosis (TB) and drug treatment clinics, antenatal, childbirth, postpartum services and sites offering services to key at risk and vulnerable population, in all epidemic settings. They also include a range of other testing and counselling services, including the offer of testing in non-medical settings by non-medical personnel, such as in community outreach, couples testing, door-to-door offer of testing, home-based testing and others.

In this context, the use of rapid point-ofcare HIV tests should be expanded as this type of testing enables testing providers and counsellors to quickly provide test results to those tested. This, in turn, can contribute to early enrolment in treatment, care, prevention, and other follow-up services as needed. Rapid tests can also reduce the burden on laboratories and allow trained and supervised lay personnel to provide the testing and counseling.

Regardless of the individual or population group being offered HTC, all aspects and models of HTC services must adhere to the 5 Cs and be provided in a compassionate, non-discriminatory, and ethical manner deriving from the professional integrity of the testing provider/counselor and respecting the human rights of the person being tested. Facilities providing HTC should have codes of conduct for providers and systems in place for redress for patients whose rights are infringed.

2.7 HCT policies

The UNAIDS World AIDS Day Report (2012) provides evidence that adhering to the principles and practices for HTC and linking those tested to HIV prevention, treatment, care, and support can enable countries to reduce the incidence of new HIV infections and reduce HIV-related morbidity and mortality. These gains are further enhanced when countries take steps to increase access to voluntary HTC, including for key at-risk and vulnerable populations; prevention of mother-to-child transmission of HIV (PMTCT); and ARV treatment to all those who need it

National HCT policies and practices should be reviewed to eliminate all non-voluntary forms of testing. There should be no compulsory or mandatory testing of members of key populations at higher risk of HIV infection and other vulnerable populations, including pregnant women, people who inject drugs and their sexual partners, men who have sex with men, commercial sex workers, prisoners, migrants, refugees and internally displaced persons, and transgender people (WHO, UNAIDS 2012).

The expansion of voluntary HCT should include improved protection from stigma and discrimination related to positive HIV status and risk behaviours, as well as improved support to be connected/linked to prevention, treatment, care and support services. Adolescents require special attention to their needs through the provision of youth-friendly testing and counseling and follow-up services. Public health strategies and human rights promotion are mutually reinforcing. A human rights-based approach to HTC must be ensured (UNAIDS, WHO 2012).

The following key factors should be addressed simultaneously

- Ensuring expanded access through an ethical process for conducting HTC, including defining the purpose of the test and the risks and benefits to the person being tested.
- Assuring linkages between the site where the test is conducted and appropriate treatment, care, prevention, and other services, in an environment that guarantees confidentiality of all medical information.
- Addressing the implications of a positive test result, including the risk of discrimination and stigma and the importance of early enrolment in HIV treatment, care and follow-up services as needed.
- Reducing HIV-related stigma and discrimination at all levels, including within health-care settings.
- Ensuring a supportive legal and policy framework within which the response is scaled up, including safeguarding the human rights of people accessing HTC and other services.

- Improving the healthcare infrastructure so quality services adhering to these principles can be sustained in the face of increased demand for testing, treatment, and related services and ensures effective monitoring and evaluation is in place.

SOURCE: UNAIDS/WHO Statement on HIV Counselling and Testing (2012)

2.8 Attitude of health workers towards HIV Counseling and Testing

The practice and acceptability of HCT by health care workers can be viewed from two perspectives, firstly, from the perspective of how HCWs are themselves testing for HIV and secondly, from the perspective of how HCWs are offering HCT to their clients. A study conducted among 69 new employees of the British National Health Scheme reported that 41% of the study participants have been tested for HIV and 62% are willing to test in the future. It went further to state that 56% of the participants who tested for HIV are from areas of endemic HIV. (Hamill, Copas and Murphy, 2006). this may be connected to perceived susceptibility. Another study conducted among 242 HCWs in a tertiary hospital in Benin, Nigeria reported that 71.9% of the study participants have been screened for HIV (Okojie & Omuemu, 2004).

In another study carried out among 124 health workers in Mpumulo, South Africa results show that 63.7% of the study participants reported that they have had an HIV test in the past. All these studies did not specify the percentage of health workers that practice the recommended six monthly VCT.

A study in India by Kermode, Jolley, Langkham and Crofts (2005) found that 63% of the 266 nurse participants perceived the risk of occupational infection with HIV as high 60% of the nurses thought that there was 100% risk of getting HIV infection from contaminated needle stick injury, and only 11% of nurses correctly identified the risk of HIV infection from needle stick injury as 0.3%. Low level of nurses' knowledge was demonstrated in previous studies (Walusimbi and Okonsky, 2004).

In a qualitative study from Malawi, researchers found that 76% of health workers surveyed reported having accessed HIV testing and counseling services, with 73% reporting a repeat test. Nearly half (49%) of the health workers noted that they tested

because they "just wanted to know" while 22% tested due to concerns about occupational exposure and 11% because of ill health. Eleven per cent of health workers surveyed reported self-testing while 41% of respondents believe that their colleagues have self-tested (Namakhoma. 2010). Another data collected from health workers in Kenya. Ethiopia. Malawi. Mozambique and Zimbabwe. Malawi on acceptability of self HIV testing show high levels of unregulated selftesting (20–41%) and high levels of interest in self-testing among health workers. ranging from 72% to 80% (Corbett. 2007).

A study conducted in three districts in Zimbabwe on health workers accessing VCT found that most of the health workers (87.4%) had not gone for VCT and the majority also reported unwillingness to be tested (Tarwireyi and Majoko, 2003). The reasons identified included not being ready to test for HIV, not able to cope with results. the perception that there is no need to test as there is no cure available for the HIV and not wanting to go through the counseling process. Fear of HIV test amongst health workers was also documented. In Zambia. A study by Kiragu. Ngulube. Nyumbu,Njobvu. Erens and Mwaba (2007) showed that most health workers did not utilize counseling and testing because they did not feel they are at risk. Using self-administered questionnaires, the study aimed at assessing HIV/AIDS risk taking and status awareness amongst health workers in five urban hospitals in two provinces. The study showed that only 33% of health workers had tested for HIV despite their greater level of education than the general public. and their greater risk of exposure occupationally. The investigators concluded that though respondents were health workers. were in marital unions. and seen as being at lower risk. they needed to be targeted with behavioural change interventions.

From the perspective of how health workers offer HCT to their clients. a cross-sectional study conducted in Mulago Hospital which is the main national referral hospital in Uganda in which a total number of 155 physicians and nurses participated shows that 29% of health workers reported never having discussed AIDS prevention with patients. 26% had never referred patients for HIV counseling and 31% had never advised patients suspected of HIV infection to be tested. Frequent explanations for not providing AIDS

because they "just wanted to know" while 22% tested due to concerns about occupational exposure and 11% because of ill health. Eleven per cent of health workers surveyed reported self-testing while 41% of respondents believe that their colleagues have self-tested (Namakhoma, 2010). Another data collected from health workers in Kenya, Ethiopia, Malawi, Mozambique and Zimbabwe, Malawi on acceptability of self HIV testing show high levels of unregulated self-testing (20-41%) and high levels of interest in self-testing among health workers, ranging from 72% to 80% (Corbett, 2007).

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prevention education included time constraints and / or lack of related knowledge or skills (Mungherera, Van der Straten, Faigeles, Fowler and Mandel, 1997).

In a prospective study conducted in a Durban hospital, researchers compared the "standard of care" practice of VCT versus the routine practice of VCT. It was shown that 2912 clients were offered VCT during the 12 week period of routine practice of VCT as compared to 435 clients that were offered VCT during the period of "standard of care" (Bassel, Giddy, Nkera, Wang, Losina, Lu, Freedberg & Walensky, 2007). This shows that the number of clients HCWs offer VCT is dependent on the type of HIV testing being practiced at the site in question at a given time.

2.9 Factors influencing the use of HCT by health workers

UNAIDS and WHO (2007) has recommended that countries with generalized HIV epidemics should adopt a policy of provider initiated HIV counseling and testing (PITC) in clinical settings. The policy guidelines suggest that, HIV counseling and testing should be recommended by the health care provider as part of routine care to all patients or clients attending the facilities, regardless of whether the patient shows signs and symptoms of underlying HIV infection. PITC comprises of two strategies in which health care providers are required to perform. These include HIV counseling, diagnostic HIV testing, and HIV screening. The guidelines also emphasize that, PITC should be voluntary and that the "Three C's" of HCT which are informed consent, counseling and confidentiality must be observed. The current PITC policy is intended to complement the existing HIV VCT programmes which rely on individuals to self-refer for testing.

A cross-sectional study which was conducted by Nutil Kapologwe (2011) among health care providers working in the government health facilities in Tanzania shows that all the 402 health care providers who participated in the study reported to have heard about PITC. Barriers to offer PITC services as reported by health providers are non-relevance of PITC to clients' visit, this was the most common reported barrier (61%), as health care providers thought that not all patients were at risk of acquiring HIV infection and that PITC is time consuming (37.8%). Other perceived barriers were high number of

patients at the clinics (57.7%), few health care providers (42.8%) and lack of special training on PITC (46.5%) and absence of test kits (37.1%).

Several factors can influence the uptake of HCT for HIV by individuals. Existing evidence suggests that fear of having been exposed to HIV by one's own actions, fear of having been exposed to HIV by the actions of one's spouse or partner, feeling sick, family events such as marriage, pregnancy, job circumstances (e.g. new job, scholarship, and application requirement) would prompt an individual to go for HCT (Yoder and Matinga, 2004).

Furthermore, high education level is also associated with getting an HIV test (Aberle-Grasse, Killam, Newman, Limbe and Davis, 2004). It has also been revealed that gender plays a crucial role in influencing people to utilize HCT service in that more men than women utilize the HCT services (Lwando, 2003). Studies done in South Africa have shown that the practice and acceptability of HCT among women attending antenatal clinic is high (Abdullah, Young, Bitclo, Coetzee and Meyers, 2001). This has been attributed to the mothers' interest in protecting their children from infection with the HIV through prevention of mother to child transmission (PMTCT) (Grasse et al. 2004). Also, Shogbamiu, Rupesinghe and Wright (2011) found that the uptake of routine HIV testing amongst pregnant women in Baziya was facilitated by the level of educational attainment, group counselling, and health care workers involvement. Stigma was found to prevent uptake of routine HIV testing.

Another study by Musheke, Ntalasha, Gari, Mckenzie, Bond, Martin Hiber and Menten (2013) on factors influencing the uptake of HCT in Sub-Saharan Africa revealed that the predominant factors enabling uptake of HIV testing are deterioration of physical health and/or death of sexual partner or child. The roll-out of various HIV testing initiatives such as 'opt-out' provider-initiated HIV testing and mobile HIV testing has improved uptake of HIV testing by being conveniently available. Other enabling factors are availability of treatment and social network influence and support. Major barriers to uptake of HIV testing comprise perceived low risk of HIV infection, perceived health

workers' inability to maintain confidentiality and fear of HIV-related stigma. While the increasingly wider availability of life-saving treatment is an incentive to test, the perceived psychological burden of living with HIV inhibits uptake of HIV testing. Other barriers are direct and indirect financial costs of accessing HIV testing, and gender inequality which undermines women's decision making autonomy about HIV testing.

Yoder and Matinga (2004) also established that people would not go for an HIV test if they think that they are not at risk. They do not want to be seen going to a HCT centre, because they would be recognized and perceived as being positive to HIV, and the fear of being told that they are HIV positive clearly keeps people from being tested. A study done in Kano, Northern Nigeria concluded that among the study population HIV/AIDS knowledge significantly predicted positive attitude toward HCT for HIV/AIDS (Iliyasu, Abubakar, Kabir & Aliyu, 2006). The health belief model states that a person's perceived vulnerability to a condition is important in explaining a health behaviour. In the study by Jereni & Muula, (2008) 15.5% of the study participants said they were seeking HCT due to a self-assessment of own behaviour as risky. This risky behaviour leaves them vulnerable to infection with HIV and according to them led to their decision to test for HIV. This self-assessment of own behaviour as risky may also have an opposite effect of inducing the fear of testing HIV positive in an individual which might deter the person from HCT. Approaches that erode human rights and ethics and create an environment of fear, intolerance and coercion undermine efforts to scale up HTC and public health interventions that aim to encourage disclosure and partner notification (UNAIDS.WHO, 2000).

In their study Peltzer, Nzewi and Krisna (2004) noted that 25% of high-risk individuals in the United State fail to be tested due to fear of learning they are HIV positive. Other studies noted that people who declined testing said they did so because they did not perceive themselves to be at risk for HIV (Ikechebelu, Udigwe Joe Ikechebelu and Imoh, 2006). AIDS related stigma and discrimination remain the greatest obstacles to people living with HIV/AIDS (Van Dyke, 2008). Many studies have identified stigma and discrimination as the main reasons why people do not utilize HCT services (Kalichman

and Simbayi. 2003. Pelizer et al, 2004). The problems of discrimination and stigma have left sero-negative people not to test to know their status and have led sero-positive people not to disclose their status leading to late disclosure of sero-status. Stigma and fear of disclosure may be major obstacles to health worker access to HCT for HIV and other HIV services (Namakhoma. 2010). Being infected with HIV can be a source of personal and professional shame for a health worker, and may also invoke fear of losing one's job and damaging future career prospects. Convenient access to testing. services and respect for HCT service providers with preference for mature counsellors were some of the reasons opined by WHO as facilitators to HCT among general population (table 2.6) while greater knowledge and easy access to HIV testing in work place were some of the factors considered as facilitators among health workers (WHO. 2011; Corbett. 2007). WHO (2006) proposed that Specific factors that may influence the uptake of HCT by health workers should be considered when developing services (Table 2.7).

Table 2.6: Barriers and facilitators to HCT among general population

Facilitators	Barriers
Convenient access to testing Services	Fear of HIV positive diagnosis
Direct offer of immediately available Test	Fear of being unable to cope with Knowledge of positive status.
Same day results	Fear of adverse events if positive result received e.g. partner violence. abandonment or marginalization
Confidentiality and respect for HCT service providers	Adverse experiences in health facilities such as lengthy queuing or perceived staff insensitivity
Respect for HCT service providers as shown in preference for mature counselors of higher professional standing	
Access to HIV care	
Belief in effectiveness of ART is shown to affect adherence to ART and willingness to test.	

Table 2.7: Barriers and facilitators to HCT among health workers

Facilitators	Barriers
Greater knowledge and understanding of HIV	Heightened sense of shame and tendency to self-stigmatize because of HIV status
Easy access to HIV testing in Workplace	Observed stigmatization of patients by colleagues
High levels of belief in effectiveness of ART	Observed discrimination against HIV positive colleagues
Witnessing supportive management of HIV positive colleagues	Lack of knowledge or confidence in HIV anti-discrimination legislation
Experience counseling others about HIV	Personally knowing HIV test Provider
Easy access to HIV care through Workplace	Being senior to HIV counselors
Personal knowledge of HIV care Providers	Personal knowledge of HIV care providers
To assess HCT services health care workers may have to attend with people they serve which may undermine relationship of trust and authority they have with clients	

SOURCE; WHO (2011) and Corbett (2007)

2.10 Use of HIV Counseling and Testing in Nigeria

In Nigeria there is a distinct lack of HIV testing programmes. In 2007, just 3 percent of health facilities had HIV testing and counseling services (WHO, UNAIDS and UNICEF, 2008) and only 11.7 percent of women and men aged 15-19 had received an HIV test and found out the results (UNGAS, 2010). In 2009 there was only one HIV testing and counseling facility for approximately every 53,000 Nigerian adults, which shows how desperately the government needs to scale up HIV testing services (WHO, UNAIDS and UNICEF, 2010).

Uptake of HCT is still low among Nigerian population despite the fact that HIV counseling sites have increased from 1074 in 2009 to 7075 in 2013 (NARHS 2013). Although the proportion of people who had tested and received results had dramatically increased between 2003 and 2012 the proportion still falls far below national target. According to the NARHS 2012, 23.5% of males and 29.2% of females reported ever tested for HIV, out of this group only 63% of females and 68% of males that tested for HIV received their results and know their status. This shows that a lot needs to be done to

increase uptake of HIV counseling and testing. In 2013 4,077,663 persons were reported to have been tested for HIV which falls far below national access target for Nigeria

The year 2013 Nigeria Demographic and Health Survey (NDHS, 2013) on HIV related knowledge attitude and behaviour reported that Overall, 60 percent of women and 71 percent of men know a place where they can get an HIV test, an improvement since the 2008 NDHS (when the figures were 49 percent and 65 percent, respectively). Knowledge of a place for HIV testing is highest among sexually active women and men who have never been married (83 percent and 86 percent, respectively) and among urban women and men (77 percent and 81 percent, respectively). Knowledge of where to get HIV testing increases with increasing education and wealth. Across age groups, the youngest female and male respondents (age 15-19) are least likely to know a place where they can go to be tested for HIV (51 percent and 56 percent, respectively). By marital status, never-married women and men who have not yet initiated sexual activity are least likely to know a place to obtain an HIV test (57 percent each).

Overall, one in four women have been tested for HIV and received the result of the last test. Among men, the corresponding proportion is 20 percent. Seven in 10 women and 78 percent of men have never been tested for HIV. Among women and men tested for HIV in the past 12 months, only 10 percent each received their test results. However, this is an improvement of 3 percentage points from the figure recorded in the 2008 NDHS (7 percent each).

As at December 2013, the number of women and men aged 15 and older who received HIV testing and counseling in the past 12 months and know their results was 4,077,663. This demonstrated a more than fifty percent increase in the number of persons counseled, tested and received results in 2012 (Figure 2.2).

Figure 2.2: Number of individuals counseled, tested and received results in Nigeria 2009 -2013

Source: NARHS and FMOH, (2014)

Figure 2.2: Number of individuals counseled, tested and received results in Nigeria 2009 -2013

Source: NARHS and FMOH. (2014)

2.11 Benefits of HIV Counseling and Testing

The benefits of HCT can be seen at the individual, community and population levels. At the individual level the benefit include the awareness of and knowledge about HIV, education on HIV prevention strategies and access to education on correct and consistent use of condoms. Furthermore it facilitates enhancement of individual's ability to reduce the risk of acquiring or transmitting HIV. Also, HCT facilitates enhanced access to HIV care as it provides links with treatment services like prevention and early management of opportunistic infections including TB, the eligibility and adherence if need be to Antiretroviral drugs. HCT is also an entering point for Post exposure prophylaxis programme for rape victims and health workers after occupational exposures. It is linked to the Prevention of mother to child transmission programme, without which up to 40% of children born to HIV-infected women will be infected, instead transmission rate as low as 2% to 5% have been achieved (Wilson, Naidoo, Bekker, Cotton & Maartens, 2005). For the community, a wider knowledge of HIV status and its links to interventions can lead to a reduction in denial, prevention of infection and re-infection, stigma and discrimination and can lead to collective responsibility and action.

At the population level, knowledge of HIV epidemiological trends can influence the policy environment, normalize HIV and AIDS and reduce stigma and discrimination (IPPF, 2008). Lack of knowledge of HIV status is a key issue for both individuals and society. HTC can provide an opportunity for timely access to appropriate treatment, care and support, late presenters suffer greater morbidity and mortality than those diagnosed early (WHO, 2010). HTC is also important for both primary and secondary HIV prevention, Quality HTC can help prevent HIV infection through counseling to discourage high-risk behaviour and support protective behaviour (WHO, 2010). People who learn that they are HIV-infected can take steps to decrease the risk of transmitting HIV to injecting and sexual partners. The importance of this for HIV prevention is enhanced in settings where antiretroviral treatment (ART) is available and accessible to all who need it, given its value in reducing viral load and the amount of virus circulating in the community (Attia, 2009). Pregnant women who learn that they are HIV-positive can take steps to reduce HIV transmission to their babies.

Commitment by the international community at the High Level Meeting on AIDS at United Nations headquarters in 2006 was made to ensure universal access to HIV prevention, treatment and care (IPPF, 2008). This commitment requires millions of people to be counseled and tested for HIV in order to identify those who can benefit from immediate access to these services. To date, the increased availability of treatment for HIV has not generated dramatic increase in demand for HIV counseling and testing (UNAIDS, 2006).

2.12 Conceptual framework

The conceptual framework adopted in this study is the Health Belief Model (HBM). The HBM was one of the first theories of health behaviour and remains one of the most widely recognized in the field. It was developed in the 1950s by a group of U.S. Public Health service social psychologists who wanted to explain why so few people were participating in programmes to prevent and detect disease. For example, the public health service was sending x-ray units out to neighbourhoods to offer free chest x-rays (screening for tuberculosis). Despite the fact that this service was offered without charge in a variety of convenient locations, the programme was of limited success. The question was why to provide answer to this question, social psychologists examined what was encouraging or discouraging people from participating in the programme. Since then researchers have expanded upon this theory, according to Rosenstock, Stretcher and Becker. Six main constructs influence people's decisions about whether to take action to prevent, screen for and control illness. They argued that people are ready to act if they:

- believe they are susceptible to the condition. (perceived susceptibility)
- believe that the condition has serious consequences (perceived severity)
- believe that taking action would reduce their susceptibility to the condition or its severity (perceived benefits)
- believe cost of taking action is outweighed by benefits (perceived barriers)
- cues to action – events that motivate people to take action
- are confident in their ability to successfully perform an action (self-efficacy)

Application of the framework was described in figure 2.3 with reference points in the questionnaire draft. The content of the questionnaire was based on the concepts stated below:

- perceived susceptibility of the framework was addressed in the Q23-26.
- perceived severity was assessed in Q19.50
- perceived benefits were structured in 22.27.29
- perceived barriers were identified in Q21.28.30-33
- Cue to action was assessed in Q43-54

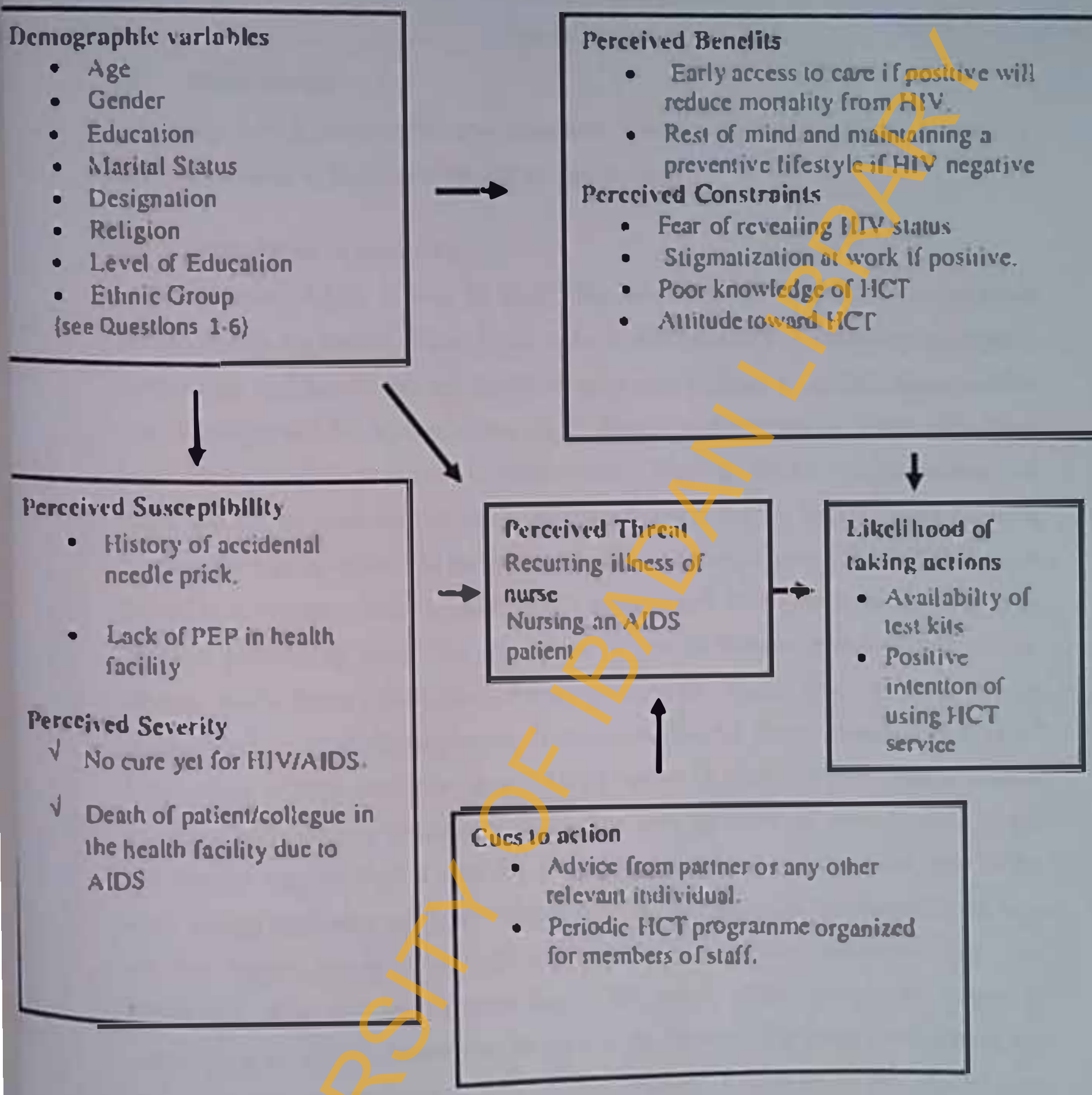

Figure: 2.3: Application of Health Belief Model to the use of HCT by nurses

Source: Knowledge, attitudes and practice of Kamuzu College of Nursing students towards voluntary counseling and HIV testing by Lucy Ida Kululanga, July, 2006

CHAPTER THREE
METHODOLOGY

3.1 Study design

The study was a descriptive cross sectional survey which was carried out among registered Nurses in Ibadan Metropolis of Oyo State.

3.2 Description of study area

Ibadan (Yoruba: *Ibadan* or fully Ilú Ẹ̀bá-Ọ̀dàn, the town at the junction of the savannah and the forest), the capital of Oyo State, is the third largest city in Nigeria by population (after Lagos and Kano), and the largest in geographical area. At independence, Ibadan was the largest and the most populous city in Nigeria and the third in Africa after Cairo and Johannesburg. It is located in south-western Nigeria, 128 km inland northeast of Lagos and 530 km southwest of Abuja, the federal capital and is a prominent transit point between the coastal region and the areas to the north. Its population is 2,550,593(Federal Republic of Nigeria Official Gazette, 2007) according to 2006 census results, including 11 local government areas. The population of central Ibadan, including five LGA's (Ibadan North, Ibadan North-East, Ibadan North-West, Ibadan South-East and Ibadan South-West), is 1 338 659 according to census results for 2006, covering an area of 128 km² and in 2009 population census, a total number of about 2,559,853 was estimated as current population of Ibadan land. Ibadan had been the centre of administration of the old Western Region, Nigeria since the days of the British colonial rule, and parts of the city's ancient protective walls still stand to this day. The principal inhabitants of the city are the Yoruba people. Manufactures include metal products, furniture, soap, and handicrafts. It is also an important market for cocoa, which, along with cotton, is produced in the region. Ibadan was founded in the 1830s as a military camp during the Yoruba civil wars and developed into the most powerful Yoruba city-state. The city also has numerous parks as well as botanical and zoological gardens and is the site of the University of Ibadan.

There are diverse social facilities like; markets, churches, mosques, offices, financial institutions, filling stations, schools, legal professionals, welfare organizations and health

services (both private and public). The city is made up of heterogeneous population of different ethnic groups, culture and ways of life. The 5 LGAs in Ibadan metropolis have political wards, in each ward having a serving Primary Health care centre, with about nothing less than 150 settlements areas as well as having the whole characteristics embedded in the description given above on Ibadan city.

The LGAs consists of different occupational groups including; civil servants, trader, and artisans, whose business activities are buying and selling of different type of goods. These commercial activities occur daily or weekly in the markets. Among such markets are Bodija, Yemetu, Dugbe, Orita-Merin, Oja-Oba, Oje, Gate, Ogunpa, Agbeni, Labaowo, Iwo-Road, Old Gbagi, Alesinloye and Mokola.

Ibadan metropolis is unique because it has a large number of Health centres and Clinics in the South-west Nigeria, the major one being the University College Hospital (UCH), and Adeoyo General Hospital owned by the Oyo State Government. Among others are Oni & Sons, Jericho General, Nursing and Chest Hospital.

The biggest among all health institutions in this area is the University College Hospital (UCH). The UCH Ibadan was established by an act of parliament in November 1952 response to the need for the training of medical personnel and other health care professionals for the country and the West African Sub region. The physical development of the hospital commenced in 1953 in its present site and was formally commissioned after completion in November 20 1957. The UCH Ibadan was initially commissioned with 500 bed spaces, currently the hospital has 850 bed spaces and 163 examination couches and current bed occupancy rate is between 55-68%. In addition to the College of Medicine, the hospital houses a Virology Research laboratory, Special Treatment Clinic (STC), a state of the art clinic for research, training and treatment of sexually transmitted diseases and runs clinic for people living with HIV/AIDS. Since its inception the hospital has trained over 6,000 doctors and 4,513 nurses among other professionals. The hospital currently has over 1,000 nurses in its work force with eight (8) HIV counselling and testing centres (see appendix I for description other locations).

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3.3 Study population

The study population consisted of female registered nurses working in the primary, secondary and tertiary health facilities located within Ibadan metropolis. Registered nurses are nursing professionals who have completed three years mandatory nursing programme and are licensed by the Nursing and Midwifery Council of Nigeria to practice the profession.

3.3.1 Inclusion criteria

For the purpose of this research, the inclusion criteria include:

1. The consent of individual professional who agree to participate in the study
2. Male and female registered nursing professionals in the employment of the primary, secondary and tertiary health facilities within Ibadan Metropolis.

3.3.2 Exclusion criteria

Nurses that were on leave.

3.4 Sample size determination

Sample size was determined using the prevalence of 63.7%, reported from the study conducted by Obiajulu (2009) on Knowledge, Attitude and Practice of Voluntary Counseling and Testing among Health Care Professionals in Umpumulo Hospital, Mapumulo South Africa.

$$N = \frac{Z^2pq}{d^2}$$ (Lenth, 2006; Schulz and Grimes, 2005)

Where N = Sample size

Z = confidence level, 1.96

P = reasonable estimate of prevalence (63.7% or 0.637)

q = 1 – 63.7 = 36.3% or 0.363

d = (Level of precision) = 0.05

Therefore:

$$N = \frac{1.96^2 \times 0.637 \times 0.363}{(0.05)^2}$$

$$= \frac{3.8416 \times 0.\ 0.231231}{0.0025.} = \frac{0.88823}{0.0025}$$

$= 355.30$

Since participation in the study was voluntary, the sample size was increased by 13% in order to make up for any possible improper completion of the questionnaires. this made the total sample size to be 400.

Proportionate sampling was used in selecting sample size of respondents from the three levels of health facility using the following procedures (See Table 3.1).

Procedures for selection of sample size in the three levels of health facility:

Step 1: Total population of nurses in each hospital (Tertiary, State and LGAs) was divided by the total population of nurses in Ibadan metropolis (n/N)

Step 2: The obtained result in step1 was then multiplied by the sample size calculated for the study (n/N samplesize.)

Where: n= total number of nurses in tertiary, state or LGA health facilities

N= total population of nurses in Ibadan metropolis

Tertiary

= 1,117/1573 x 400

= 284

State

= 355/1573 x 400

= 90

LGAs

= 101/1573 x 400

= 26

Table 3.1 Composition of nurses in the study areas

Name of Hospital	*Federal*	*State*	*PHC*	*Total*
Ibadan North LGA:	University College Hospital Ibadan (UCH)	Adeoyo Teaching Hospital (ATH)	LGA PHCs	
No of Unit	6	5	1	12
Population of Nurses	1,117	223	15	1355
Ibadan North East LGA:		St Peter Maternity Hospital, Aremo		
No of Unit	-	3	19	22
Population of Nurses	-	33	24	57
Ibadan North West LGA:		Jericho Nursing Home, Jericho		
No of Unit	-	4	7	11
Population of Nurses	-	56	21	77
Ibadan South East LGA:				
No of Unit	-	-	7	7
Population of Nurses	-	-	16	16
Ibadan South West LGA:		State Hospital, Ring Road		
No of Unit	-	4	11	15
Population of Nurses	-	43	25	68
TOTAL				
No of Unit	6	16	45	67
Population of Nurses	1,117	355	101	1573
Proposed sample size	284	90	26	400

3.5 Sampling Technique:

A multistage sampling procedure was used to select participants for the study; this involved the following stages:

Stage I: A visit was conducted to the establishment record office to document the number of nurses in the Hospital. This Preliminary study was carried out by going through records of Units and department where nurses carry out their daily activities. Stratification of clinical departments was done according to the size and zoning system was used in selecting health facilities from each of the five local governments. Selection of nurses was done randomly in each unit according to their unit size. Two hundred and eighty four nurses (71% of the whole study sample) were selected from UCH which is the only federal government owned tertiary health facility within Ibadan metropolis.

Respondents were randomly selected from each of the wards making up the unit in the health facility (See appendix I: Table 3.1 to 3.5).

Table 3.2: Distribution of nurses selected from UCH

Unit	Sample
Medicine	60
Surgery	50
Paediatrics	47
Obstetrics & Gynaecology	47
Out-patients	40
Radiology	40
Total	284

Stage 2: This stage involved the random selection of listed secondary health facilities from each Local Government within Ibadan Metropolis. A state owned secondary health facility was randomly selected from the local Government where they are located making four state owned health facility in all. This is due to the fact that there is no secondary health facility in Ibadan South East Local Government (See appendix I: table 3.2).

Step 1: Total population of nurses in each hospital/total population of nurses the four state hospitals (n/fn)

Step 2: n/fn* Total sample for state.

Adeoyo Teaching Hospital (ATH)

= 223/355 x 90

= 57

St Peter Maternity Hospital, Aremo

= 33/355 x 90

= 8

Jericho Nursing Home, Jericho

= 56/355 x 90

= 14

Ring Road State Hospital, Ring Road

= 43/355 x 90

= 11

Table 3.3: Distribution of nurses selected from secondary health facilities

Hospital location	Sample
Adeoyo Teaching Hospital (ATH)	57
St Peter Maternity Hospital, Aremo	8
Jericho Nursing Home, Jericho	14
Ring Road State Hospital, Ring Road	11
Total	90

Stage 3: Five Local Government PHC centers were randomly picked through balloting from the LGAs that formed Ibadan metropolis and six respondents were randomly picked in Ibadan North LGA (being the largest of the 5LGAs); five respondents were picked randomly in other LGAs.

3.6 Instrument for data collection

The instrument for data collection was a pre-tested self-administered semi-structured questionnaire. The design of the questionnaire was based on the research objectives, review of related literature and guidance of the research supervisor (see Appendix II for details).

The instrument consisted of semi-structured questions on socio-demographic characteristics, knowledge and attitude towards HIV counselling and testing and also on factors that may promote or discourage the uptake of HCT among this group of professionals.

The socio-demographic characteristics included age, sex, religion, ethnicity and level of education. The questions on knowledge attitude and uptake of HCT services as well as those for socio-demographic characteristics consisted of selected response items such as

true/false, yes/no, agree/strongly agree, disagree/strongly disagree and constructed response items (Appendix II for details).

3.7 Validity

Validity of the instrument was ensured through a comprehensive review of related literature. The salient variables of interest were teased out from the literature relating to knowledge, attitude and uptake of HCT services for measurement. The result of the literature review was used to develop the questionnaire for the study. The instrument was subjected to peer and expert review by authorities in the field.

3.8 Reliability

The instrument was pre-tested among 40 Nurses in Jaja Clinic, University of Ibadan and Oni Memorial Children Hospital, Ring Road, Ibadan. The exercise was carried out in collaboration with trained research assistants. The pre-tested questionnaire were coded, entered into a computer and analyzed. Reliability coefficient was used to test for the statistical reliability of the instrument. A Cronbach's Alpha score of 0.65 was obtained.

Corrections were effected such as adding the question on "how long it takes to receive the result of the test. Assessing post exposure prophylaxis as a reason for using HCT services was also included in the final draft of the research instruments based on the outcome of the pretest.

3.9 Method of data collection

The administration of questionnaires was done by the researcher and four trained research assistants. The questionnaire was self-administered using de-facto approach (nurses physically seen during the administration). The questionnaire were given to each nurse after explanation was given on purpose of the research, that participation was voluntary help was given to respondents where necessary in the course of filling the questionnaire. The questionnaires were retrieved from respondents after completion.

Visits were made to all the wards in company of four research assistants to establish rapport with nurses on duty and to intimate them with the study objectives prior to data

collection. The questionnaire were administered by the trained four research assistants to nurses that consented to research ethics read to them at the point of questionnaire administration. Most of the questionnaires were immediately completed and returned while some respondents indicated that they will prefer to return theirs later due to the busy schedule of their duty, such questionnaires were collected the next day but some were never returned despite concerted efforts made by the researcher and the research assistants. In all 400 questionnaire were administered but only 391 were retrieved giving a response rate of 97%. Altogether, it took the researcher seven weeks to administer and retrieve the entire questionnaire used for the study. The researcher painstakingly went through completed questionnaires daily for the purpose of data management.

3.10 Data analysis

The investigator checked all the administered questionnaires one by one and edited them for the purpose of completeness and accuracy. Serial number was assigned to each question for easy identification and for correct data entry and analysis. A coding guide was developed to code and enter each question into the computer for analysis. Analysis was done using the Statistical package of IBM/SPSS Version 20. The data entered into the computer were subjected to descriptive (i.e. mean and standard deviation) and inferential (chi-square and logistic regression) statistical analyses. All inferential statistics were analysed at p-value set as 0.05. Finally information obtained were summarized and presented in tables and charts.

3.10.1 Development of Knowledge Scale on HIV Voluntary Counseling and Testing

Respondents' knowledge score on the HIV voluntary counseling and testing was determined on 14-item questions. The questions used in determining the knowledge scores comprised questions 7 to 19 of which question 13 has 3 answers to be correctly mentioned) Correct answers to each of these questions attracted a maximum of 1 point except for question 13 where respondents with correct knowledge can score 3 points. Based on the scores achieved on the 14-item knowledge score on HIV voluntary counseling and testing described above, respondents with total score of 0 to 6 were

classified as having poor knowledge, between 7-10 were rated to have fair knowledge and those who scored between 11-14 were classified as having good knowledge.

3.10.2 Computation of Attitudinal Scale

Attitude towards uptake of HIV voluntary counseling and testing was assessed on a 12 item Likert scale. Respondents' views were sought on 12 statements (questions 21-23) relating to respondents' use of HIV voluntary counseling and testing services. In computing the scores, it was taken into consideration whether or not a statement is 'positive' or 'negative'. Respondents who agree to a positive statement were given a score of 1 (one) and those who disagree were not given any mark. The reverse was done for a negative statement. Also, respondents who were not sure to any of the statements did not get any score. In summary, for the attitudinal scale, respondents' attitude was classified as positive or negative based on the scores achieved on the 12-item attitudinal scale relating to the items described above. Respondents with a total score between 0 and 6 were classified as having negative attitude while respondents with scores that ranged between 7 and 12 points were classified as having positive attitude

3.11 Ethical considerations

Ethical approval was obtained from the Oyo State Ethical Review Committee, Ministry of Health, Ibadan. Informed consent was sought before the administration of questionnaire on any respondent (see Appendix II). The respondents were assured of the confidentiality of their answers and that participation in the study is voluntary. No names of respondents or their identifiers were written on questionnaires to ensure that responses cannot be linked to any of the respondents. In addition, respondents were given the right to freely participate or withdraw from participating at any stage without any penalty whatsoever. The purpose of this was to ensure that the research conform to accepted scientific principles and international ethical guidelines required in studies having humans as subjects in research.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of the respondents

Table 4.1 shows the socio-demographic characteristics of the respondents in the study. The total number of respondents studied was three hundred and ninety-one with ages range between 19-60year old. More (37.6%) of them who were aged between 20-29 years with mean age 34.7±10.1followed by those ranged between aged 30-39 years. Majority (60.1%) of the respondents were currently married and 37.3% were Staff nurses. Among the respondents, 86.2% were Yoruba ethnic group. Greater percentage (72.1%) of the respondents were Christians. Respondents who had RM certificate (41.7%) topple the list of the respondents level of education out of which 71.0% of them work with University College Hospital (UCH), Ibadan.

Table 4.1: Social demographic characteristic of the respondents (N=391)

Variable	Frequency	Percentage (%)
Age as at last birthday		
< 20 year old	1	0.3
20-29 year old	147	37.6
30-39 year old	121	30.9
40-49 year old	71	18.2
50-59 year old	49	12.5
60 year old and above	2	0.5
Mean	34.7	
Standard deviation	10.10	
Marital status		
Single	146	37.3
Cohabiting	10	2.6
Married	235	60.1
Designation		
Staff Nurse	146	37.3
Nursing Officer	72	18.4
Chief Nursing Officer	70	17.9
Principal Nursing officer	55	14.1
Senior Nursing officer	48	12.3
Ethnic group		
Yoruba	337	86.2
Ibo	48	12.3
Hausa	6	1.5
Religion		
Christianity	282	72.1
Islam	101	25.8
Traditionist	8	2.0
Level of Education attained		
RN	108	27.6
RM	163	41.7
BSC	92	23.5
Masters	26	6.6
HND	2	0.5

4.2 Knowledge about HIV Voluntary Counseling and Testing

The respondents' knowledge on each item is shown in table 4.2. Few (10.2%) of respondents correctly opposed that HIV counseling and testing is an intervention that includes only pretest counseling, test for HIV and post counseling. Approximately 54.0% of respondents admitted that HIV counseling and testing is one of the gateways to prevention, treatment, care and support for only those who already have HIV. 30.4% correctly disagreed that test for HIV detect the presence of the HIV virus and not the virus antibodies and only 25% of respondents correctly listed the basic conditions of HCT known as the 3CS of HCT as consent, counselling and confidentiality. In summary, only (11.0%) of respondents had good knowledge (Table 4.3).

Table 4.2: Knowledge about HIV Voluntary Counseling and Testing

Knowledge Statement	True (%)	False (%)
1. HIV counseling and testing is an intervention that includes only pretest counseling, test for HIV and post counseling.	351(89.8)	40(10.2)*
2. HIV counseling and testing is one of the gateways to prevention, treatment, care and support for only those who already have HIV	181(46.3)	210(53.7)*
3. Test for HIV detect the presence of the HIV virus and not the virus antibodies	272(69.6)	123(30.4)*
4. Post-test counseling is necessary for only those who test positive to HIV	167(42.7)	224(57.3)*
5. Routine testing can also be referred to as provider initiated HIV counseling and testing	307(78.5)*	84(21.5)
6. Routine testing means everyone in a given setting is tested without necessarily relying on individual consent:	171(43.7)	220(56.3)*
7. In provider initiated testing for diagnosis, offer of antiretroviral or prevention of mother to child transmission, patient does not retain the right to refuse testing.	196(49.1)	199(50.9)*
8. Opt-in-testing means that clients must agree to test before pre-test information has been received.	239(61.1)*	152(38.9)
9. Counseling is not important when test result is negative.	68(17.4)	323(82.6)*
10. Result of HIV screening may be disclosed on phone	62(15.9)	329(84.1)*
11. A Sero-positive result from a rapid test should be considered as absolute positive	171(43.7)	220(56.3)*
12. Mandatory screening for HIV is only applicable to procedures involving transfer of body fluids and body parts	189(48.3)*	202(51.7)
13. HCT strategy does not necessarily include risk behavior assessment	183(46.8)	208(53.2)*

*Correct response

Table 4.3: Respondents' overall knowledge score

Knowledge score	No	%
Poor knowledge	125	32.0
Fair knowledge	223	57.0
Good knowledge	43	11.0
Total	391	100.0

4.3 Respondents attitudes towards HIV Counselling and Testing

The result generated on the attitudes of the studied nurses towards HVCT revealed that 87.5% of them opposed the statement that a nurse does not need to go through the pre and post-test counseling as she is familiar with everything that the provider will say. In the same vein, 88.7% subscribed to the fact that HIV counseling and testing is necessary even if one is faithful to his or her/partner. Little above three-quarter (76.0%) assumed that needle prick is unavoidable in the hospital; therefore having regular HIV test is necessary and 67.8% declared that they made sure they adhere to universal precautions even in dare emergencies so they didn't need to have HIV test. Majority (62.1%) of the respondents admitted that they have had so many occupational related exposures thus they made sure they have regular HIV test. Approximately 79.0% of the respondents believe that HCT is important after an occupational exposure to assess post exposure prophylaxis thus they are always comfortable having HIV test because they were convinced that their test result is kept confidential by the medical staff who offer the test (62.9%). Majority (66.8%) of the respondents refused the saying that they were always afraid of a false positive result, therefore they did not take the test. Seventy-six percent accpted that HIV Counseling and Testing is very important to practicing Nurses because it is a preventive measure against HIV.

Contrarily, 63.9% of them disagreed that people they work with, especially the nurses will gossip about them if their test result turns out to be positive so they have not made up their mind to have HIV test. A very good percentage (74.4%) of the respondents resisted that HIV Counseling and Testing is not of utmost importance to a practising Nurse because it is not a preventive measure or an immunization against HIV and being HIV positive is the end of the world. The discovery will haunt them that they will become sick and may eventually die, therefore, they preferred to be ignorant of their HIV status (78.3%) (Table 4.4). Majority (71.7%) of respondents had positive attitude (Table 4.5).

Table 4.4: Respondents attitudes towards HIV Couselling and Testing

Variable	Agreed (%)	Disagreed (%)	Not sure (%)
A nurse does not need to go through the pre and post-test counseling as she is familiar with everything that the provider will say.	36(9.2)	342(87.5)*	13(3.3)
HIV counseling and testing is necessary even if one is faithful to his or her/partner.	347(88.7)*	36(9.2)	8(2.0)
Needle prick is unavoidable in the hospital; therefore having regular HIV test is necessary.	297(76.0)*	74(18.9)	20(5.1)
I make sure I adhere to universal precautions even in dare emergencies so I don't need to have HIV test.	93(23.8)	265(67.8)*	33(8.4)
I have had so many occupational related exposures that I make sure I have regular HIV test.	243(62.1)*	114(29.2)	34(8.7)
I believe HCT is important after an occupational exposure to assess post exposure prophylaxis.	308(78.8)*	44(11.3)	39(100)
I am always comfortable having HIV test because I know my test result is kept confidential by the medical staff who offer the test.	246(62.9)*	67(17.1)	78(19.9)
I am always afraid of a false positive result, therefore I do not take the test.	88(22.5)	261(66.8)*	42(10.7)
HIV Conseling and Testing is very important to practicing Nurses because it is a preventive measure against HIV.	297(76.0)*	69(17.6)	25(6.4)
The people I work with, especially the nurses will gossip about me if my test result turns out to be positive so I have not made up my mind to have HIV test.	88(22.5)	250(63.9)*	53(13.6)
HIV Counseling and testing is not of utmost impartance to a practising Nurse because it is not a preventive measure or an immunization against HIV.	62(15.9)	291(74.4)*	38(9.7)
Being HIV positive is the end of the world. The discovery will haunt me that I will become sick and may eventually die therefore, I prefer to be ignorant of my HIV status.	61(15.6)	306(78.3)*	24(6.1)

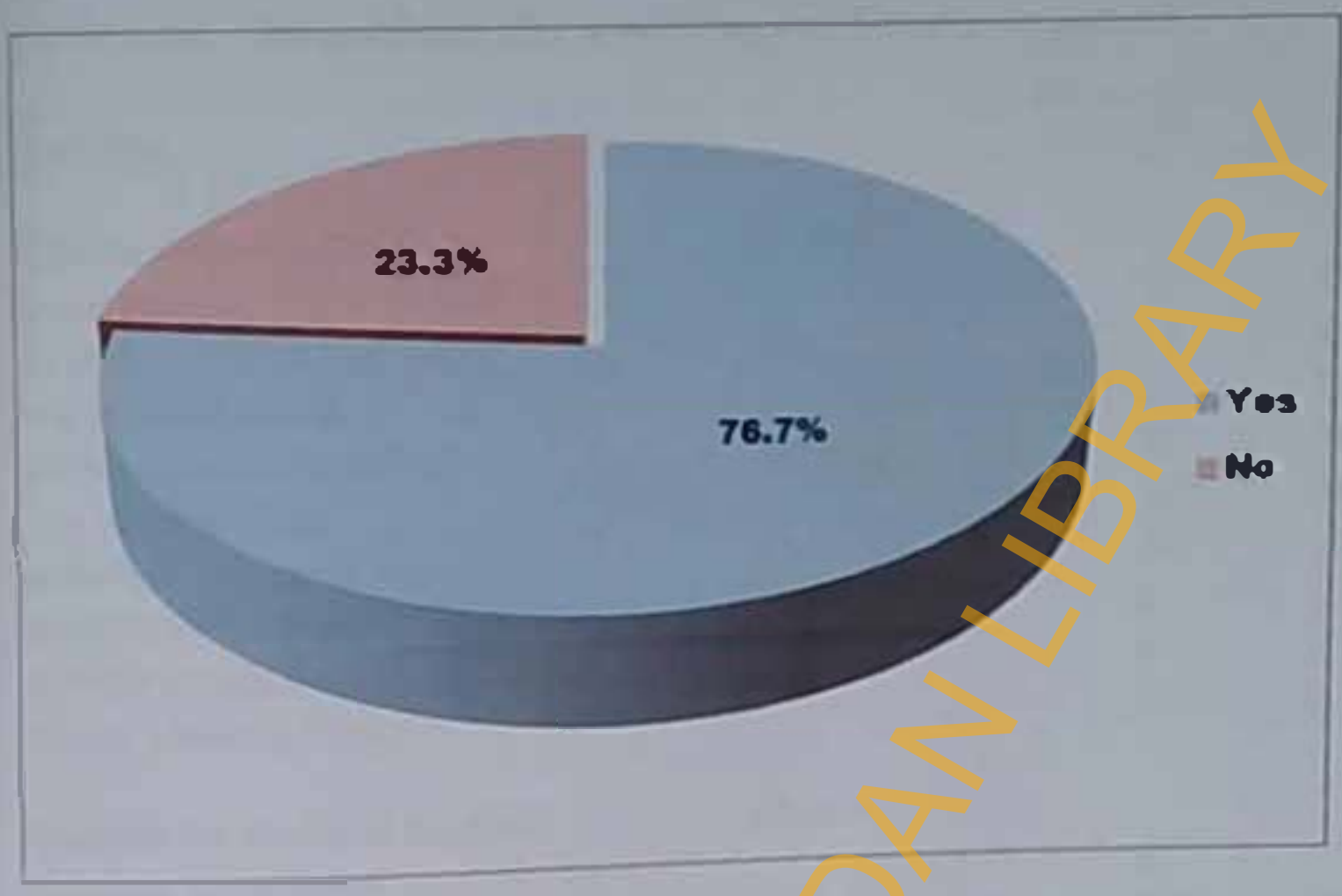
*Positive attitude

Table 4.5: Overall attitudinal score of the respondents

Attitudinal score	No	%
Positive attitude	292	74.7
Negative attitude	99	25.3
Total	391	100.0

4.4 Respondents' HIV Couselling and Testing uptake

Table 4.6a and table 4.6b below show the respondents practices of HCT. Out of 391 studied participants. 76.7% of them had been counselled and tested for HIV to confirm their status (Figure 4.1). Among these 75(85.2%) were from State hospital. 26(80.8%) from the Local Government Health centres and 204 (73.6%) from University College Hospital (Figure 4.2). Some (42.9%) of those who has done HCT claimed that they did it during their prenatal clinic at the facility that was convenient for them and that no cost was involved. Almost all (96.4%) of the respondents received their HIV status confirmation results the last time they did it and 91.2% of them affirmed that the test was free of charge. Those who did their HCT between 7months-11months prior to the study were more in the study (37.5%). Three common reasons for having HIV test by the respondents were: Voluntarily had the test (66.1%). Antenatal and delivery requirements (18.2%) and Doctor's request (3.4%). see figure 4.3. More than half (56.3%) of the respondents got their result 30minutes after the test but a very good percentage (76.3%) of them claimed that they underwent proper pre- and post-test counselling.



Figures 4.1 Respondents who ever had HCT service

Table 4.6a: Respondents' HIV Couselling and Testing use pattern

Variable		No	%
Site for receiving HCT	(n=296)		
In the hospital (as an in-patient)		55	18.6
At primary health care centre		13	4.4
in a private hospital		17	5.7
during an outreach on HIV		23	7.8
At a prenatal clinic		127	42.9
in the hospital (as an out-patient)		38	12.8
Specific HCT clinic		4	1.4
At STD or infectious disease clinic		8	2.7
Family planning clinics		11	3.7
Reasons for choice of HCT site	(n=282)		
Nearness to my home		40	14.2
Convenience		100	35.5
For confidentiality purpose		37	13.1
No cost involved (voluntary)		76	27.0
It was based on referral		10	3.5
Organization that I work with arranged for it		17	6.0
At prenatal clinic		2	0.7
Received results of HCT	(n=281)		
Yes		271	96.4
No		10	3.6
Cost of HCT service	(n=262)		
It was free		239	91.2
Paid between 1,000 and above		16	6.1
Cannot remember		5	1.9
Paid between 500-900		2	0.8

Table 4.6b: Respondents'HIV Counselling and Testing use pattern

Variable		Freq.	%
Duration of taking HCT	(n=285)		
between 1 week - 3 weeks ago		16	5.6
between 7 months - 11 months ago		107	37.5
between 1 month - 6 month		57	20.0
1 year ago		43	15.1
Over a year ago		59	20.7
A month		3	1.1
Durntion of waiting to get the result	(n=293)		
Within 30minutes		45	15.4
Within 1hour		16	5.5
Within 1 day		54	18.4
Within a week		12	4.1
> one week		1	0.3
< 30minutes		165	56.3
Provision of pre and post-test counseling?	(n=279)		
Yes		213	76.3
No		66	23.7

All total are not equal to 391 because non-responses and not applicable had been expunged

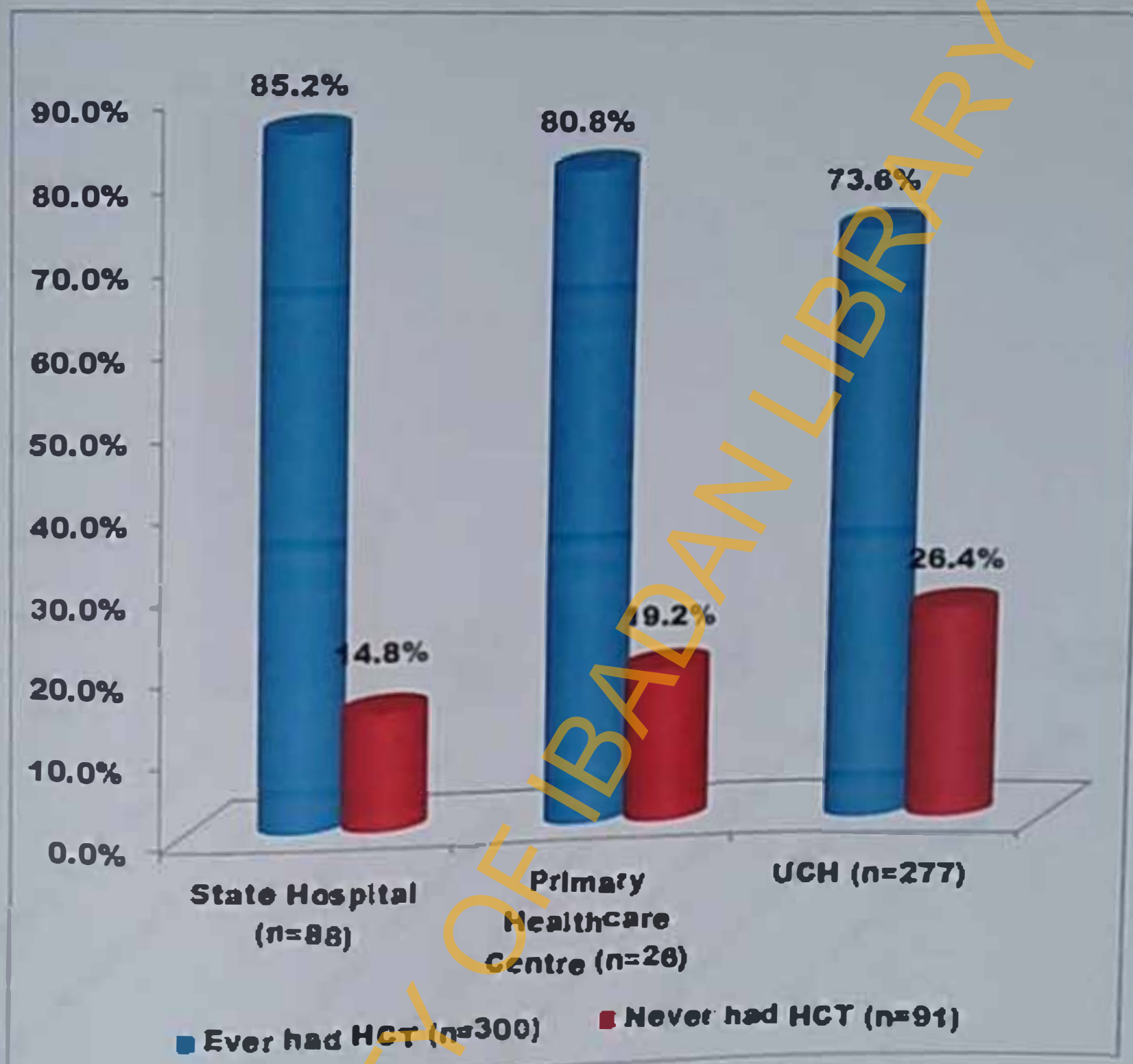


Figure 4.2: HCT uptake based on respondents' health facility

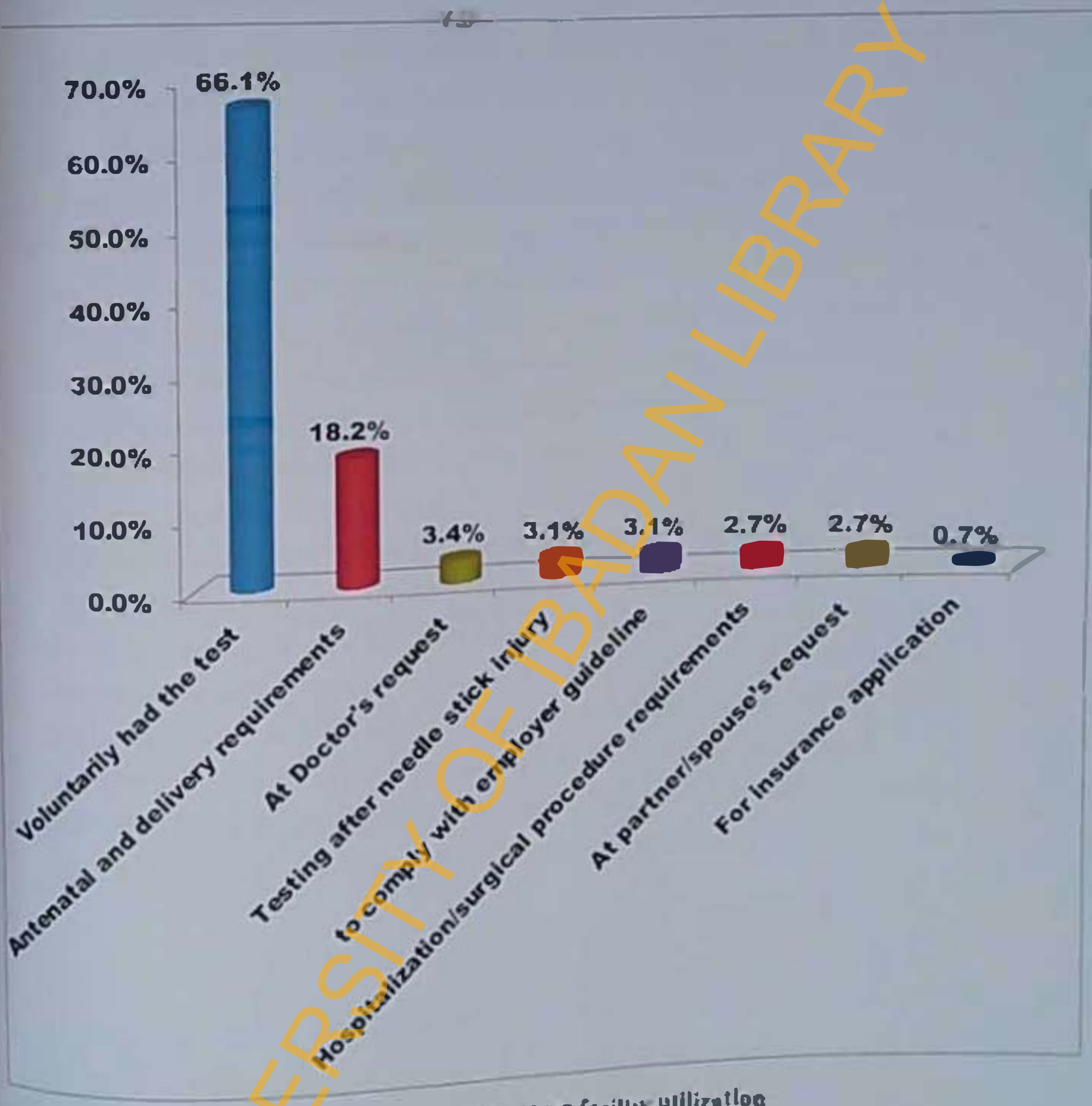


Figure 4.3: Respondents' reasons for HCT facility utilization

4.5 Respondents' viewpoints on the use of HIV Counselling and Testing services

Greater percentage (88.6%) of the respondents confirmed that HCT service was always available in the facility where they work of which only few (22.0%) of them made some form of payment before assessing HCT services. Majority (79.6%) of the respondents affirmed that there was a well defined provision for post exposure prophylaxis for health workers in the facility where they work and free anti-retroviral drugs for those who are positive (79.9%). Approximately 70.0% of the respondents declared that there is laid down policy on HCT for health workers in their facilities which can motivate them to have HIV test. An overwhelming percentage (88.6%) of the respondents admitted that they will be more comfortable having regular screening for HIV if they are provided with kits for self-testing. Having the conviction that confidentiality of their result is guaranteed by health workers who offer the test after HCT (78.8%). Those who subscribed to the fact that if they have accidental needle prick in the process of carrying out their duty, they will immediately go for HIV test were (75.7%) and be more comfortable undergoing HCT in another facility where they were not known as a Nurse (74.1%). Most (93.2%) of the respondents attested that they will be ready to undergo HCT if their partner advise them to do it and in the the same vein, 92.8% of them declared that they will be willing to have HIV test if they notice any recurrent illness that is not readily responding to treatment. Little below three-quarter (74.1%) were of the opinion that nursing a patient living with HIV/AIDS could prompt them to think about getting tested (Table 4.7)

Table 4.7: Respondents' viewpoints on the use of HIV Counselling and Testing services

Statement	Yes (%)	No (%)
Is an HCT service always available in the facility where you work? (n=368)	326(88.6)	42(11.4)
Do you have to make any form of payment before assessing HCT services? (n=369)	81(22.0)	288(78.0)
Is there a well-delined provision for post exposure prophylaxis for health workers in the facility where you work? (n=367)	292(79.6)	75(20.4)
Are there provisions for free Anti-retroviral drugs for those who are positive? (n=369)	295(79.9)	74(20.1)
Is there any laid down policy on HCT for health workers in your facility which can motivate them to have HIV test? (n=362)	252(69.6)	110(30.4)
Will you be more comfortable having regular screening for HIV if you are provided with kits for self-testing? (n=369)	327(88.6)	42(11.4)
Do you think the confidentiality of your result is guaranteed by health workers who offer the test after HCT? (n=364)	287(78.8)	77(21.2)
If you have an accidental needle prick in the process of carrying out your duty, will you immediately go for HIV test? (n=370)	280(75.7)	90(24.3)
Will you be more comfortable undergoing HCT in another facility where you are not known as a Nurse? (n=367)	272(74.1)	95(25.9)
Will you readily undergo HCT if your patient advises you to do it? (n=365)	340(93.2)	25(6.8)
Will you be willing to have HIV test if you notice any recurrent illness that is not readily responding to treatment? (n=373)	346(92.8)	27(7.2)
Does nursing a patient living with HIV/AIDS prompt you to think about getting tested yourself? (n=371)	275(74.1)	96(25.9)

n – is the total number of actual respondents to each of the responses which is not equal to total sample [391] because non-responses had been expunged from calculation.

4.6 Intention to use HCT services (*for those who have never tested for HIV*)

Table 4.8 revealed the intention of the studied participants (91out of 391 participants) who had never gone for HCT on the use of HCT services and the three major reasons from the outlined reasons for not willing to go were: Preferred not to think about HIV (40.3%); Unlikely to have HIV (28.6%) and Afraid to find out the resuh [14.3%). However, 68.8% of these respondents were of the opinion that, If a Doctor, Nurse or other health care worker convinced them to go for or offer them free HIV testing, they will accept to be tested, with assurance that the result will be confidential. Respondents that declared thier intention to utilize HCT services in future were 68.7% (Figure 4.4). Those who likely to have an HIV test within the next 12 months were 49.42% of which 51.9% of them will prefer to use health facility where they were. Among the respondents who signified their intention, 80.0% of them were yet to decide.

Table 4.8: Intention to use HCT services (*for those who have never tested for HIV*)

Variables	No	%
HCT's reason for not taking (n=77)		
unlikely to have HIV	22	28.6
Afraid to find out the result	11	14.3
Prefer not to think about HIV	31	40.3
Don't like needle pricks	3	3.9
Worried that results of positive test would not be kept confidential	6	7.7
Afraid of losing job, housing, friends and/or family, if infected with HIV	2	2.6
Don't know how you would tell your spouse or other sexual partner	2	2.6
Willingness to take up free HIV testing if confidentiality of result is guaranteed (n=77)		
Yes	53	68.8
No	24	31.2
Likelihood of having an HIV test within the next 12 months (n=77)		
Likely	38	49.4
Unlikely	39	50.6
Time intending to do it (n=45)		
within the next one week	3	6.7
within the next one month	6	13.3
Yet to decide	36	80.0
Place of Intention (n=52)		
In the facility where you work	27	51.9
in another facility where you are not known	16	30.8
Self-testing	9	17.3

Note: All total are not equal to 391 because non-responses and not applicable had been expunged

4.7 Test of hypotheses

Hypothesis one

Ho 1: There is no significant association between demographic characteristics of Nurses and use of HCT.

Relationship between respondents' demographic characteristics and use of HCT

The relationship between socio-demographic characteristics was compared with respondents' knowledge about HCT as it is shown in Table 4.9. Age and designation of the respondents were statistically significant among the other socio-demographic characteristics; like: place of practice, education, marital status and designation to attitude towards the use of HCT in this study. Those who were within the age 40-49 years had ever used HCT (90.1%) compared with other age group (p=0.003). in the same vein. Chief nursing officer (84.3%) and Principal nursing officer (83.6%) respectively had ever used HCT (p=0.044)

N.B: Fisher exact test was used in some chi-square tables 4.9 because of those variables with cell count less than 5.

Table 4.9: Relationship between respondents' demographic characteristics and use of HCT

Variable	Use of HCT services			Chi-square
	Yes n=300	No n=91	Total N=391	
Place of practice				
Primary health care	75(85.2)	13(14.8)	88(100.0)	$\chi^2 = 5.271$
State hospital	21(80.8)	5(19.2)	26(100.0)	Df = 2
University College Hospital	204(73.6)	73(26.4)	277(100.0)	P = 0.074
Age				
<29 year old	100(66.0)	48(34)	148(100.0)	Fisher's Exact Test
30-39 year old	96(79.3)	25(20.7)	121(100.0)	$\chi^2 = 15.899$
40-49 year old	64(90.1)	7(9.9)	71(100.0)	P = 0.003*
50-59 year old	38(77.6)	11(22.4)	49(100.0)	
60 year old and above	2(100.0)	0(0.0)	2(100.0)	
Marital status				
Single	103(70.5)	43(29.5)	146(100.0)	Fisher's Exact Test
Separated	9(90.0)	1(10.0)	10(100.0)	$\chi^2 = 5.123$
Married	188(80.0)	47(20.0)	235(100.0)	P = 0.069
Level of Education attained				
RN	82(75.9)	26(24.1)	108(1000)	$\chi^2 = 1.649$
RM	130(79.8)	33(20.2)	163(100.0)	Df = 2
Post nursing education	88(73.3)	32(26.7)	120(100.0)	P = 0.467
Designation				
Staff nurse	100(68.5)	46(31.5)	146(100.0)	$\chi^2 = 9.848$
Chief nursing officer	59(84.3)	11(15.7)	70(100.0)	Df = 4
Principal nursing officer	46(83.6)	9(16.4)	55(100.0)	P = 0.044*
Nursing officer	56(77.8)	16(22.2)	72(100.0)	
Senior nursing officer	39(81.2)	9(18.8)	48(100.0)	

*Significant at p<0.05

Decision:

Based on the result shown in Table 4.9, the null hypothesis, which stated that there is no significant relationship between socio-demographic characteristics (like age and designation) and use of HCT were therefore rejected ($p<0.05$) while we failed to reject the hypothesis in respect of place of practice, marital status and education ($p>0.05$).

Hypothesis two

Ho 2: The demographic characteristics of Nurses in North Local Government Area do not have significant effect on their attitude towards the use of HCT.

Relationship between respondents' demographic characteristics and attitude towards the use of HCT

The relationship between socio-demographic characteristics and attitude towards the use of HCT is shown in Table 4.10. Only age of the respondents was statistically significant among the other socio-demographic characteristics; like: place of practice, education, marital status and designation to attitude towards the use of HCT in this study. Those who were within the age 40-49 years had have positive attitude towards the use of HCT (83.1%) compared with other age group ($p=0.048$).

Table 4.10: Association between respondents' demographic characteristics and attitude towards the use of HCT

Variable	Attitude towards use of HCT			Chi-square
	Positive attitude n=292 (%)	Negative attitude n=99 (%)	Total N=391(%)	
Place of practice				
Primary health care	18(69.2)	8(308)	26(100.0)	$\chi^2 = 0.507$
State hospital	67(76.1)	21(23.9)	88(100.0)	Df = 2
University College Hospital	207(747)	70(25.3)	277(100.0)	P = 0.776
Age				Fisher's Exact Test
<29 year old	113(76.4)	35(23.6)	148(100.0)	$\chi^2 = 10.413$
30-39 year old	88(72.7)	33(27.3)	121(100.0)	P = 0.048*
40-49 year old	59(831)	12(169)	71(100.0)	
50-59 year old	32(65.3)	17(34.7)	49(100.0)	
60 year old and above	0(0.0)	2(100.0)	2(100.0)	
Level of Education attained				
RN	76(70.4)	32(29.6)	108(100.0)	$\chi^2 = 1.618$
RM	123(75.5)	40(24.5)	163(100.0)	Df = 2
Post nursing education	93(77.5)	27(22.5)	120(100.0)	P = 0.446
Marital status				
Single	110(75.3)	36(24.7)	146(100.0)	$\chi^2 = 0.234$
Married but not with spouse	8(80.0)	2(20.0)	10(100.0)	Df = 2
Married	174(74.0)	61(26.0)	235(100.0)	P = 0.872
Designation				
Staff nurse	107(73.3)	39(26.7)	146(100.0)	$\chi^2 = 3.768$
Chief nursing officer	49(70.0)	21(30.0)	70(100.0)	Df = 4
Principal nursing officer	45(81.8)	10(18.2)	55(100.0)	p = 0.439
Nursing officer	52(72.2)	20(27.8)	72(100.0)	
Senior nursing officer	39(81.2)	9(18.8)	48(100.0)	

*Significant at $p<0.05$

Decision:

Based on the result shown in Table 4.10, the null hypothesis, which stated that there is no significant relationship between socio-demographic characteristics (age) and attitude towards the use of HCT was therefore rejected ($p<0.05$) while we failed to reject the hypothesis in respect of place of practice, marital status, education and designation ($p>0.05$).

Hypothesis three

Ho 3: Association between respondents' demographic characteristics and knowledge about HCT

The association between socio-demographic characteristics was compared with respondents' knowledge about HCT as it is shown in Table 4.11a. Place of practice and designation of the respondents were statistically significant among the other socio-demographic characteristics; like: place of practice, education, marital status and designation to attitude towards the use of HCT in this study. Those who had poor knowledge in the whole three settings considered were found not to have used HCT Primary health care (57.7%); State hospital(78.4%) and University College Hospital (59.9%) (p=0.006) age 40-49 years had ever used of HCT (90.1%) compared with other age group (p=0.003). This was also true with the designation of the respondents that was statistically significant (p=0.024)

Table 4.11a: Relationship between respondents' demographic characteristics and knowledge about HCT

Variable	Koowledge about HCT			
	High knowledge n=141 (%)	Low knowledge n=250 (%)	Total N=391(%)	Chi-square
Place of practice				
Primary health care	11(42.3)	15(57.7)	26(100.0)	χ^2= 10.364
State hospital*	19(21.6)	69(78.4)	88(100.0)	Df = 2
University College Hospital	111(40.1)	166(59.9)	277(100.0)	P = 0.006*
Age				Fisher's Exact Test
<29 year old	54(36.5)	94(63.5)	148(100.0)	χ^2= 7.372
30-39 year old	52(43.0)	69(57.0)	121(100.0)	P = 0.098
40-49 year old	23(32.4)	48(67.6)	71(100.0)	
50-59 year old	11(22.4)	38(77.6)	49(100.0)	
60 year old and above	1(50.0)	1(50.0)	2(100.0)	
Level of Education attained				
RN	36(33.3)	72(66.7)	108(100.0)	χ^2= 2.364
RM	55(33.7)	108(66.3)	163(100.0)	Df = 2
Additional qualification	50(41.7)	70(58.3)	120(100.0)	P = 0.307
Marital status				
Single	53(36.3)	93(63.7)	146(100.0)	χ^2= 0.902
Married but not with spouse	5(50.0)	5(50.0)	10(100.0)	Df = 2
Married	83(35.3)	152(64.7)	235(100.0)	P = 0.671
Designation				
Staff nurse	56(38.4)	90(61.6)	146(100.0)	χ^2= 11.220*
Chief nursing officer	18(25.7)	52(74.3)	70(100.0)	Df = 4
Principal nursing officer	29(52.7)	26(47.3)	55(100.0)	p = 0.024*
Nursing officer	23(31.9)	49(68.1)	72(100.0)	
Senior nursing officer	15(31.2)	33(68.8)	48(100.0)	

*Significant at p<0.05

Decision:

Based on the result shown in Table 4.11a, the null hypothesis, which stated that there is no significant relationship between socio-demographic characteristics (like place of practice and designation) and knowledge about HCT were therefore rejected ($p<0.05$) while we failed to reject the hypothesis in respect of age, marital status and education ($p>0.05$).

Predictors of use of HCT

Logistic regression analysis was used to test the strength of predictors of use of HCT among the socio-demographic characteristics and knowledge of HCT. After adjusting for co-founders, it was revealed that those who worked in Secondary health centre (State) were 2.4 times more likely to have good knowledge of HCT compared to those in tertiary(p value= 0.004, OR= 2.4, CI = 1.3-4.4). From the outlined designations, Nursing officers were 4 time less likely to have good knowledge of HCT compared to other nursing' ranks (p value= 0.029, OR=0.4, CI= 0.2-0.9) (See table 4.11b & c).

Table 4.11b: Logistic regression analysis for socio-demographic characteristics associated with knowledge about HCT

Variable	OR	β	Lower 95% CI	Upper	p-value
State hospital	1				0.009
Local Government Health Centre	0.906	2.475	1.360	4.503	0.003*
University College Hospital	.0.099	0.906	0.390	2.104	0.819
Chief nursing officer	1				0.025
Principal nursing officer	-0.086	0.917	0.388	2.172	0.845
Nursing officer	-1.091	0.336	0.147	0.769	0.010
Senior nursing officer	-0.323	0.724	0.368	1.423	0.349
Constant	0.760	2.138			0.015

Significant at 5% level of significance

Table 4.11c: Logistic regression analysis for Designation associated with knowledge about HCT

Variable	OR	β	Lower 95% CI	Upper	p-value
Chief nursing officer	-0.314	0.731	0.364	1.465	0.376
Principal nursing officer	0.272	1.313	0.583	2.959	0.511
Nursing officer	-0.898	0.408	0.182	0.914	0.029*
Senior nursing officer	-0.032	0.968	0.441	2.125	0.936
Constant	0.788	2.200			0.011

* *Significant at 5% level of significance*

Hypothesis four

Ho 4: There is no significant association between the Nurses' knowledge about HCT and use of HCT.

Relationship between the Nurses' knowledge about HCT and its usage

The knowledge and attitude of the respondents towards HCT was compared with their usage of HCT service. Significantly, respondents' who had good knowledge about HCT (68.1%) utilised the service better (p=0.002). Contrarily, there was no significant different in the percentage of respondents with positive attitude and utilization of the HCT services (p= 0.991).

Table 4.12: Relationship between the Nurses' knowledge about HCT and its usage

Varinble	Have you ever had HIV counseling and testing (HCT) Used n=300 (%)	Non-used n=91 (%)	Total N=391(%)	Chi-square
Overall Knowledge of HCT				
Good knowledge	96(68.1)	45(31.9)	141(100.0)	χ^2= 9.198
Poor knowledge	204(81.6)	46(18.4)	250(100.0)	Df = 1
				P = 0.002*
Overall attitude towards HCT	**Used n=300 (%)**	**Non-used n=91 (%)**	**Total N=391(%)**	
Positive attitude	224(76.7)	76(23.3)	292(100.0)	χ^2= 0.000
Negative attitude	76(76.8)	23(23.2)	99(100.0)	Df = 1
				P = 0.991

** Significant at 5% level of significance*

Decision:

Based on the result shown in table 4.12, the null hypothesis, which stated that there is no significant relationship between nurses' knowledge about HCT and its usage, is therefore not accepted.

Hypothesis five

Ho 5: There is no significant association between the Nurses' attitude towards the use of HCT and its usage.

The knowledge of the respondents were compared with their attitude towards usage of HCT service. The chi-square result showed that there was no statistical association between the two variable tested (p=0.865).

Table 4.13: There is no significant association between the Nurses' knowledge and attitude towards the use of HCT.

Knowledge of HCT	Attitude towards the use of HCT		Total N=391(%)	Chi-square
	Positive attitude n=292 (%)	Negative attitude n=99 (%)		
Good knowledge	106(75.2)	35(24.8)	141(100.0)	$\chi^2 = 0.029$
Poor knowledge	186(74.4)	64(25.6)	250(100.0)	Df = 1
				P = 0.865

** Significant at 5% level of significance*

Decision:

Based on the result shown in table 4.13, the null hypothesis, which stated that there is no significant relationship between nurses' attitude towards the use of HCT and its usage, is therefore accepted.

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Table 4.13: There is no significant association between the Nurses' knowledge and attitude towards the use of HCT.

Knowledge of HCT	Attitude towards the use of HCT			Chi-square
	Positive attitude n=292 (%)	Negative attitude n=99 (%)	Total N=391(%)	
Good knowledge	106(75.2)	35(24.8)	141(100.0)	χ^2= 0.029 Df = 1
Poor knowledge	186(74.4)	64(25.6)	250(100.0)	P = 0.865

* *Significant at 5% level of significance*

Decision:

Based on the result shown in table 4.13, the null hypothesis, which stated that there is no significant relationship between nurses' attitude towards the use of HCT and its usage, is therefore accepted.

CHAPTER FIVE

DISCUSSION, CONLUSION AND RECOMMENDATIONS

5.1 Socio-demographic characteristics of respondents

The respondents in this study were of the adult population and most were from the Yoruba ethnic group: which could be due to the fact that the study was conducted in the south western part of Nigeria that is predominantly inhabited by the Yoruba ethnicity. Most of the respondents (60.1%) were married. with 37.3% being single. Abamecha. Godesso and Girma (2013) also reported that 52.8% were married and 46.0% were single in their study among nurses.

5.2 Level of knowledge of HCT among nurses

Over half the nurses in this study (63.9%) had poor knowledge of HCT, and according to Abamecha et. al (2013), HCWs are among the high risk groups of contracting HIV due to their professional risk and as well as their individual sexual behaviour. Abamecha et.al (2013) further remarks that unlike the general public, the HCWs are expected to have also the knowledge and skill related to HIV/AIDS including VCT. However. previous studies (Hutchinson and Mahlalela 2006. Joseph, Ronald, Fredrick, Maria, David, Godfrey. Nelson and Fred 2005) claimed that high risk group tends to be less likely to participate in VCT services; this could be due to their knowledge of VCT.

Another study by Kirakoya-Samadoulougou et. al (2013) reported that Overall, 75.8% of HCWs had a good knowledge of the main routes of HIV transmission (unprotected sexual intercourse, direct injection with HIV-contaminated needles, syringes, blood or blood products, mother to child transmission through pregnancy, delivery or breastfeeding) and more than 42.0% of HCWs had a poor knowledge of the mechanisms of HIV prevention (Abstinence and safe sex, precautions regarding the using of needles, syringes, blood or blood products).

Poor knowledge of HCT among the HCWs is probably an indicator to the fact that HCWs are probably not engaged in the usual pre and post-test counseling when they test for their HIV status, as finding of these study revealed about 97% had undertaken HCT services.

and it was done majorly in their health facility hence familiarity with their colleague and also to save work hour time could have been two factors why pre and post-test counseling might have been skipped. Just as Kapologwe, Kabengula and Msuya (2011) reported that long queues and understaffing of HCWs were some reasons HCWs had negative attitude towards provider initiated HIV counseling and testing (PICT).

In another study by Amu and Ijadunola (2011), just over 37.2% (one third) of their respondents who were women of reproductive age attending antenatal clinic in Oshogbo had correct understanding of HCT. According to them most of their respondents were aware HCT involved test for HIV but did not know it was meant for everybody weather healthy or not and that counseling was involved.

As reported in this study one of the factors for uptake of HCT by respondents was during their antenatal, hence there is cause to believe that even the HCT service providers themselves are not doing their job as effectively with regards to the pre and post-test counseling involved in HCT, which is an avenue to educate on HCT itself.

VCT has been introduced in many low-resource settings as it helps to create awareness of an individual's HIV status and offers the opportunity for counselling on risk behavior modification. According to the WHO (2011) use of HCT will also improve HCW's knowledge of HIV as well as acquire skills for counseling others in the general public

To further prove the gap in knowledge of HCT among respondents, 49.1% stated "true" when asked that "In provider initiated testing for diagnosis, offer of antiretroviral or prevention of mother to child transmission, patient does not retain the right to refuse testing." However, Kapologwe, Kabengula and Msuya (2011) explained that provider-initiated counselling and testing (PICT) was introduced in order to reach out to clients who do not opt for self-initiated counselling and testing, also PICT and HCT are voluntary and clients give informed consent for HIV testing. Which means patients do have the rights to refuse PICT or HCT.

Abamecha et.al 2013 opines that motivation for VCT uptake might be driven by knowledge and education of VCT rather than risk perception for HCWs, hence leading to the insignificant association between knowledge and intention for VCT. Similarly Chi-square analysis finding from this study revealed no significant relationship between respondents' knowledge and use of HCT.

Training remains an important component of empowering healthcare workers about the risks of contracting HIV and the need for the uptake of HCT as it would increase their knowledge and thereby enable them to remain healthy. Just like the general populace, healthcare workers face the risk of HIV infection in both their personal and professional lives (Zungu & Sanni 2011).

5.3 Attitude of Nurses towards HCT

With reference to HCWs attitude towards HCT, most (68.3%) had positive attitude, which could also explain why majority had gone for HCT. This finding is supported by that of Abamecha et. al (2013) were their study revealed that behavioral intention to use VCT was a function of attitude and perceived social pressure (SN). The intention to use VCT services was primarily due to subjective norms and attitude while their perceived behavioral control was statistically insignificant predictor.

Another study by Kapologwe, Kabengula and Alsuya (2011) reported that almost two thirds of the health care providers had positive attitude towards provider initiated HIV counseling and testing (PITC) while 34.8% demonstrated negative attitude. The positive attitude towards uptake of HCT could be explained on the basis that HCWs have good knowledge of the main routes of HIV transmission (unprotected sexual intercourse, direct injection with HIV-contaminated needles, syringes, blood or blood products, mother to child transmission among others) as reported by Kirakoya-Samadoulougou et. al (2013), hence they view HCT as a means to know their HIV status but not necessarily have good knowledge of what HCT is all about (which includes prevention of HIV transmission, behavioural lifestyle change, early detection and use of ARTs, reduce stigmatization, among many other issues).

Even though majority of respondents had positive attitude towards HCT some (23.8%) still indicated that "they make sure they adhere to universal precautions even in dare emergencies so they don't need to have HIV test", this reveals that they do not consider themselves to be at risk.

In one study, a large percentage of health workers stated that they had not taken an HIV test because they did not feel at risk, yet the occupational and societal risk for HIV among health workers in sub-Saharan Africa is well documented, and 94% of participants in one study reported being "very concerned" about becoming HIV infected at work (National AIDS and STD Control Programme, 2006).

Kapologwe, Kabengula, Mfuya (2011) also reported that some responses in their study showed negative attitude of HCWs; in that they were of the opinion that, PITC should be considered only for clients at high risk of having HIV infection, thus more focus should be to those who are symptomatic and those who are attending STI clinics.

A study conducted among 69 new employees of the British National Health Scheme reported that 41% of the study participants have been tested for HIV and 62% are willing to test in the future, it went further to state that 56% of the participants who tested for HIV are from areas of endemic HIV, (Hamill, Copas and Murphy, 2006), this may be connected to perceived susceptibility.

It is well documented that a major barrier to HIV testing is refusal to acknowledge being at risk, even among those who are at risk (WHO, 2011). It possible to propose that attitude of HCWs towards HCT is also determined by their perceived susceptibility.

Hypothesis testing revealed that age had an association with respondents attitude towards HCT, this can be related to De Paoli, Manangi and Ki, (2004) and Bosompra (2001) studies were age was related to VCT use.

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5.4 Use of HCT services

Finding from this study revealed that majority of the respondents (76.7%) had had HCT. This shows that there is a high level of HCT uptake among nurses in the study area. Daniyam, Agaba and Agaba (2010) also reported that the acceptability of VCT was high among medical students in Jos, as half of the students have had VCT before and eight out of every 10 of them would want to have VCT.

Similarly Abamecha et.al (2013) also reported in their study among health workers that A total of 36.0% of their respondents were involved in HIV testing by VCT counselor and received post-test counseling. One hundred and six (31.0%) of the participants have tested their HIV status by themselves and 109 (33.0%) of the respondents have never been tested.

Zungu and Sanni (2011) reported that 91% of HCWs in South Africa had been tested for HIV. Such findings in South Africa were in line with other studies that reported a high level of HIV counselling and testing uptake among healthcare workers (Corbett, Makamure, Cheuny, Dauya, Matambo, Bandason, Munyati, Mason, Butterworth and Hayes 2011, Kruse, Chapuka, Ikeda, Nkhoma, Quiterio, Pankratz, Matoka, Chi, Bond and Reid 2009).

Contrary to findings of this study that nurses had high HCT uptake; other studies among health care workers with low use of HCT services have been reported: in a study of 186 Tanzanian medical students, 43.3% had had VCT (Vermeer, Bos, Mbwambo, Kaaya, Schaalma, 2009). Another study conducted among Tanzanian students of health care professions, where all the participants were aware of VCT services, found that only 34.6% had had VCT (Charles, Kweka, Mahande, Barongo, Shekalaghe, Nkya, Lowassa and Mahande, 2009).

Kirakoya-Samadoulougou et.al (2013) also found a low rate of HIV testing among HCWs in Burkina Faso even though, this rate of testing for HIV was slightly higher than that of the general population as reported in the Burkina Faso Demographic and Health Survey in 2003 (Institut National de la Statistique et de la Démographie and Macro

International 2003). Similarly, a study in Zambia among HCW's found a low level of HIV counseling and testing uptake (33%) (Kiragu, Ngulube, Nyumbu, Njobvu, Ecrens and Mwaba, 2007).

Reasons for high HCT uptake can be attributed to antenatal requirements of ante-natal routine HIV screening, this is because all respondents were females hence the need to use HCT services during antenatal visits. Another factor reported for use of HCT by respondents (69.6%) was specific laid down policy for HCT for health workers in the health facility where they work. Furthermore 91.2% of the respondents reported HCT to be free of charge, just as KirakoyaSamadoulougou et.al (2013) have stated that VCT services are provided in every health centre in their study area for free for everyone.

Unlike the findiogs of Kirakoya-Samadoulougou et.al (2013) where the majority of HCWs had tested for HIV at private laboratories (63.0%), at a government health facility (22.5%), and public laboratories, majority of nurses in this study (42.9%) tested in the hospital as an out-patient, with their major reason for using this health facility being attributed to "convenience"

Probable reasons for the high uptake of HCT among respondents in this study could be attributed to respondents' designation (cadre) and age as this sociodemographic factors had a significant association with practice of HCT. This finding however contradicts that of various studies (Jimma zone health department, 2011; Anthony 2008, Karen, Barbara and Rimier 2008), in Ethiopian and Tanzania. Their findings revealed no significant statistical association between socio-demographic factors and intention to use VCT.

However other studies in which use of VCT (HCT) among various age groups conducted in Tanzania and Ghana showed significant differences among the age groups with likelihood of HCT to be tested among teenagers due to the high HIV prevalence among them and increasing tendency for young people to be tested before marriage (De Paoli, Manongi and Kl, 2004; Bosompra, 2001). Their finding is evident also in this study in that the youngest age group (<29) of respondents used HCT significantly more than other age groups.

5.5 Respondents' viewpoints on the use of HIV Counselling and Testing services

Some of the respondents' viewpoints considered as facilitators to the use of HIV couselling and testing services were, if they notice any recurrent illness that is not readily responding to treatment (92.8%), nursing a patient living with HIV/AIDS prompting them to think about getting tested (74.1%) and if they had an accidental needle prick in the process of carrying out their duty (75.7%). These factors support that of Abamecha et.al (2013) were they reported the most frequently mentioned reasons why their respondents received their test results (post test counseling) were 'because of fear that one could be infected' 65 (19.0%) and 'fear of being at risk due to their profession' 52 (15.3%).

Abamecha et.al (2013) also stated that most health workers test their blood by themselves which may indicate the existence of fear of disclosure of HIV status and high perceived risk of HIV infection. Similarly 88.6% of respondents in this study stated that they would be more comfortable having regular screening for HIV if they are provided with kits for self-testing, which means that fear of disclosure of one's status (either by the respondents' willingness to disclose their status or through colleague's disclosure who took the test) is a major hindrance to HCT uptake.

Other studies have also reported that fear of HIV test results is the major reason stated by people for not undergoing HIV testing. For example, a UK-based study showed that fear of results and fear of colleagues' reactions were the main reasons for not undergoing HIV testing (Namakhoma, Bongololo, Bello, Nyirenda, Phoya, Phiri, Theobald and Obermeyer, 2010). Proximity to a clinic (Matovu and Makumbi 2007), perception of being at risk of HIV infection, (Jeremi and Muula, 2008; Fylkesnes and Siziya 2004) psychosocial factors such as HIV/AIDS-related stigma and discrimination, (Matovu and Makumbi, 2007; Fylkesnes and Siziya, 2004) and concerns about confidentiality (Matovu and Makumbi 2007; Fylkesnes and Siziya, 2004) are possible factors associated with VCT uptake.

Stigma and fear of disclosure may be major obstacles to health worker access to HIV testing and counselling (HTC) and other HIV services(WHO 2006) Being infected with HIV can be a source of personal and professional shame for a health worker, and may also invoke fear of losing one's job and damaging future career prospects (Namakhoma, 2010; WHO, 2006) To access HIV services, health workers may have to attend with the people that they serve, which may undermine the relationship of trust and authority that they have with clients.

Furthermore, being tested and/or treated for HIV by a colleague might compromise confidentiality, and the service provider may also feel burdened by the knowledge of their colleague's HIV status (Corbett, 2007). Regardless of the outcome, it has been documented that having an HIV test can be stigmatizing, and health workers are sometimes assumed to be HIV positive if they are known to have been tested (Corbett, 2007)

5.6 Intention to use HCT

The intention of respondents, who had never gone for HCT (23.3%), showed that most of them (68.7%) had a positive intention to go for HCT in the future. This is similar to Abamecha et.al (2013) were they reported that their study showed that respondents who have never been tested revealed a high intention to use VCT services.

Respondents who had never HCT services gave three major reasons which were: Preferred not to think about HIV, Unlikely to have HIV and afraid to find out the result for not using the services.

Many studies have reported that fear and stigma associated to HIV are reasons for negative intentions towards HCT service demand. Kirakoya-Samadoulougou et.al (2013) reported that fear of knowing the outcome was the main reason given for not taking the HIV test, as reported by 40.0% of HCWs in their study. Similarly Daniyam, Agaba and Agaba (2010) identified that fear of a positive test result was the main reason given by those who would be unwilling to be tested in their research.

As discussed with reference to attitude towards use of HCT and one's perceived susceptibility, those respondents who stated they were "unlikely to have HIV" revealed they do not perceive they are at risk of having HIV: this could be due to the fact that most of the respondents in this study are married and believe their partners are faithful to them. Abamecha et.al (2013) opined that most of the respondents in their study were married and the low Perceived risk to HIV in the age category might have hampered the association with use of VCT.

Musheke *et.al.* (2013) further stated that the participants of their study, who are healthcare workers, occupy problematic positions and identities as they are the providers and implementers of HIV testing, yet they are also potential clients of the HCT services. Their identity as providers and/or implementers of the HIV counselling service is complicated by perceived fears of stigmatisation and breach of confidentiality by colleagues should they test HIV positive. These fears limit them from initiating HCT for themselves as potential clients of the service or PICT for fellow healthcare providers in order to avert stigma and discrimination if they test positive.

5.7 Implications of findings for health promotion and education

Health Care Workers are important for the success of HCT as they are seen as role model as well as agents of giving the right information on HCT. Through them the general public are supposed to be more knowledgeable about how the burden of HIV prevalence can be reduced. However when those who are the supposedly agents of change are found wanting in their knowledge it may be practically difficult to carry out this task. This view is better explained by Olugbenga-Bello, Oladele, Adeomi and Ajala, (2012) where they found out that four-fifths of the respondents heard about HIV/AIDS from either the radio or the television, with health workers accounting for less than 10% as source of information about HIV/AIDS. They further explained that this outstanding contribution of the electronic media, as has been similarly reported by other studies, (Adeleke, Mukhtar-Yola, and Gwarzo, 2009, Abiodun, Ijaiya and Aboyeji, 2007 and Addo, 2005) should be encouraged. However, the health workers need to do more in educating the

public about an important public health issue like HIV/AIDS especially because that will ensure a balanced knowledge.

HCW should play a great role in informing their patients on HIV and the benefits of HIV testing, particularly when those patients are at risk (multipartnership, STIs, etc. ...). However, there is concern that this information on HIV and by extension on sexual and reproductive health is rarely given to patients as present in most African countries (Kirakoya-Samadoulougou et.al, 2013)

HCT has been said to be essential for all support and treatment interventions against HIV and AIDS, and critical to PMTCT of HIV (Perez, Ome-Gilberman, Mukotekwa, Miller, Glenshaw and Mahomva, 2004; Rogers, Menundi, Amma, Rao, Shetty and Anthony, 2006). It is therefore of concern that though the level of awareness of HIV was high, as much as 30% of the respondents were not aware of HCT. This indicates a need to increase public enlightenment on HCT and its benefits. PMTCT programmes can only be successfully implemented if the concept of HCT is well understood by the communities and if they have the knowledge of the existence and benefits of the services (Harms, Schulze, Monela, Baryomunsi, Mbezi and Poggensee, 2005; Omuemu, Akemokwe and Ahanmisi, 2008) health workers (of all cadres and discipline) should also be motivated to play a more pro-active role in educating their clients. From the behavioral change perspective, health professionals should be role models in undertaking VCT so that it may increase VCT uptake by the general public (Abamecha et. al., 2013).

At the same time, the increased global commitment to HIV puts more pressure on bottlenecks created by health workforce shortage, especially in Sub-Saharan Africa where HIV intervention targets remain unmet (Simba, Kamwela, Mpembeni and Msamanga, 2010; Mcnabb, Hiner, Pfitzer, Abduljawad, Nadew, [illegible] and [illegible], 2009; Muula, Chipeta, Siziya, Rudatsikira, Ahaya and Kataika, 2007). In light of this, strengthening and expanding the health workforce has been identified as a global challenge to scaling up HIV services (United Nations General Assembly Special Session, 2006; WHO, 2006)

A study in South Africa on occupational hazard in health facilities on 721 health workers, found that 15.7% of them were living with HIV/AIDS (Shisana, Hall, Maluleke, Chauveau and Schwabe, 2004). This means that the already reduced work force of HCWs would continue to dwindle more if they do not engage themselves in the use of HCT and its' numerous benefits in reducing the incidence of HIV.

VCT use by health professionals has generally the following important aspects. First, like any other individuals it is a mechanism for protection of health workers from HIV infection, due to accidental needle injury and other clinical practices they are vulnerable population for infection. Protecting health workers in developing countries such as Nigeria where health facilities are understaffed, it is important not to lose highly experienced and qualified health workers.

5.8 Conclusion

This study was conducted to determine the level of knowledge, attitude and use of HCT services for HIV/AIDS among its target population. The study observed inadequate level of knowledge of HCT, though some unmet HCT knowledge needs were also identified. The study participants had good and supportive attitude towards HCT, though in this group, concerns about HIV associated stigma, discrimination, fear of reactions following the disclosure of a sero positive status and confidentiality breach were expressed. The use of HCT was found to be moderately high among the nurses; this supports the findings of previous studies in a similar population group. Despite positive attitude towards HCT recorded among the group, a significant number of them have not utilized the service and one of the major reasons given by those who have never tested was fear of testing positive. Antenatal requirement was a factor responsible for use among those who have ever tested. Though findings from previous studies that explored the relationship between age and HCT have been inconsistent, age was found in this study to have a very weak but positive correlation to attitude score as more nurses between the age of 20-29 had better knowledge and utilised the service more than nurses in other age groups. Other findings in the study revealed that respondents who have good knowledge of HCT utilised the service better and contrarily there was no significant association between positive attitude

and use of HCT services. Apart from knowledge and attitude, other factors could also be playing important roles in determining HCT behaviour and thus need further exploration.

5.9 Recommendations

Strategies to empower health professionals on social pressure resistance and programs targeted at improving utilization of HCT can enhance intention of health professionals to use VCT.

There is the need for continual health education training and social marketing. on HCT as it would enhance optimization of VCT services; such as refreshment courses on HIV risk reduction, counselling and testing are certainly required during the professional career of HCWs.

Advocacy for HCW-friendly' HCT centres should be implemented, so as to secure confidentiality among colleagues. Healthcare workers need the support of institutional management for HIV testing in order to avoid the stigma imposed on them by colleagues and the community. In order to achieve positive outcomes for healthcare workers, the infrastructure of the healthcare institutions needs to be changed in order to provide healthcare workers with privacy for counselling and the space for group support and meetings

HIV self-testing should be encouraged in health facilities to allow individual to collect their own sample and perform a simple rapid laboratory HIV test, thus being the first to know their result.

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Appendix I

Description of Health Facilities in Ibadan Metropolis Ibadan North The local Governmnent is heavily populated and covers a large expanse of land with an area of about 182.5 square meters with an estimated population of 316,612. Male accounts for 157,936 and female 158,676 using the 2006 National Population Census. The local government has 12 political wards with 6 state owned health facilities, 11 primary Health Centres/Maternity Centres (see appendix I).

Table 3.1: Names of facility, type and Location in Ibadan North

Names of facility and Location	Type	Ownership
University College Hospital Orita-Mefa, Ibadan	Tertiary	Federal
University Health Services Jaja, UI	Secondary	Federal
Fed secretariat Staff Clinic, Ikolaba	Primary	Federal
National Blood Transfusion Clinic, Agodi	Secondary	Federal
Adeoyo Teaching maternity Hospital, Ibadan	Secondary	State
Infectious disease clinic, Ibadan	Primary	State
Secretariat Clinic, Ibadan	Primary	State
Iderade Clinic, Ibadan	Primary	State
Government House Clinic, Agodi GRA	Primary	State
Blood Transfusion clinic, Agodi	Primary	Local Government
PHC Idi Ogungun, Agodi	Primary	Local Government
PHC, Yemetu, Alaadorin	Primary	Local Government
PHC, Sango Palako	Primary	Local Government
PHC, Bariko, UI	Primary	Local Government
PHC, Samonda, UI	Primary	Local Government
PHC, Cerehad, Bodija	Primary	Local Government
PHC, Agbowo, Express	Primary	Local Government
PHC Olive Bodija		

PHC, Oke Aremo, Ibadan	Primary	Local Government
Staff Clinic NPI/M&E LG SEC	Primary	Local Government
Health post, Ashi	Primary	Local Government

Ibadnn North East Local Governnient Area

Ibadan North East local Government was created on 27th August 1991. It was carved out of defunct Ibndan Metropolis Government. The Local Government has its administrative headquarters along the Iwo road axis and it has an estimated population of 340,972. males account for 168,861 and female 172,110 using year 2006 National population census. The Local government has 11 political wards with 2 State owned health facilities, 19 primary Health Centers/Maternity centers and 24 registered Nurses/Midwives.

Table 3.2: Names of facility, type and Location in Ibadan North-East

Names of facility and location	Type	Ownership
St Peter Mat Hospital, Aremo	Secondary	State
BCOS Clinic	Primary	State
Primary Health Center, Odo -Osun	Primary	Local Government
Primary Health Center, Oranyan	Primary	Local Government
Primary Health Center, Ojugbo	Primary	Local Government
Primary Health Center, Orita-Aperin	Primary	Local Government
Primary Health Center, Labiran/Alafara	Primary	Local Government
Primary Health Center, Ojo	Primary	Local Government
Primary Health Center, Alipe	Primary	Local Government
Primary Health Center Aremo	Primary	Local Government
Primary Health Center, Ode-Aje	Primary	Local Government
St Mary Health Center,	Primary	Local Government
Primary Health Center, Ogundipe	Primary	Local Government
Primary Health Center, Ayekale	Primary	Local Government
Primary Health Center, Agugu	Primary	Local Government
Primary Health Center, Lagelu-Ilupeju	Primary	Local Government

Lagelu youth Friendly, Center	Primary	Local Government
Primary Health Center, Akeke	Primary	Local Government
Primary Health Center, Iwo Road	Primary	Local Government
Primary Health Center, Oke-Adu	Primary	Local Government
Primary Health Center, Okebadan	Primary	Local Government

Ibadan North West Local Government Area

The Local Government covers an area of about 59.001 square km of land with an estimated population of 157,725 Males account for 77,721 and females 80,004. The local Government has 12 political wards with 4 federal health facilities, 3 state owned health facilities, 6 primary Health Centers/Maternity center and 21 registered Nurses and Midwives.

Table 3.3: Names of facility, type and Location in Ibadan North-West

Names of facility and location	Type	Ownership
UCH Annex, Idikan	Primary	Federal
Dental Clinic, Idikan	Primary	Federal
Army Barak Clinic, Mokola	Primary	Federal
Police Health Clinic, Eleyele	Primary	State
Health Clinic, School of Nursing, Eleyele	Primary	State
Jericho Nursing Home, Jericho	Primary	Local Government
Dental Clinic, Dugbe	Primary	Local Government
Comprehensive Health center, Oniyanrin	Primary	Local Government
Primary Health Center, Ayeye	Primary	Local Government
Primary Health Center, Eleyele	Primary	Local Government
Primary Health Center, Ori-Eru	Primary	Local Government
Primary Health Center, Ogunpa	Primary	Local Government
Health Clinic, Onireke		

Ibadan South East Local Government Area

Ibadan south East Local Government, Mapo is one of the five Local Governments carved out of the defunct Ibadan Metropolis Government in May 3rd 1989. It covers an Area of about 58.251 square km of land with an estimated population of 274,559 (Male =134,755: Female =139,804) using year 2006 National population census. The Local Government has 12 political wards, 7 primary Health centers/Maternity center and 16 registered Nurses and Midwives.

Table 3.4: Names of facility, type and Location in Ibadan South-East

Names of facility and location	Type	Ownership
Molete Health Center, Molete	Primary	Local Government
Mapo Health Center, Mapo	Primary	Local Government
Oranmiyan Health Center, Oranmiyan	Primary	Local Government
Agbongbon Health Center, Agbongbon	Primary	Local Government
Sanyo Comprehensive Health Center, Sanyo	Primary	Local Government
Oritaperin Health Center, Oritaperin	Primary	Local Government
Comprehensive Health Center, Orauniyan	Primary	Local Government

Ibndan South West Local Government Area

The local Government covers an area of about 133,500 square meter of land with an estimated population of 291,228 (Male=143,980 Female 147,648). It has 10 political wards with 10 state owned health facilities, 11 primary Health/maternity Centers and 25 registered Nurses/Midwives.

Table 3.5: Names of facility, type and Location in Ibndan South-West

Names of health facility and location	Type	Ownership
Ring Road State Hospital, Ring Road	Secondary	State
Oni Memorial Children Hospital, Ring Road	Secondary	State
General Hospital, Jericho	Secondary	State
Maternal and Child Health Unit, Apata	Primary	State
Cholera Unit, Jericho	Primary	State
Chest Hospital, Jericho	Primary	State
State Health Office, Jericho	Primary	State
Dental Center, Jericho	Primary	State
Maxillofacial Unit, Ring Road	Primary	State
Onho-Paedics Center, Jericho	Primary	Local Government
Oke Bola Health Center	Primary	Local Government
Alesbinloye Health Center	Primary	Local Government
Akere Health Center	Primary	Local Government
G.C.I Health Center	Primary	Local Government
Adifase Health Center	Primary	Local Government
PHC, Foko	Primary	Local Government
PHC, Oja-Oba	Primary	Local Government
Molete Health Center	Primary	Local Government
Elewura Health Center	Primary	Local Government
PHC, Awodire	Primary	Local Government
Oluyole Health Clinic		

Appendix II

INFORMED CONSENT FORM

ERC Research approval number.....

This approval will elapse on.....

Knowledge, Attitude and Uptake of HIV Counseling and Testing Among Nurses in selected hospital in Ibadan Area, Ibadan, Oyo State.

This study is being conducted by AkinJogunla Motunrayo Valentine, an MPH student Health Promotion and Education Department, Population and Reproductive Health Faculty of Public Health, University of Ibadan.

The aim of this study is to determine the knowledge of HIV Counseling Testing among Nurses and to identify factors that affect the uptake of this service

You will be asked by the researcher to administer a structured questionnaire. The exercise is likely to take about half an hour. This study will not cost you anything. There is no direct benefit in participating in this study. The confidentiality of your responses will be ensured. Your name is not needed on the questionnaire and as such the information collected cannot be linked or traced to you or your family in any way. Participation in this study is entirely voluntary.

Statement of researcher:

I have fully explained this research to..... and have given sufficient information about purpose, risks and benefits to make informed decision.

Date.....

Signature.....

Name.....

Statement of person giving consent:

I have read the description of the research and I know enough about the purpose, risk and benefits of this study to allow me participate in it.

Date.....

Signature.....

Name.....

Appendix III

QUESSTIONNAIRE

Knowledge, Attitude and use of Voluntary Couoseling and testing for HIV among Nurses in Ibadan North Local Government Area

Dear respondent,

I am a student from the department of Health Promotion and Education, College of Medicine, University of Ibadan. I am conducting a research on the Knowledge, Attitude and use of Voluntary Counseling and testing for HIV among Nurses in Ibadan Metropolis of Oyo State. The purpose of this research is to assess the effectiveness of the use of Voluntary Counseling and testing for HIV among Nurses. The findings from this study will be helpful in designing health progammes aimed at improving the use of Voluntary Counseling and testing for HIV among Nurses and other health care professionals as a means to reducing HIV/AIDS morbidity and mortality in Nigeria.

Your participation in this interview is voluntary and your answers to all the questions will be kept confidential. There is no right or wrong answer so you are encouraged to make your contributions. I shall be grateful if you are honest in answering all the questions.

Thank you for your cooperation

I will like to know if you are ready to participate. 1. Yes ☐ 2. No ☐

Respondent's location:.....

SECTION A: DEMOGRAPHIC INFORMATION

1. Age as at last birthday _____
2. Marital status: 1. Single ☐ 2. Cohabiting ☐ 3. Married ☐ 4. Separated ☐ 5. Divorced ☐ 6. Widowed ☐
3. Designation (please state) _____
4. Ethnic group: 1. Yoruba ☐ 2. Ibo ☐ 3. Hausa ☐
5. Religion: 1. Christianity ☐ 2. Islam ☐ 3. Traditionist ☐ 4. Others (specify)_____

6. Level of Education attained: 1. RN ☐ 2. RM ☐ 3. BSC ☐

4. Masters ☐ 5. Others specify_____

SECTION B: KNOWLEDGE ON VOLUNTARY COUNSELLING AND TESTING

S/N	Knowledge statement	True (1)	False (2)
7.	HIV counseling and testing is an intervention that includes only pre test counseling, test for HIV and post counseling.		
8.	HIV counseling and testing is one of the gateways to prevention, treatment, care and support for only those who already have HIV.		
9.	Test for HIV detect the presence of the HIV virus and not the virus antibodies.		
10.	Post test counseling is necessary for only those who test positive to HIV.		
11.	Routine testing can also be referred to as provider initiated HIV counseling and testing.		
12.	Routine testing means everyone in a given setting is tested without necessarily relying on individual consent.		
13.	In provider initiated testing for diagnosis, offer of antiretroviral or prevention of mother to child transmission, patient does not retain the right to refuse testing.		
14.	Opt-in-testing means that clients must agree to test before pre-test information has been received.		
15.	Counseling is not important when test result is negative.		
16.	Result of HIV screening may be disclosed on phone.		
17	A Sero-positive result from a rapid test should be considered as absolute positive		
18	Mandatory screening for HIV is only applicable to procedures involving transfer of body fluids and body parts		
19	HCT strategy does not necessarily include risk behavior assessment		

20. The three basic conditions for HCT (known as 3Cs of HCT) are?

1. _____
2. _____
3. _____

SECTION C: ATTITUDE TOWARDS HCT

Give response to the questions in the box below by indicating whether it is Agree. Disagree or Not Sure.

S/N	Statement	Agree (1)	Disagree (2)	Not sure (3)
21.	A nurse does not need to go through the pre and post test counseling as she is familiar with everything that the provider will say.			
22.	HIV counseling and testing is necessary even if one is faithful to his or her/partner.			
23.	Needle prick is unavoidable in the hospital; therefore having regular HIV test is necessary.			
24.	I make sure I adhere to universal precautions even in dare emergencies so I don't need to have HIV test.			
25.	I have had so many occupational related exposures that I make sure I have regular HIV test.			
26.	I believe HCT is important after an Occupational exposure to assess post exposure prophylaxis.			
27.	I am always comfortable having HIV test because I know my test result is kept confidential by the medical staff who offer the test.			
28.	I am always afraid of a false positive result, therefore I do not take the test.			
29.	HIV Conseling and Testing is very important to practicing Nurses because it is a preventive measure against HIV.			
30	The people I work with, especially the nurses will gossip about me if my test result turn out to be positive so I have not made up my mind to have HIV test.			
32	HIV Counseling and testing is not of utmost importance to a practising Nurse because it is not a preventive measure or an immunization against HIV.			
33	Being HIV positive is the end of the world. The discovery will haunt me that I will become sick and may eventually die therefore, I prefer to be ignorant of my HIV status.			

SECTION D: PRACTICE OF HCT

34. Have you ever had HIV counseling and testing (HCT) (if no. go to question 64)

1. Yes ☐ 2. No ☐

35. Where did you have your last test?

1. In the Hospital (As an In-patient) ☐
2. At Primary Health Care centre ☐
3. In a Private Hospital ☐
4. During an outreach on HIV ☐
5. At a Prenatal Clinic ☐
5. In the Hospital (As an Out-patient) ☐
6. Specific HCT Clinic ☐
7. At STD or Infectious Disease Clinic ☐
8. Family Planning Clinic ☐
9. Employer Clinic ☐

36. Why did you choose the facility where you had the test?

1. Nearness to my home ☐
2. Convenience ☐
3. For confidentiality purpose ☐
4. No cost involved (voluntary) ☐
5. It was based on Referral ☐
6. Others (specify) _____

37. Did you receive the results of the HIV test the last time you did it? 1. Yes ☐ 2. No ☐

38. How much did you pay for the service? _____

39. How long ago was your most recent test for HIV? _____

40. What was your main reason for having an HIV test at the time?

1. I voluntarily had the test ☐
2. Doctor's request ☐
3. My partner/spouse asked me to have the test ☐
4. For hospitalization or surgical procedure ☐
5. Ante natal and delivery requirements ☐
6. Because Spouse asked you to do so ☐
7. To apply for insurance ☐
8. To comply with employer guideline ☐
9. Testing after needle stick injury ☐

41. How long did you wait before getting the result? _____

42. When you had the test, did you undergo proper pre and post test counseling?

1. Yes ☐ 2. No ☐

SECTION E: Viewpoints on the use of HCT (*If your answer to question 23 is no, skip to question 48 below*)

Items	Yes (1)	No (2)
Is HCT services always available in the facility where you work?		
Do you have to make any form of payment before assessing HCT services?		
Is there a well-defined provision for post exposure prophylaxis for health workers in the facility where you work?		
Are there provisions for free Anti-retroviral drugs for those who are positive?		
Is there any laid down policy on HCT for health workers in your facility which can motivate them to have HIV test?		
Will you be more comfortable having regular screening for HIV if you are provided with kits for self-testing?		
Do you think the confidentiality of your result is guaranteed by health workers who offer the test after HCT?		
If you have an accidental needle prick in the process of carrying out your duty, will you immediately go for HIV test?		
Will you be more comfortable undergoing HCT in another facility where you are not known as a Nurse?		
Will you readily undergo HCT if your partner advises you to do it?		
Will you be willing to have HIV test if you notice any recurrent illness that is not readily responding to treatment?		
Does nursing a patient living with HIV/AIDS prompt you to think about getting tested yourself?		

SECTION F: Intention to use HCT services (*Meant for those who have never tested for HIV*)

55. Since you have never been tested for HIV, what do you think is major reason for NOT doing so?
    1. Unlikely to have HIV ☐
    2. Afraid to find out the result ☐
    3. Prefer not to think about HIV ☐
    4. Don't like needle pricks ☐
    5. Worried that result of positive test would not be kept confidential ☐
    6. Afraid of losing job, housing friends and/or family, if infected with HIV ☐
    7. Don't know how you would tell your spouse or other sexual partner ☐
56. If a Doctor, Nurse or other health care worker convince you to go for or offer you free HIV testing, will you accept to be tested, if you know the result will be confidential?
    1. Yes ☐ 2. No ☐
57. Do you have intention of using HCT services in the nearest future without being compelled? 1. Yes ☐ 2. No ☐

58. How likely is it that you will have an HIV test within the next 12 months?

1. Very likely ☐ 2. Likely ☐
3. Unlikely ☐ 4. Very unlikely ☐
5. Unsure or don't know ☐

59. If likely, when do you intend to do it?

1. Within the next one week ☐
2. Within the next one month ☐
3. Yet to decide ☐

60. Where do you intend to do it?

1. In the facility where you work ☐
2. In another facility where you are not known ☐
3. Self-testing ☐

Thanks for the time spent with me

Appendix IV

Letter of Ethical Approval

TELEGRAMS..... TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref No. .....

All communications should be addressed to the Honourable Commissioner quoting

Our Ref No. AD 13/ 479/167

2nd May, 2012

The Principal Investigator.
Department of Health Promotion &Education.
College of Medicine,
University of Ibadan,
Ibadan.

Attention: Mrs. Akinlogunle, Motunrayo V.

Ethical Approval for the Implementation of your Research Proposal in Oyo State

This acknowledges the receipt of the corrected version of your Research proposal titled: "*Knowledge, Attitude and Uptake of HIV counseling and testing among Nurses in Ibadan North Local Government Area*"

The committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey, to you, the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

Please note that the committee will monitor, closely, and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

Signature & Date

Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee