

**EXPLORING THE PRACTICE OF HIV SELF-TESTING  
AMONG HEALTH CARE WORKERS AT NYERI  
PROVINCIAL HOSPITAL IN KENYA**

**by**

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**Dedication**

To my dear wife Priscilla, I dedicate this dissertation.

Student number: 45564663,

## DECLARATION

I declare that "***Exploring the practice of HIV self-testing among health care workers at Nyeri provincial hospital in Kenya***" is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

\_\_\_\_\_

SIGNATURE

Mr. Kennedy Muthoka

\_31st October 2012\_\_\_\_\_

DATE

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## **ABSTRACT**

The purpose of the study was to describe the determinants and practice of HIV self-testing among health care workers (HCWs) in Nyeri provincial hospital, Kenya. A descriptive cross-sectional study was conducted to determine the rate of HIV self-testing, explore the factors influencing the practice and describe access to HIV psychosocial support, care and treatment. The study was guided by the concepts of the protection motivation theory. Data was collected from 348 HCWs and analysed by means of logistic regression. Results showed that 65.8% of the HCWs had practiced HIV self-testing among themselves. Age, self efficacy and response efficacy were found to be significant predictors of HIV self-testing. Willingness to access HIV psychosocial support (71.3%) and care and treatment (73.9%) was high. Self-testing is highly practiced by HCWs.

## **KEY CONCEPTS**

HIV; Home testing; Self-testing; Health care workers; Predictors of HIV self-testing; Factors influencing HIV self-testing; HIV care and treatment; Psychosocial support.

## TABLE OF CONTENTS

CHAPTER 1: ORIENTATION TO THE RESEARCH.....	- 1 -
1.1 INTRODUCTION .....	- 1 -
1.2 BACKGROUND OF THE PROBLEM.....	- 2 -
1.3 STATEMENT OF THE RESEARCH PROBLEM .....	- 4 -
1.4 PURPOSE OF THE STUDY .....	- 6 -
1.5 RESEARCH OBJECTIVES.....	- 6 -
1.6 SIGNIFICANCE OF THE STUDY .....	- 6 -
1.7 DEFINITION OF KEY CONCEPTS.....	- 7 -
1.8 THEORETICAL FRAMEWORK .....	- 9 -
1.9 RESEARCH METHODOLOGY .....	- 10 -
1.9.1 Research paradigm.....	- 10 -
1.9.2 Research design.....	- 10 -
1.9.3 Population.....	- 10 -
1.9.4 Sample selection .....	- 11 -
1.9.5 Data collection .....	- 11 -
1.9.6 Data analysis .....	- 12 -
1.9.7 Reliability and validity.....	- 12 -
1.9.8 Ethical considerations .....	- 12 -
1.9.9 LAYOUT OF THE DISSERTATION .....	- 13 -
1.9.10 SUMMARY .....	- 13 -

CHAPTER 2: LITERATURE REVIEW .....	- 14 -
2.1 INTRODUCTION .....	- 14 -
2.2 HIV PREVALENCE .....	- 14 -
2.2.1 Global HIV prevalence .....	- 14 -
2.2.2 HIV prevalence in Sub-Saharan Africa.....	- 15 -
2.2.3 HIV situation in Kenya.....	- 16 -
2.3 HIV AND HEALTH CARE WORKERS .....	- 17 -
2.4 HIV TESTING .....	- 17 -
2.4.1 Advantages of HIV testing.....	- 18 -
2.4.2 Disadvantages of HIV testing.....	- 18 -
2.4.3 Types of HIV testing.....	- 19 -
2.5 THE CURRENT SITUATION WITH REGARDS TO SELF-TESTING OF HIV .....	- 22 -
2.6 SELF-TESTING OF HIV IN KENYA.....	- 24 -
2.7 PROPONENTS OF SELF-TESTING.....	- 25 -
2.8 OPPONENTS OF SELF-TESTING .....	- 26 -
2.9 PROTECTION MOTIVATION THEORY.....	- 27 -
2.9.1 Threat appraisal.....	- 28 -
2.9.2 Coping appraisal.....	- 29 -
2.9.3 Protection motivation .....	- 30 -
2.10 PREVIOUS USE OF THE PROTECTION MOTIVATION THEORY .....	- 31 -
2.11 APPLICATION OF THE PROTECTION MOTIVATION THEORY IN THIS STUDY	- 31 -
2.12 SUMMARY .....	- 32 -

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY .....	- 34 -
3.1 INTRODUCTION .....	- 34 -
3.2 RESEARCH PARADIGM.....	- 34 -
3.3 RESEARCH DESIGN .....	- 34 -
3.4 POPULATION.....	- 35 -
3.5 SAMPLING .....	- 36 -
3.5.1 Inclusion Criteria .....	- 37 -
3.5.2 Exclusion Criteria .....	- 37 -
3.6 DATA COLLECTION .....	- 37 -
3.6.1 Variables of interest .....	- 39 -
3.6.2 Data collection process.....	- 40 -
3.7 DATA ANALYSIS.....	- 40 -
3.8 RELIABILITY AND VALIDITY .....	- 43 -
3.8.1 Reliability .....	- 43 -
3.8.2 Validity.....	- 44 -
3.9 ETHICAL CONSIDERATIONS.....	- 44 -
3.9.1 Respect for persons.....	- 45 -
3.9.2 Principle of justice.....	- 45 -
3.9.3 Principle of beneficence.....	- 46 -
3.9.4 Institutional permission .....	- 47 -
3.9.5 Scientific Integrity.....	- 47 -
3.10 SUMMARY .....	- 47 -

CHAPTER 4: DATA ANALYSIS, RESEARCH FINDINGS AND INTERPRETATION .....	- 48 -
4.1 INTRODUCTION .....	- 48 -
4.2 DEMOGRAPHIC DATA .....	- 49 -
4.2.1 Gender (Sex, item A1) .....	- 49 -
4.2.2 Age (item A2).....	- 49 -
4.2.3 Level of education (item A3) .....	- 51 -
4.2.4 Professional group (item A4).....	- 52 -
4.2.5 Marital status (item A5) .....	- 53 -
4.2.6 Rate of self-testing (item A6).....	- 53 -
4.2.7 Frequency of HIV self-testing (item B4).....	- 56 -
4.2.8 Knowledge of HIV status (items A6 and C1) .....	- 61 -
4.3 PREDICTORS OF HIV SELF-TESTING .....	- 61 -
4.3.1 Introduction.....	- 61 -
4.3.2 Re-coded variables .....	- 62 -
4.3.3 First level analysis .....	- 62 -
4.3.4 Summary of first level analysis.....	- 66 -
4.3.5 Second level analysis .....	- 69 -
4.3.6 Summary of second level analysis .....	- 77 -
4.3.7 Third level analysis .....	- 79 -
4.3.8 Factors influencing HIV self-testing (Items B17 and C16) .....	- 82 -
4.4 ACCESS TO HIV PSYCHOSOCIAL SUPPORT, CARE AND TREATMENT.....	- 85 -
4.4.1 Access to HIV psychosocial support (items B13 and C12).....	- 85 -
4.4.2 Access to HIV care and treatment (items B14 and C13) .....	- 86 -
4.5 SUMMARY .....	- 87 -

CHAPTER 5: DISCUSSION, LIMITATIONS AND RECOMENDATIONS .....	- 88 -
5.1 INTRODUCTION .....	- 88 -
5.2 DISCUSSION OF THE FINDINGS.....	- 88 -
5.2.1 Objective 1: Determine the rate of HIV self-testing among health care workers in Nyeri provincial hospital.....	- 88 -
5.2.2 Objective 2: Explore the factors influencing the practice of HIV self-testing among health care workers in Nyeri provincial hospital .....	- 91 -
5.2.3 Objective 3: Describe access to HIV psychosocial support, care and treatment among health care workers in Nyeri provincial hospital .....	- 100 -
5.3 LIMITATIONS OF THE STUDY .....	- 102 -
5.4 RECOMMENDATIONS.....	- 103 -
5.4.1 Health authorities.....	- 103 -
5.4.2 Nyeri provincial hospital .....	- 103 -
5.4.3 Health care workers .....	- 104 -
5.4.4 Further research .....	- 104 -
5.5 CONCLUSION.....	- 104 -
APPENDICES.....	- 113 -

## LIST OF FIGURES

Figure 2.1	The Protection Motivation Theory. Adapted from Lee et al 2007a.....	- 28 -
Figure 4.1	Gender of the respondents (N=348).....	- 49 -
Figure 4.2	Percentage of self-testers who were tested for HIV by someone else (n=229).-	54 -
Figure 4.3	Proportion of self-testers who would seek HIV confirmatory test (n=229).....	- 55 -
Figure 4.4	Frequency of HIV self-test (n=229).....	- 56 -
Figure 4.5	Knowledge of HIV status (N=348).....	- 61 -
Figure 4.6	Factors influencing HIV self-testing among self-testers (n=229).....	- 82 -
Figure 4.7	Factors inhibiting HIV self-testing among HIV non self-testers (n=119) .....	- 84 -
Figure 4.8	Willingness to access to HIV psychosocial support (N=348).....	- 86 -
Figure 4.9	Willingness to access to HIV care and treatment (N=348) .....	- 86 -

## LIST OF TABLES

Table 4.1	Age of respondents .....	- 50 -
Table 4.2	Respondents' level of education .....	- 51 -
Table 4.3	Respondents' professional groups .....	- 52 -
Table 4.4	Marital Status .....	- 53 -
Table 4.5	Rate of HIV self-testing .....	- 54 -
Table 4.6	First level analysis .....	- 63 -
Table 4.7	Omnibus Tests of Model Coefficients.....	- 67 -
Table 4.8	First level model Summary.....	- 68 -
Table 4.9	Classification table .....	- 69 -
Table 4.10	Second level analysis.....	- 70 -
Table 4.11	Omnibus Tests of Model Coefficients.....	- 77 -
Table 4.12	Second level model Summary.....	- 78 -
Table 4.13	Classification table .....	- 78 -
Table 4.14	Significant predictors of HIV self-test .....	- 79 -
Table 4.15	Omnibus Tests of Model Coefficients.....	- 80 -
Table 4.16	Third level model Summary.....	- 81 -
Table 4.17	Classification table .....	- 81 -

**ACRONYMS:**

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Clinic
CDC	Centres for Disease Control and Prevention
CHS	Center for Health Solutions – Kenya
CITC	Client Initiated Testing and Counselling
FHI	Family Health International
HAART	Highly Active Antiretroviral Therapy
HIV	Human immunodeficiency Virus
HTC	HIV Testing and Counselling
KAIS	Kenya AIDS Indicator Survey
KDHS	Kenya Demographic Health Survey
KNBS	Kenya National Bureau of Statistics
MOH	Ministry of Health
NACC	National AIDS Control Council
NASCOP	National AIDS and STD Control Programme
OIs	Opportunistic Infections
PITC	Provider Initiated Testing and Counselling
PEP	Post exposure prophylaxis
PMT	Protection Motivation Theory
SPSS	Statistical Package for the Social Sciences
STI	Sexually Transmitted Infections
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children’s Fund
UNISA	University of South Africa
VCT	Voluntary Counseling and Testing
WHO	World Health Organization

## **CHAPTER 1:      ORIENTATION TO THE RESEARCH**

### **1.1            INTRODUCTION**

This chapter is an introduction to the research paper and gives a brief overview of each phase of the study. The chapter covers the source and background of the research problem; statement of the problem; aim, purpose and significance of the study; the foundations on which the study is based; description of the key concepts; theoretical framework; introduction to research methodology and a layout of the research.

Human immunodeficiency Virus (HIV) is a global health problem that has caused an estimated 25 million deaths worldwide since the beginning of the epidemic in 1981 (WHO 2008). In 2009, it was globally estimated that 33.3 million people were living with HIV and among these Sub Saharan Africa accounted for 68% with a burden of 22.5 million (UNAIDS 2010). Kenya had 1.4 million people living with HIV in 2007 (MOH 2008). This number grew to about 1.6 million as at December 2011 and it is projected that this number will continue to grow as more people live longer due to increased access to treatment services (NACC and NASCOP 2012).

HIV testing is recognised as one of the main strategies for HIV prevention (Skolnik, Philips, Binson & Dilley 2001; Mavedzenge, Baggaley, Lo & Corbett 2011; WHO 2007a). However, knowledge of HIV status remains low and the WHO estimates that the median percentage of people living with HIV who know their status in the world is below 40% (Mavedzenge et al 2011).

Many health care workers are reluctant to get tested for HIV by other health care workers and a significant number of them opt for self-testing. Self-testing is recognized as one possible options of increasing the number of people who know their HIV status. The WHO reports global high interest in HIV self-testing and a high practice among health care workers but notes that the practice is unregulated (Mavedzenge et al 2011).

This study aims to describe the determinants and practice of HIV self-testing for detecting HIV infection among health care workers in a hospital in Kenya to complement other HIV testing strategies available to health care workers.

## **1.2 BACKGROUND OF THE PROBLEM**

HIV is the etiologic agent for Acquired Immunodeficiency Syndrome (AIDS) and belongs to the retroviruses (retroviridae) family (NASCO 2011). HIV is transmitted through body fluids (McDaniel, Brown, Coursons, Forstein, Goodkin, Lyketsos & Chung 2000, NASCO 2011) . Exposure to fluids with high HIV concentrations is highly likely to lead to HIV infection. These fluids include blood, semen, vaginal secretions and breast milk. Once the virus enters the body, it replicates rapidly and destroy the T helper (CD4) lymphocytes in the process (McDaniel et al 2000). The immune system responds by producing antibodies. There are several serological tests for antibodies to HIV developed to detect HIV infection in individuals(NASCO 2011).

Self-testing is recognized as a possible option of expanding access to testing for HIV (Ritcher, Venter & Gray 2010:636). HIV Testing and Counselling (HTC) policies have become increasingly public-health oriented with emphasis on the need for convenience and prioritising wide coverage rather than in depth counselling (Mavedzenge et al 2011). This resulted in an expanded range of HTC models (CDC 2003). Despite the expanded range of HTC models and increasing uptake of HTC in Africa, facility based testing may never meet the huge testing gap, therefore the use of self-testing may help bridge this gap (Choko, Desmond, Webb, Chavula & Napierala-Mavedzenge 2011:7).

Kenya was among the first countries in Africa to develop a public health policy that embraces self-testing (NASCO 2008). The Kenya National Guidelines on HIV Testing and Counselling provide the basic standards required for self-testing (NASCO 2008). A pilot study carried out in Kenya showed that there is a high demand for self-testing among hospital based health care workers and that it provided more privacy than other models like Voluntary Counselling and Testing (VCT) (Kalibala, Tun, Muraah, Cherutich,

Oweya & Oluoch, 2011:38). Studies have shown that self-testing using approved test kits yield highly accurate results besides having high acceptability rates among users (Choko et al 2011:7). In most health facilities in Kenya, health care workers undertake self-testing using approved rapid test-kits that use blood samples.

Health care workers usually know where to gain access to HIV testing, as the majority of the facilities where they work provide these services. However, health care workers involved in HIV issues are reluctant to seek testing with fears on confidentiality and stigmatisation within their health services being cited as inhibiting factors (Mavedzenge et al 2011). As a result, informal self-testing becomes the preferred option and is usually carried out in secrecy and may be associated with several limitations including inaccurate results, unsafe disposal of sharps waste, limited access to psychosocial support and poor referral and linkage to care and treatment (Lee, Tan, Earnest, Seong, Tan & Leo 2007b:452; Mavedzenge et al 2011).

There has been some advocacy for increased access to self-testing from groups in high income countries like the United Kingdom and Canada (Mavedzenge et al 2011). However, in the United States the objection to self-testing is still in force though not as strong as it was in the early 90s'. Opponents of this method point out that testing is not sufficient without pre- and post-test counselling which may not be readily available for clients undertaking home self-testing (Kachroo 2006, Lee et al 2007b:452, Ritcher et al 2010:638). Telephone counselling has been identified as a safe and effective substitute for face-to-face counselling. This may not however be feasible in developing countries and especially rural areas where access to telephones is limited (Kachroo 2006). Risk of coercion arises with several self-tests and some opponents of HIV self-testing argue that this could be the case in HIV self-tests (Ritcher et al 2010:640). Opponents also raise the fear that results of self-tests could be inaccurate therefore, self-tests should not be made available to the public (Lee et al 2007b:452, Ritcher et al 2010:640; Walensky & Bassett 2011:1).

It is important to link HIV positive clients to care and to confirm preliminary results with the aim of starting treatment. Knowledge of HIV status may not automatically lead to gaining access to care furthermore, the emphasis on privacy may in retrospect increase social stigma associated with HIV infection (Kachroo 2006). The current approaches for testing have a weakness in this linkage and self-testing may exacerbate the weakness (Lee et al 2007b:452; Walensky & Paltiel 2006:460; Walensky & Bassett 2011:2).

Proponents of self-testing argue that it is a quick and cost effective method for HIV diagnosis (Kachroo 2006). Ritcher et al (2010:638) believe that the legal and policy framework should be amended with specific provisions on self-testing, in addition the information sheet in the test kits should be tailored to include simple and relevant information such as window period, need for a confirmatory test of a positive result and a toll-free help line for counselling and assistance.

HIV test kits are easily available to health care workers and are widely used, but the reasons for their use have not been well documented (Grispen, Ronda, Dinant, Vries & Weijden 2011:1). Due to the high HIV prevalence rates, exploring the practice of HIV self-testing may help to increase awareness of HIV status. Besides, studies have found that individuals were interested in using new testing options (Skolnik et al 2001:2). Owing to the high interest and unregulated and widespread informal HIV self-testing among health care workers in health facilities, it would be prudent to explore the practice, look at the reasons for HIV self-testing and determine the access to psychosocial support, care and treatment in Nyeri provincial hospital in Kenya.

### **1.3 STATEMENT OF THE RESEARCH PROBLEM**

The problem to be investigated was identified through the researcher's interest in the area of HIV prevention and his work experience. The researcher worked as a Technical Advisor for HIV Testing and Counselling (HTC) in Kenya. After several years of providing technical support to health care workers in Provider Initiated Testing and Counselling (PITC) at the ministry of health, it became clear to the researcher that a

number of health care workers engaged in self-testing of HIV. The degree of the practice of self-testing among health care workers in Kenya was not known though the demand was high. This elicited many questions regarding the factors influencing health care workers in the practice of HIV self-testing. It was also important to find out if health care workers who turned HIV positive following self-testing gained access to psychosocial support medical care and HIV treatment. It was not known if health care workers sought confirmatory tests following self-testing as recommended by the Kenya National Guidelines on HTC. It was also not known which cadre of staff among health care workers practiced HIV self-testing most and what the determinants for seeking this option were.

Kalibala et al (2010:38) show that there is a high demand for self-testing amongst health care workers in Kenya. Their study indicates that self-testing rates are high when the health care workers are offered self-testing kits. However, the practice of self-testing by health care workers is unregulated and usually health care workers only have access to blood based HIV test kits. Besides, the reasons for undertaking the practice of HIV self-testing are not documented. As a result, the level of access to psychosocial support or linkage to care and treatment following HIV self-testing is not known. Regulated self-testing with effective linkage to psychosocial support, care and treatment are key elements in ensuring early detection of HIV infection and seeking effective HIV management.

Health care workers at the Nyeri provincial hospital are important in health care delivery but are also vulnerable to being infected with HIV. To ensure proper treatment and support of those health care workers who are HIV positive, for their own sake and to ensure a productive workforce, it is necessary to explore the practice of self-testing and to determine the support services used by them.

#### **1.4 PURPOSE OF THE STUDY**

The information about self-testing practices and utilization of support services may help hospital authorities or health authorities to make informed decisions about the best strategy to ensure early detection and treatment of HIV amongst health care workers.

#### **1.5 RESEARCH OBJECTIVES**

The aim of this study was to describe the reasons for and the practice of HIV self-testing among health care workers in Nyeri provincial hospital, Kenya.

The objectives of the study were to

- determine the rate of HIV self-testing amongst health care workers in Nyeri provincial hospital
- explore the factors influencing the practice of HIV self-testing amongst health care workers in Nyeri provincial hospital
- describe access to HIV psychosocial support, care and treatment amongst health care workers in Nyeri provincial hospital

#### **1.6 SIGNIFICANCE OF THE STUDY**

The study describes the practice of self-testing amongst health care workers in Nyeri provincial hospital which enabled the researcher to identify factors influencing HIV self-testing and access to HIV psychosocial support, care and treatment.

Knowledge gained through this study may be useful for hospital authorities and health care workers.

For hospital authorities;

- To be aware of the HIV self-test practices and the factors that influence it
- To be able to strategies to address HIV testing amongst health care workers in a way to ensure psychosocial support, care and treatment for all staff members

For health care workers;

- To benefit from possible strategies to address HIV testing amongst health care workers in a way to ensure psychosocial support, care and treatment
- To improve their overall health and work performance

## **1.7 DEFINITION OF KEY CONCEPTS**

The key concepts of the study were defined with regard to the theoretical and operational meaning of each concept.

### **Health care worker**

A health care worker is someone who works in a hospital or health centre (English Collins Dictionary 2008). In this study the term health care worker, refers to people working in Nyeri provincial hospital who belong to the cadres of nurses, doctors, clinical officers, laboratory technicians and HTC counsellors.

### **HIV self-testing**

*HIV* is an abbreviation for Human Immunodeficiency Virus, a retrovirus that causes Acquired Immunodeficiency Syndrome (AIDS) by infecting helper T cells of the immune system. After infection of the immune system, the virus destroys or impairs the T cell function leading to progressive deterioration of the immune function to the extent that the immune system can no longer fight infection and disease (American Heritage Dictionary 2007; WHO 2011).

*HIV test* is a test for human immunodeficiency virus which causes Acquired Immunodeficiency Syndrome (AIDS). HIV rapid tests are designed to detect the presence or absence of antibodies (proteins made by the human body) to HIV. The presence of antibodies in body fluids is a sign of infection with the virus (Medicine Net 2003; Health Central Network 2011).

*HIV self-testing* enables an individual to collect their own sample of blood or saliva and perform a simple rapid laboratory test to detect the presence or absence of HIV antibodies within themselves (WHO 2011).

In this study, HIV self-testing refers to health care workers in Nyeri provincial hospital collecting their own blood samples and performing a simple rapid laboratory HIV tests to detect the presence or absence of HIV antibodies within themselves.

### **HIV Psychosocial support**

*Psycho social support* is a non-therapeutic intervention that helps a person to cope with stressors in their personal lives, at home or at work (Farlex 2011).

*HIV psychosocial support* services include adherence counselling, HIV support groups, pastoral/spiritual care, and care giver support and community linkage among others (Virginia department of Health 2010). Psychosocial support entails addressing the ongoing psychological and social problems of HIV infected individuals, their partners, families and care givers (WHO 2011).

In this study, psychosocial support refers to HIV positive health care workers from Nyeri provincial hospital gaining access to adherence counselling, HIV support groups, spiritual support, general counselling, and being able to address emerging psychological and social issues.

### **HIV Care and Treatment**

HIV care and treatment comprises a broad range of services that include medical care, pharmaceuticals, nutritional care, psychosocial care, and HIV prevention. Medical and nursing care is important components and includes counselling and testing for screening and diagnostic purposes, prophylaxis and management of opportunistic

infections (OIs) and sexually transmitted infections (STI) , management of HIV disease with highly active antiretroviral therapy (HAART), interventions to reduce mother to child transmission of HIV, palliative care and health education among others (FHI [sa]; WHO 2009).

In this study, care and treatment include the broad range of all the services described above.

## **1.8 THEORETICAL FRAMEWORK**

A theoretical framework is a collection of interrelated concepts that guide a researcher in determining what concepts to measure in research and the statistical relationships to look for (Borgatti 1999). This study will be guided by the Protection Motivation Theory (PMT), which was developed by Rogers as an expansion of the Health Belief Model, with additional factors (Conner & Norman 2005:81; Rogers 1975:93). The PMT postulates that health related behaviour is a product of several components organised along two processes: threat appraisal and coping appraisal (Floyd, Prentice-Dunn & Rogers 2000:407; Lee, Kilbreath, Sullivan, Refshauge, & Beith 2007a:76). Protection motivation is the result of the two appraisal processes which determine whether or not a person will respond with a maladaptive or an adaptive coping response (Boer & Seydel 1996:98).

The model has been used previously in studies as a framework for influencing and predicting various behaviours in many fields, such as health, energy, water conservation and nuclear war among others. The main function of protection motivation is to arouse, sustain and direct protective behaviour. It facilitates the adoption of protective behaviour and is best measured by behaviour intentions (Boer & Seydel 1996:98). This makes the model suited for this study as it relates to the aim of this study which was to describe the determinants and the practice of HIV self-testing among health care workers. The variables in the model were used as a basis for developing the questionnaire, and the

model was used to guide the data analysis. The model is described in detail in Chapter 2.

## **1.9 RESEARCH METHODOLOGY**

This section provides a brief description of the research methodology used in the study. More details on the same are found in Chapter 3.

### **1.9.1 Research paradigm**

The research paradigm was a quantitative study. Quantitative research involves a formal, objective and systematic process that uses numerical data to describe variables (Burns & Grove 2005:23). The method was used to describe different variables in HIV self-testing, statistically.

### **1.9.2 Research design**

The research design was a descriptive cross-sectional study. The main purpose of a descriptive study design is to describe aspects of a situation as it naturally occurs to gain more information about the characteristics within a particular field of study (Basavanthappa 1998:118; Burns & Grove 2005:232; Polit & Hungler 1999:195-196). Descriptive designs are useful in describing objectively the nature of a situation under study (Basavanthappa 1998:118). Cross-sectional studies are a type of descriptive study that examines data at some point in time (snap shot) with data being collected only once (Basavanthappa 1998:125; Levin 2011). In this study, data was collected at one point in time from health care workers in the hospital.

### **1.9.3 Population**

Houser (2011:213) defines a population as “the entire set of subjects that are of interest to the researcher”. The study population for this research was all health care workers in

Kenya. The target population is the entire population in which the researcher is interested in obtaining information about and to which the researcher would like to generalize the results of a study (Oxford Dictionary 2002; Polit & Hungler 1999:716). In this study it was all health care workers in Nyeri provincial hospital. Accessible population is the population of elements available for a particular study, often a non-random subset of the target population (Burns & Grove 2005: 342; Francis 1990; Polit & Hungler 1999:695). The accessible population for this study was all health care workers working at Nyeri provincial hospital who included the following cadres: nurses, doctors, clinical officers, laboratory technicians, social workers and HIV counselling and testing staff in the facility.

#### **1.9.4 Sample selection**

The accessible study population was small and so the researcher carried out a census that included collecting data from the entire target population (Sigdel 2011). The data collection targeted 414 health care workers working at Nyeri provincial hospital who belonged to the cadres of nurses, doctors, clinical officers, laboratory technicians and HIV counselling and testing staff. This was the number of health care workers in the hospital according to Nyeri provincial hospital authorities in July 2012. The study therefore did not involve sampling.

#### **1.9.5 Data collection**

Data collection refers to a precise and systematic gathering of information that is relevant to the research purpose and objectives (Burns & Grove 2005:733). In this study, data was collected using a structured approach through self administered questionnaires. A questionnaire was developed, guided by concepts of the PMT and administered to the identified health care workers in Nyeri provincial hospital by research assistants. The research assistants were trained to conduct the data collection.

### **1.9.6 Data analysis**

Analysis of data was conducted using the Statistical Package for the Social Sciences (SPSS) version 16.0. An alpha of 0.05 was used for statistical significance. Initially, basic descriptive statistics were used to describe respondents' socio-demographic characteristics. Binary logistic regression analyses were then performed with the help of a statistician to determine predictors of HIV self-testing.

### **1.9.7 Reliability and validity**

Reliability refers to the accuracy or inaccuracy rate in a measurement device and represents the consistency of the measure obtained (Basavanthappa 1998:214; Burns & Grove 2005:749). In this study, internal consistency of the questionnaire was ensured through developing the questionnaire in consultation with the research supervisor and a professional statistician. Statistical reliability was promoted in the study through use of SPSS in consultation with the statistician. Validity of an instrument refers to the extent to which the instrument actually reflects the abstract construct being measured or whether a measurement instrument accurately measures what it is supposed to measure (Basavanthappa 1998:212; Burns & Grove 2005:749). The strategies used in this study to ensure validity included collecting data from several cadres of health care workers and personalising administration of the questionnaires among others. These strategies are described in detail in Chapter 3.

### **1.9.8 Ethical considerations**

Ethics demand of researchers to have a deep concern for human welfare and sensitivity for the rights of human subjects (Basavanthappa 1998:147). The following ethical issues were taken into consideration during the conduct of this study; respect for

persons, the principle of justice, the principle of beneficence, institutional permission and scientific integrity. These ethical considerations are discussed in detail in Chapter 3.

### **1.9.9 LAYOUT OF THE DISSERTATION**

Chapter 1: Orientation to the research

Chapter 2: Literature review

Chapter 3: Research design and methodology

Chapter 4: Data analysis, research findings and interpretation

Chapter 5: Discussion, limitations and recommendations

A list of sources and appendices is provided at the end.

### **1.9.10 SUMMARY**

This chapter described the background of the research problem, presented the statement of the problem, purpose of study, research objectives, and significance of the study. It also defined key concepts, provided an overview of the research methodology, and provided the layout of the dissertation. Chapter two discusses the literature review undertaken for the study.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 INTRODUCTION**

A literature search is done to support the study and to find out whether similar studies have been conducted before. With the assistance of the UNISA librarian, relevant literature on HIV self-testing and the Protection motivation theory were identified. The key words used were HIV, HIV and home testing, HIV and health care workers, HIV and self-testing, HIV prevalence, protection motivation theory, and application of protection motivation theory among others. It was found that none of the studies directly addressed the factors influencing HIV self-testing in Kenya, which showed the need for more research in this area.

The literature review focused on several aspects of the practice of self-testing of HIV amongst health care workers including reasons for the practice, advantages and disadvantages of the practice and access to HIV testing, care and treatment as well as the PMT and the application of it in previous studies.

### **2.2 HIV PREVALENCE**

#### **2.2.1 Global HIV prevalence**

The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated that there were 34 million people living with HIV globally at the end of 2010 which represented a 17% increase from 2001 (UNAIDS 2011:6). In 2009, the estimated global prevalence was 33.3 million, 30.8 million of which were adults while children younger than 15 years of age accounted for 2.5 million (UNAIDS 2010). In the same year, women infected with HIV were estimated to be 15.9 million. The total numbers of people newly infected with HIV in 2010 were 2.7 million with an estimated 390,000 of them being children younger

than 15 years. This was 15% less than in 2001 and 21% below the new infections at the peak of the epidemic in 1997 (UNAIDS 2011:7).

The UNAIDS report (2011:7) indicates that there were a total of 1.8 million AIDS related deaths in 2010, down from a peak of 2.2 million AIDS related deaths in mid -2000s.

The World Health Organization (WHO) indicates that this prevalence has levelled off and that the number of new infections has fallen. This they attribute partly to the impact of HIV/AIDS programs. However, the total number of people living with HIV continues to increase due to new infections and averted deaths due to scale up of HIV treatment (WHO 2007b).

### **2.2.2 HIV prevalence in Sub-Saharan Africa**

Sub-Saharan Africa is host to most of the people living with HIV. In 2010, Sub-Saharan Africa accounted for 68% of the global total of all people living with HIV while it only accounted for 12% of the global population. The region also accounted for 70% of all new HIV infections the same year (UNAIDS 2011:7). This region has more women than men living with HIV (UNAIDS 2010). The epidemic however varies considerably among countries in this region with South Africa still the most affected as it has an estimated 5.6 million people living with HIV, more than any other country in the world (UNAIDS 2011:7).

AIDS related deaths are many in Sub-Saharan Africa. UNAIDS (2010) estimated that 1.3 million people died of HIV related illnesses in 2009, a number which was equivalent to 72% of the global total of 1.8 million deaths attributable to the epidemic that year. AIDS has claimed at least 1 million lives annually in Sub-Saharan Africa since 1998 (UNAIDS 2011).

### **2.2.3 HIV situation in Kenya**

The national HIV prevalence in Kenya has decreased from a high of 14% in mid – 1990s to about 5% in 2006 (UNAIDS 2010). The Kenya AIDS Indicator Survey (KAIS) shows that the average HIV prevalence of the general population aged 15-49 was 7.4% in 2007 while the Kenya Demographic Health Survey (KDHS) estimated the prevalence of the same population at 6.3% in 2009 (MOH 2008, KNBS 2010). These two surveys show women had higher prevalence than men, with a huge disparity notable amongst those aged 15-24 years where the prevalence in women was four times higher than in men of the same age group. The KAIS shows a prevalence of 5.6% in women and 1.4% in men while KDHS showed 4.5% in women and 1.1% in men (MOH 2008; KNBS 2010). It is important to note that in Kenya, like most other countries in Sub-Saharan Africa, national HIV prevalence estimates have been derived mainly from sentinel surveillance in pregnant women attending antenatal clinics (ANC). However, the 2003 KDHS showed that the sentinel surveillance system had been overestimating the HIV prevalence among adults, mainly because prevalence among men was lower than among women.

The KDHS (2010) reported people living in urban areas were at a slightly higher risk of infection than those in rural areas (7.2% compared to 6.0%). The estimates vary by age and gender with women aged 40 - 44 and men aged 35 - 39 most likely to be HIV infected according to the same survey. The prevalence of HIV in Kenya also varies greatly among provinces, with a low of 0.9% in North Eastern province and a high of 13.9% in Nyanza province (KNBS 2010). The prevalence of HIV is significantly higher in uncircumcised men at 13% compared to 3% among the circumcised. It is also high among widows and those who are divorced or separated with 43% of widowed women being HIV infected (KNBS 2010).

The estimated population of adults in Kenya aged 15-64 years in 2007 was 20 million and therefore using the 7.1% national HIV prevalence for this age group would translate to 1.4 million people as the number of people living with HIV in Kenya that year (MOH

2008). This number grew to about 1.6 million as at December 2011 and it is projected that this number will continue to grow as more people live longer due to increased access to treatment services (NACC and NASCOP 2012). AIDS related deaths in Kenya have fallen by 29% between 2002 and 2007. Transactional sex still contributes significantly to new HIV infections, with 14% of new infections in Kenya linked to sex work (UNAIDS 2010). However, the largest new infections (44%) are a result of heterosexual sex with union or regular partner. On the other hand, casual heterosexual sex account for about 20% of new infections (NACC 2009).

### **2.3 HIV AND HEALTH CARE WORKERS**

Health care workers are often at high risk of HIV infection due to occupational exposure and more significantly sexual exposure (Mavedzenge et al 2011). A survey done in 2005 of health workers in Kenya showed that many were exposed to HIV at work in the previous 12 months and of this, half had experienced multiple exposures during this period. This health workers survey showed that nearly a third of health workers had never taken a HIV test (NASCOP 2006).

### **2.4 HIV TESTING**

HIV testing is recognized as one of the main strategies for HIV prevention (Lee et al 2007b:449; Skolnik, Philips, Binson & Dilley 2001: 294; Mavedzenge et al 2011; WHO 2007a). People who test HIV positive are more likely to adopt reduced high-risk behaviour compared to untested or HIV negative people (Lee et al 2007b:449). Studies have shown that many individuals are diagnosed for HIV in late HIV stages when the disease has already advanced (Lee et al 2007b:449). As a result, knowledge of HIV status remains low and the WHO estimates that the median percentage of people living with HIV who know their status in the world is below 40% (Mavedzenge et al 2011). HIV is characterized by a prolonged asymptomatic phase that increases the risk of transmitting HIV when the infected individuals are not diagnosed (Lee et al 2007b:449).

### **2.4.1 Advantages of HIV testing**

There are many benefits associated with gaining access to HIV testing and counselling irrespective of the age of the individual. These include early identification of HIV infected individuals as a first step to treatment and care. In infants, it enables identification of HIV exposed but uninfected infants. This enables proper medical follow up and institution of HIV prevention measures that may help the infant remain uninfected and healthy. HIV testing also helps people to plan their lives especially if they are HIV infected. Through HIV testing, HIV infected persons can be identified and provided with care and life saving antiretroviral therapy (WHO & UNICEF 2010).

When HIV testing is sought by couples, there are many benefits to the said couples. For instance, the couple learns together about how to adopt safer sex practices as they learn their test results together and receive appropriate counselling and support along with HIV testing. The couple may engage in decision making for the future and get supported to discuss risk issues and concerns. There are many benefits for concordant positive couples. These include access to antiretroviral therapy, increased HIV prevention with other sexual partners, increased quality of life, increased emotional support, psychosocial support and even economic support. If they are both HIV negative, they also benefit from prevention counselling that help decrease HIV acquisition from sexual partners. In discordant relationships, HIV testing helps decrease HIV transmission within the current relationship and also with other sexual partners. It helps to adopt safer conception and enables the couple to access services like prevention counselling with antiretroviral therapy for prevention (CDC 2007:6; Uganda Ministry of Health 2005:138; WHO 2012:9)

### **2.4.2 Disadvantages of HIV testing**

As described above, there are many benefits of HIV testing but there could also be negative consequences too. Stigma and discrimination associated with HIV is rife in

many families and communities and may affect people who seek HIV testing. Many people worry about these negative reactions even though the majority of them receive understanding and support from partners and family members (WHO & CDC 2008).

HIV/AIDS related stigma and discrimination presents a major challenge in workplaces. Fear of marginalization, ridicule, social isolation or other discriminatory practices are real in the workplace and may discourage workers from HIV testing or seeking HIV prevention and care services following HIV testing (Stewart, Pulerwitz & Esu-Williams 2002:1). However, the benefits of HIV testing significantly outweigh such disadvantages.

### **2.4.3 Types of HIV testing**

HIV testing can be initiated by a client, patient or health care provider in any setting. This classifies the types of HIV testing broadly as client initiated and provider initiated testing and counselling. Other types of HIV testing include required HIV testing, HIV testing of blood and tissue donations, HIV testing for research and surveillance and self-testing for HIV (NASCO 2010a:4).

#### **2.4.3.1 Client initiated testing and counselling (CITC)**

Client initiated testing and counselling refers to a situation whereby an individual, couple or a group of people actively seek out HIV testing and counselling services at a site where these services are provided. These sites are mainly voluntary counselling and testing sites, health facilities, mobile sites or in people's home where these services are brought by HTC providers. This approach involves the initiative of clients requesting the HIV test by themselves. The clients are motivated to seek the HIV testing and counselling services to guide their personal lives, plan their future or that of their families, understand symptoms they may be experiencing, or even support their personal HIV prevention efforts. The main focus in provision of this type of testing is on

risk reduction counselling which helps the individual or couple to plan for prevention of HIV transmission or acquisition (NASCOPI 2010a:4).

#### **2.4.3.2 Provider initiated testing and counselling (PITC)**

Provider initiated counselling and testing refers to a situation where a HTC provider offers a HIV test to a client or patient regardless of their reason for attending the facility. The HTC provider may be a health care worker or other type of HTC service provider. This type of testing makes HTC part of the routine services offered in a health facility and is therefore offered to all clients irrespective of onset of HIV related symptoms. The Kenya National Guidelines on HIV testing identify PITC as important in identification of HIV associated diseases leading to more access to HIV comprehensive care and treatment services. The guidelines acknowledge that a huge proportion of hospitalised patients are HIV infected and therefore recommend HIV testing to be offered to all patients (NASCOPI 2010a:4). This does not however mean that HIV testing should be coercive or mandatory. The basic principle in PITC is that health care workers should always act on the best interests of the individual patient. Therefore the patients require sufficient information to make an informed and voluntary decision to be tested. The provider should also maintain patient confidentiality, offer post test counselling and refer appropriately (WHO 2007a:17).

#### **2.4.3.3 Required HIV testing and counselling**

This refers to situations where a HIV test may be performed without specific consent in certain settings such as military recruitment and specialised employment or when ordered by a court of law. In all these settings however, the services must be confidential and adequate counselling must be provided. The individuals receiving HIV testing in these circumstances should be informed of the test and should have access to the test results in an appropriate setting. Should additional services like partner testing, medical male circumcision or tuberculosis screening and management be required

following the HIV test, the provider should make appropriate referrals (NAS COP 2010a:6).

#### **2.4.3.4 HIV testing of blood and tissue donations**

Blood meant for transfusion should pass through the infectious screening tests before being made available to the recipient. These screening tests include HIV testing as well as other transfusion or tissue transmissible infections. The donors for blood or tissues should be given general information about HIV and should also have access to test results. Should additional services be required following the HIV test, the provider should make appropriate referrals (NAS COP 2010a:6).

#### **2.4.3.5 HIV testing for research and surveillance**

Research is only conducted after the research protocol has been cleared by the relevant ethical review committee or board. Informed consent is usually a requirement for all research participation and if the research involves HIV testing, then consent for HIV testing is necessary. All study subjects should receive their test results and post test services except in very exceptional circumstances, which must be cleared by ethical committees. HIV testing conducted as part of research should follow the basic HTC guidelines including appropriate counselling and referrals where need be (NAS COP 2010a:6).

#### **2.4.3.6 Self-testing for HIV**

Self-testing for HIV refers to conducting of a HIV test on one self. The basic principle has been used before for other non invasive tests such as pregnancy tests. Recent advances in technology have made HIV self-testing possible. Pharmacies and other approved suppliers provide test kits to clients for whatever test they want. These test kits usually contain an information insert on how to use them. The self-tests are usually

accessible to clients without prescription from health care providers (NAS COP 2010a:5).

Self-testing for HIV is significantly different from other types of HIV testing. For instance, in self-testing clients do not have a chance to receive basic HIV/AIDS information or pre or post test counselling. Test accuracy, lack of social support and financial costs where self-testers have to buy test kits are other disadvantages associated with self-testing (Drawert, Drossaert & van der Vaart 2011:25).

To strengthen support systems for self-testing in Kenya, the national guidelines on HIV testing have outlined basic standards that must be met. These include evaluation and approval of all self-test kits; the use of the test kits before the expiring date and that adequate storage conditions must be ensured. The standards also demand the kits must pass established quality controls; pharmacists must be trained and approved to dispense, counsel and demonstrate the use of the test kits and that referral services must be accessible to self-test clients. Vendors of self-test kits should be able to provide clients with information or instructions on how to conduct the test, how to correctly interpret the test results and where to gain access to follow up and support services (NAS COP 2010a:6).

## **2.5 THE CURRENT SITUATION WITH REGARDS TO SELF-TESTING OF HIV**

Self-testing is recognized as one possible option of expanding access to testing of HIV (Ritcher, Venter & Gray 2010). HTC policies have become increasingly public-health oriented with emphasis on the need for convenience and prioritising wide coverage rather than in depth counselling (Mavedzenge et al 2011). This has resulted in an expanded range of HTC models (CDC 2003). Despite the expanded range of HTC models and increasing uptake of HTC in Africa, facility based testing may never meet the huge testing gap and the use of self-testing may help bridge this gap (Choko, Desmond, Webb, Chavula & Napierala-Mavedzenge 2011:1). According to

Mavedzenge et al (2011), there was high interest in HIV self-testing and high levels of practice of the same amongst health care workers with countries like Mozambique reporting self-testing rates as high as 41%. These rates varied widely across and within countries and there was a huge possibility that the rates could have been underestimated as self-testing was not condoned in some health settings.

Keller (2009) reports that a rapid self-test for HIV is feasible, accurate and reliable. This was reported at the Infectious Diseases Society of America 47<sup>th</sup> Annual Meeting where researchers reported patients can reliably test themselves for HIV infection using a rapid test with either oral fluids or blood. The report was based on a study done at John Hopkins University in Baltimore, Maryland where it identified the need for future research to focus on whether or not those who test positive will seek a confirmatory test and get enrolled for HIV care and support.

Grispen et al (2011) did a cross-sectional survey of the psychosocial determinants of self-testing cholesterol, glucose and HIV and concluded that the psychosocial determinants of self-testing are not identical for all tests. The study focused on several types of self-tests and their results showed that perceived benefits and self-efficacy were significantly associated with self-testing of all three conditions. The study defined perceived benefits as the individual's belief that a certain action will effectively reduce the disease threat and self-efficacy as the individual's confidence in one's capability to perform successfully a certain action. The study looked at many determinants of self-tests and concluded that the reasons of self-testing could not be generalised to all self-tests. Their results also showed that perceived susceptibility, cues to action as well as subjective norms, were significant predictors of HIV self-testing. However, their study showed that HIV self-testers were more likely to have a lower level of response efficacy than non-testers. The study defined perceived susceptibility as the individual's belief of the chance of contracting a certain disease or condition and cues to action as bodily or environmental events that trigger action such as education, symptoms and media. The individual's belief that a certain individual or group support or reject performing that specific action was described as the subjective norm, while response efficacy on the

other hand was defined as the individual's belief in the effectiveness of a response to control the risk of a certain disease or condition.

## **2.6 SELF-TESTING OF HIV IN KENYA**

Kenya was amongst the first countries to develop a public health policy that embraces HIV self-testing. The Kenya National Guidelines on HTC provide the basic standards required for self-testing, aimed at strengthening support systems for self-testing in Kenya (NAS COP 2010a:5). The guidelines also outline the need for a confirmatory test from a qualified HTC provider following self-testing of HIV. The guidelines focus on HIV test kits sold in pharmacies for self-testing however, they do not mention rapid test kits that health care workers use, which are distributed in health facilities. The health facilities use test kits that require blood samples to make a HIV diagnosis (NAS COP 2010a:5).

A study carried out in Kenya from 2009 to 2010 showed that there was a high demand for self-testing among hospital based health care workers and that it provided more privacy than other models like VCT (Kalibala et al 2011:38). Kalibala et al (2011) explored the feasibility and acceptability of free HIV self-testing among health care workers. They also held focused group discussions with health care workers who had already tested themselves for HIV and realised that the practice was widespread. Their findings showed high acceptability with 89 percent of health care workers who attended an information session on self-testing taking the test kits and 85 percent of them testing themselves for HIV. The study did not explore the determinants of self-testing. It however acknowledges that post test counselling and follow up care and support services for health care workers who test HIV positive was a challenge following self-testing. The study findings were presented at a national technical working group meeting for HIV testing. A consensus that HIV self-testing was feasible was reached during the meeting based on their findings. These findings are therefore in congruence with those of the Kenya health workers survey that found appreciable interest in self-testing (NAS COP 2006:22). The health workers survey showed that about 80 percent of

health care workers showed interest in self-testing, with more than 70 percent among those who have never been tested. This would therefore make self-testing a good model for first time testers.

Whereas there was evidence that self-testing had a high acceptability using non blood samples, there was still no data on the practice of self-testing in Kenya (Kalibala et al 2011:24). The National HIV testing and counselling guidelines allow self-test HIV kits for non blood samples to be obtained over the counter from pharmacies. These are however not widely accessible in Kenya especially in rural areas where most health care workers are not aware on where to gain access to the test kits. However, most health care workers may be undertaking informal self-testing using approved rapid test-kits that use blood samples. All health facilities in Kenya provide HIV testing services but health care workers with experience in HIV issues are reluctant to seek HIV testing from these facilities with fears on confidentiality and stigmatisation within their health services being cited as inhibiting factors (Mavedzenge et al 2011). As a result, informal self-testing becomes the preferred option and is usually carried out in secrecy and may be associated with several limitations including inaccurate results, unsafe disposal of sharps waste, limited access to psychosocial support and poor referral and linkage to care and treatment (Mavedzenge et al 2011).

A search of the literature showed that there was no study that had been done in Nyeri provincial hospital on the practice of self-testing among health care workers. This necessitated the carrying out of this study. The study was limited to Nyeri provincial hospital.

## **2.7 PROPONENTS OF SELF-TESTING**

There has been some advocacy for increased access to self-testing from groups in high income countries like the United Kingdom and Canada (Mavedzenge et al 2011). However, in the United States, the objection to self-testing is still in force though not as

strong as it was in the early 90s'. Proponents of self-testing argue that it is a quick and cost effective method for HIV diagnosis (Kachroo 2006). Kalibala et al (2011:26) reported in their study that self-testing is important in couple testing and disclosure to sexual partners. In their study, some health care workers took test kits to their spouses/sexual partners and reported utilisation of the test kits. Others, such as Choko et al (2011:8) argue that this approach is a novel option with potential for a high uptake of HIV testing if rolled out at a community level. According to Choko et al (2011:11), it is foreseeable that self-testing would lead to earlier HIV diagnosis leading to earlier enrolment into treatment and may also decrease the costs associated with traditional VCT centres.

## **2.8 OPPONENTS OF SELF-TESTING**

Opponents of self-testing point out that HIV testing is not sufficient without pre-test and post-test counselling which may not be readily available for clients undertaking home self-testing (Kachroo 2006). Telephone counselling has been identified as a safe and effective alternative for face-to-face counselling. This may not however be feasible in developing countries and especially rural areas where access to telephones is limited (Kachroo 2006). Knowledge of HIV status may not automatically lead to gaining access to care and the emphasis on privacy may in retrospect increase social stigma associated with HIV infection (Kachroo 2006). It is important to link HIV positive clients to care and confirm preliminary results in order to initiate treatment. The current approaches for testing have a weakness in this linkage and self-testing may exacerbate the weakness (Walensky & Paltiel 2006:2). Other arguments levelled against self-testing include an increased risk of unimagined anxiety with potential for suicide, that testing could be coerced at home and also point out self-tests could be inaccurate and therefore should not be recommended. However, Choko et al (2011:8) is of the opinion that these arguments are based on fear and are not adequately supported by evidence.

## **2.9 PROTECTION MOTIVATION THEORY**

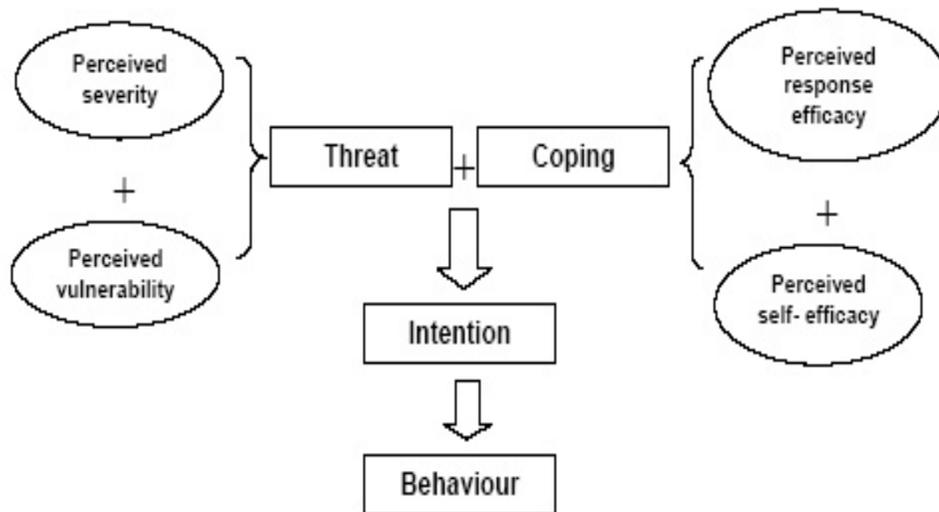
This study was guided by the PMT, which was developed by Rogers as an expansion of the Health Belief Model, with some additional factors (Conner & Norman 2005:81; Rogers 1975:93). A graphic presentation of the expanded model is shown in figure 2.1.

The PMT postulates that health related behaviour is a product of several components organised along two processes: threat appraisal and coping appraisal (Floyd, Prentice-Dunn & Rogers 2000; Lee et al 2007a). The components which predict people's health behaviour are identified in Roger's model and later revisions of the model as perceived severity, perceived vulnerability, response efficacy and self efficacy. It is these four components that comprise the two appraisal pathways.

The original PMT was proposed to provide conceptual clarity to the understanding of fear appeals that have effects on behaviour change (Rogers 1975:93). It was revised eight years later to a more general theory of persuasive communication, with emphasis on the cognitive process mediating behaviour change (Boer & Seydel 1996:95). Rogers (1975:93) identifies three components of fear appeals to be the magnitude of harmfulness of a depicted event (perceived threat), the probability of the events occurrence (perceived vulnerability) and the efficacy of a protective response (response efficacy). The protection motivation theory was updated to include self efficacy as another component (Beck 1984:121). Self efficacy was defined as an individual's belief that they could successfully perform the given response. Those with high self efficacy have a higher likelihood of engaging in some form of protective behaviour if their risk perception is high and the probability of risk occurrence is also high (Beck 1984:121).

Information that conveys the magnitude of harmful consequences about a depicted event leads to a corresponding cognition of appraised severity while information that conveys probability of occurrence of the adverse event is directly related to the beliefs about the expectations of exposure. On the other hand, information on the efficacy of a recommended response is directly related to beliefs in the efficacy of the coping

response. Due to this relationship between informational components and beliefs, information that is high in the three components will have corresponding high beliefs and the protection motivation will be high as well as decisions to engage in the recommended protective activity (Beck 1984:121).



**Figure 2.1 The Protection Motivation Theory. Adapted from Lee et al 2007a**

### **2.9.1 Threat appraisal**

Threat refers to the extent to which people perceive they are susceptible to a health risk and their perception of the severity of the health risk (Lee et al 2007a).

The threat appraisal process is a result of perceived or identified threat that precedes the evaluation of coping appraisal process (Floyd et al 2000:410). Threat appraisal evaluates certain behaviour by focusing on the source of the threat and factors that increase or decrease the probability of maladaptive responses (Conner & Norman 2005:83). It evaluates the components that are relevant for evaluation of the threat (Boer & Seydel 1996:98).

Threat appraisals involve the evaluation of the seriousness of the threat (perceived severity) and the likelihood of suffering from it (perceived vulnerability). The threats may include physical harm, social harm or any danger to self or others (Lwin, Stanaland & Chan 2010:70). Perceptions of threat (severity and vulnerability) decrease the probability of choosing certain behaviour while response rewards (intrinsic and extrinsic) increase the probability of choosing certain behaviour (Floyd et al 2000:410). Fear appraisals indirectly enhance protection motivation by increasing the perceived severity and perceived vulnerability (Boer & Seydel 1996:98). If faced with a threat, a person tries to cope with it.

From Fig 2.1, it can be seen that the theory postulates that people's intention to protect themselves from a threat, like HIV infection in this study, is the result of evaluation of the threat and coping appraisal. In this case, people estimate the seriousness (or severity) of the consequences of HIV infection as well as their own likelihood (vulnerability) of having HIV infection.

In this study, the concept of threat was applied in assessing the perception of individuals' susceptibility to HIV infection and their perception of how severe or serious the consequences of contracting HIV infection is.

### **2.9.2 Coping appraisal**

Coping refers to the extent people feel that a particular behaviour will protect them from the health risk and whether or not they are able to perform the behaviour. According to Lee et al (2007a), the structure of the model in predicting intention and behaviour have been demonstrated in studies examining health behaviours.

The coping appraisal is the assessment of the effectiveness of the possible responses to the threat (response efficacy) as well as the evaluation of the personal ability to perform effectively the desired response (self efficacy) (Boer & Seydel 1996:98, Lwin et al 2010:70).

The coping appraisal evaluates the ability to cope with and/or avert the threatened danger, through efficacy variables (response efficacy and self efficacy). Response efficacy is the belief that carrying out the recommended protective action will be effective in protecting self or others. Self efficacy refers to the ability to execute the recommended protection action.

The output of the appraisal-mediating processes is the decision or intention to initiate, continue or inhibit certain behaviour (Floyd et al 2000:411). The coping appraisal thus focuses on the coping responses available to the individual to deal with the threat and factors that increase or decrease the probability of an adaptive response (Conner & Norman 2005:83).

In this study, the coping appraisal concept is applied in assessing the individual's ability to perform successfully the HIV self-test and the individual's belief that performing the HIV self-test will accurately detect HIV infection.

Figure 2.1 above shows that the coping appraisal consists of both the response efficacy and self efficacy.

### **2.9.3 Protection motivation**

Protection motivation is the result of the two appraisal processes which determine whether or not a person will respond with a maladaptive or adaptive coping response. The function of the protection motivation is to arouse, sustain and direct protective behaviour. It facilitates the adoption of protective behaviours and is best measured by behaviour intentions (Boer & Seydel 1996:98).

Protection motivation in this study would be the result of evaluation of perceived vulnerability and severity of HIV infection (threat appraisal), an individual's ability to perform successfully a HIV self-test and their belief that performing the HIV self-test will accurately detect HIV infection (coping appraisal). The result would be either an

adaptive response, like accepting the HIV self-test, or a maladaptive response, like rejecting the HIV self-test.

## **2.10 PREVIOUS USE OF THE PROTECTION MOTIVATION THEORY**

The PMT has been used previously in many studies as a framework for influencing and predicting various behaviours in many fields. This has ranged from persuading consumers to use less energy, promoting water conservation, increasing earthquake preparedness to behaviours related to prevention of nuclear war (Boer & Seydel 1996:99).

The model has also been widely applied to health related behaviours mainly as a framework for health education interventions designed to influence health behaviour. This has covered areas like alcohol use, enhancing healthy lifestyles, enhancing diagnostic health behaviours and prevention of diseases (Boer & Seydel 1996:99). The PMT has specifically been used in HIV/AIDS related studies including prediction of condom usage (Lwin et al 2010); HIV testing (Grispen et al 2011), HIV transmission (Boer & Emons 2004) and HIV risk behaviours (Li, Fang, Lin, Mao, Wang, Cottrell, Harris & Stanton 2004) among other areas.

## **2.11 APPLICATION OF THE PROTECTION MOTIVATION THEORY IN THIS STUDY**

The PMT is used in this study to guide the assessment of vulnerability which was defined as an individual's belief of the chance of contracting HIV and perceived severity as an individual's belief of the seriousness of HIV infection. It is also used to guide the assessment of self efficacy as the level of confidence in individual's ability to perform successfully a HIV self-test.

The concept of response efficacy was applied in this study as an individual's belief that performing a HIV self-test would accurately detect HIV infection and to assess the belief, that access to psychosocial support, care and treatment following a HIV self-test will effectively manage the HIV infection. It was also used to assess an individual's belief about the negative aspects of HIV self-testing.

Vulnerability and perceived severity components of the PMT were used in the study to describe the factors influencing the practice of HIV self-testing and would also help the researcher to determine the rate of HIV self-testing among health care workers in Nyeri provincial hospital. The PMT components on self efficacy and response efficacy contributed to a description of the psychosocial support, care and treatment of health care workers who test positive after self-testing of HIV.

## **2.12 SUMMARY**

Literature found for the literature review of this study focused on the acceptability of HIV self-testing. Only one study was found on the determinants of self-testing but this focused on self-tests of several conditions and was not specific to HIV testing nor did it involve health care workers. Some studies identified shared varied views on the advantages and disadvantages of HIV self-testing. Only one study on HIV self-testing in Kenya was found and it explored feasibility and acceptability of HIV self-testing in Kenya.

It can be concluded from the literature found that there is a high HIV prevalence among health care workers and that many of them are interested in HIV self-testing. Data from various countries showed that there is unregulated and informal HIV self-testing among health care workers but there is no data to describe the access to psychosocial support, care and treatment for those who tested positive for HIV.

There was a need therefore to explore the practice of HIV self-testing amongst health care workers, looking at the prevalence of self-testing of HIV, the reasons behind HIV

self-testing and the level of access to psychosocial support, care and treatment among those who test positive for HIV.

## **CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY**

### **3.1 INTRODUCTION**

This chapter describes the research paradigm, design, method, population, sample, data collection, data analysis, reliability and validity and ethical considerations of the study.

The objectives of the study were to

- determine the rate of HIV self-testing amongst health care workers in Nyeri provincial hospital
- explore the factors influencing the practice of HIV self-testing amongst health care workers in Nyeri provincial hospital
- describe access to HIV psychosocial support, care and treatment amongst health care workers in Nyeri provincial hospital

### **3.2 RESEARCH PARADIGM**

The research paradigm was a quantitative study. The method was used to describe different variables in HIV self-testing. Quantitative research involves formal, objective and systematic process that uses numerical data to describe variables (Burns & Grove 2005:23). The main characteristic of quantitative research that was pertinent to this study is the philosophical origin which is logical positivism. The focus of the research was concise and objective. Like all other quantitative research, data was numerical and the analysis was done through statistical analysis and interpretation of data.

### **3.3 RESEARCH DESIGN**

Burns and Grove (2005:734) define a research design as a “blueprint for conducting a study that maximises control over factors that could interfere with the validity of the findings”. The research design used in this study was a descriptive cross-sectional

study. A descriptive study design is in the class of non-experimental studies whose main purpose is to describe aspects of a situation as it naturally occurs to gain more information about characteristics within a particular field of study (Basavanhappa 1998:118; Burns & Grove 2005:232; Holland & Rees 2010:114; Houser 2011:280, Polit & Hungler 1999:195-196).

Descriptive designs are useful in describing objectively the nature of a situation under study and were used in this research to determine the extent of HIV self-testing behaviours and the reasoning behind it (Basavanhappa 1998:118; Houser 2011:280). The design did not involve manipulation of variables nor did it have a comparison group. Any relationships among variables identified were to obtain an overall picture of the phenomenon being examined.

Cross-sectional studies are a type of descriptive study that examines data at some point in time (snap shot) with data being collected only once (Basavanhappa 1998:125; Levin 2011). Some of the advantages of cross-sectional studies include less time spent in collecting the data and less expensive compared to longitudinal studies (Basavanhappa 1998:125; Levin 2011).

The aim of the study was to describe the current practice of HIV self-testing amongst health care workers in terms of frequency, factors influencing the practice and likely outcomes of the practice in terms of psychosocial support care and treatment, at a particular point in time, making the cross-sectional design the most appropriate.

### **3.4 POPULATION**

Houser (2011:213) defines a population as “the entire set of subjects that are of interest to the researcher”. The study population for this research was all health care workers in Kenya who included the following cadres: nurses, doctors, clinical officers, laboratory technicians, social workers and HIV counselling and testing staff working in the facility.

Target population is the entire population in which the researcher is interested in obtaining information about and to which the researcher would like to generalize the results of a study (Oxford Dictionary 2002; Polit & Hungler 1999:716). It encompasses the entire set of elements that meet the sampling criteria (Burns & Grove 2005:342). The target population for this study was all health care workers working at Nyeri provincial hospital.

Accessible population is the population of elements available for a particular study, often a non-random subset of the target population (Burns & Grove 2005: 342; Francis 1990; Polit & Hungler 1999:695). According to Burns and Grove (2005:342), it is the “portion of target population that the researcher has reasonable access”. The sample is drawn from this population and findings are first generalised to the same population and then abstractly to the target population, they add. The accessible population for this study was all health care workers working at Nyeri provincial hospital in the three weeks of data collection.

### **3.5 SAMPLING**

The study was carried out at Nyeri provincial hospital which was selected on a convenience basis. It is the largest public hospital in Central province, one of the eight provinces in Kenya. The researcher had provided technical support on HIV testing and counselling in this hospital for about three years. Due to the high number of different cadres of health care workers, the hospital was most suitable for this study.

The study population was small and thus the researcher carried out a census that included collecting data from the entire target population. The total number of health care workers was 414.

The different cadres of staff included were nurses, doctors, clinical officers, laboratory technicians, social workers and HTC counsellors. The study therefore did not involve sampling.

### **3.5.1 Inclusion Criteria**

The inclusion criteria define the main characteristics of a desired population (Houser 2011:193). The inclusion criteria for the study were all health care workers working at Nyeri provincial hospital on duty during the three weeks of data collection. The cadres of health care workers included in the study were nurses, doctors, clinical officers, laboratory technicians, social workers and HTC counsellors as these deals directly and continuously with HIV/AIDS service delivery.

### **3.5.2 Exclusion Criteria**

Exclusion criteria refer to subjects that are not suitable for the research question and therefore eliminate them from consideration in the study (Houser 2011:194). In this study, health care workers were excluded from the study if they were not directly and routinely involved in HIV/AIDS service delivery. These cadres of health care workers included mortuary attendants, students, trainees, dentists, porters, occupational therapists, physiotherapists, and subordinate staffs among others. The researcher reasoned that these staffs were not routinely involved in HIV/AIDS service delivery and would probably not have the same access to HIV self-testing as the other cadres involved in HIV/AIDS service delivery.

## **3.6 DATA COLLECTION**

Data collection refers to a precise and systematic gathering of information that is relevant to the research purpose and objective (Burns & Grove 2005:733).

The data collection instrument used in this study was a questionnaire. A questionnaire requires the respondents to complete it themselves, in a paper-and-pencil format (Basavanthappa 1998:193; Burns & Grove 2005:398; Polit & Hungler 1999:334). The instrument asks respondents to answer the same questions, in the same order and they

have the same set of options for their responses (Basavanthappa 1998:193; Polit & Hungler 1999:334). Closed-ended questions were used in the questionnaire which offered the respondents several alternative replies from which they chose the one that closely matched their answer. Closed-ended questions are easier to complete than open-ended questions and sometimes looks less objectionable than the open type (Basavanthappa 1998:198; Polit & Hungler 1999:334-335). Administering the questionnaires directly helps improve the response rate (Burns & Grove 2005:400-401). Research assistants were used to ensure a high response rate. However, some of the shortcomings of a questionnaire include the possibility to overlook potentially important responses and data collected may also be superficial (Polit & Hungler 1999:335). The use of the PMT as a theoretical framework however ensured that the researcher did not overlook some key areas of the study.

The researcher developed the questionnaire guided by the concepts in the PMT. The researcher consulted the statistician and study supervisor in developing the questionnaire with emphasis on the content and relevance to ensure that the validity of the questionnaire is maintained. Pre-testing of the questionnaire was done by 10 health care workers from another health care facility, who met the inclusion criteria, but were not part of the study sample. The most significant changes on the questionnaire was on question A6 which initially read; Have you ever done HIV self-testing?. This question was changed to read; Have you ever tested yourself for HIV? The rationale was that the second option was clearer to the respondents. There was also emphasis on the word "yourself" which was done by making it bold. There were no further changes made to the questionnaire. The questionnaire contained instructions to enable the respondents to complete it. The following sections were included in the questionnaire:

Section A contains demographic data which sought details like age, gender, marital status, educational level and history of HIV self-testing.

Section B contains information specific to those who have tested themselves for HIV. This sought to determine respondents' perception to risk, vulnerability and severity to

HIV infection. It also sought information on self efficacy and response efficacy of self-testers.

Section C contains information specific to those who have never tested themselves for HIV. This sought to determine respondents' perception to risk, vulnerability and severity to HIV infection. It also sought information on self efficacy and response efficacy of non self-testers. A copy of the questionnaire is contained in Appendix D.

### **3.6.1 Variables of interest**

The dependent variable for this study was HIV self-testing. It was a nominal categorical variable measured at two levels; self-tested or not self-tested. The predictor variables were a mixture of categorical and interval variables. Interval variable was the age of the health care workers measured in years. Categorical independent variables were sex (gender), level of education, professional group, marital status, perceived vulnerability, perceived severity, reliability of HIV self-test result, confidence in normal (HIV Negative) result, confidence in abnormal (HIV positive) result, difficulty in performing HIV self-test, confidence in interpreting the HIV self-test result without professional assistance, anticipated regret and the need for privacy in HIV self-testing.

The researcher recognises that there are other possible confounders such as access to test kits and knowledge of health care workers on self-testing which were not measured during this study. The researcher worked on the assumption that since all the target respondents were health care workers working in the same health facility and environment, they were all at the same level in terms of access to test kits and knowledge on HIV self-testing.

### **3.6.2 Data collection process**

The questionnaires were administered to health care workers in Nyeri provincial hospital by three research assistants. The research assistants were trained on questionnaire administration and their roles were to distribute and collect the questionnaires and clarify instructions if necessary. They distributed the questionnaires in the hospital for a period of three weeks, between 1st July 2012 and 22nd July 2012. This ensured a greater chance of reaching health care workers, even those who might have been on night duty or off duty during these days.

Each research assistant was assigned specific departments in the hospital and was responsible for distributing and collecting questionnaires from all eligible staff in the allocated departments. The research assistants distributed the questionnaires across all the departments in the hospital to ensure that many health care workers were reached. The questionnaires were completed in an average time of 30 minutes. The lowest level of education of the respondents was secondary education. In Kenya, a person at the level of secondary school is expected to read and understand basic English. There was no respondent who experienced difficulty in understanding and writing responses.

### **3.7 DATA ANALYSIS**

Burns and Grove (2005:733) explain that, data analysis is done to reduce, organise and give meaning to data. A statistician was consulted in analysis of the data, which was conducted using SPSS version 16.0, a computer package for data analysis and management. An alpha of 0.05 was used for statistical significance.

The responses of the variables based on the protection motivation theory were re-coded from five options to three options. Response options 1 through 2 were re-coded as 0, option 3 as 1 and options 4 through 5 as 2. An overview of the constructs and re-coded responses are described below.

Perceived vulnerability: defined as an individual's belief of the chance of contracting HIV infection. This was assessed by the following questions;

- According to you, what are the chances that you could become HIV infected? (re-coded as 0=Low; 1=moderate; 2=High)
- According to you, what are the chances that you could become HIV infected compared to others of your age and gender? (recoded as 0=Small; 1=Moderate; 2= Larger)

Perceived severity: defined as an individual's belief of the seriousness of contracting HIV infection assessed as;

- According to you, how severe do you consider HIV infection to be? (recoded as 0=Not Severe; 1=Moderate; 2=Severe)

Response efficacy: defined as an individual's belief that performing HIV self-test would accurately detect HIV infection (recoded as 0=Agree; 1=Not Sure; 2=Disagree)

- The result of HIV self-test is reliable
- If the test result is normal (HIV Negative), I can be sure that this result is correct
- If the test result is abnormal (HIV positive), I can be sure that this result is correct

Self efficacy: defined as an individual's ability, to successfully perform a HIV self-test (re-coded as 0=Agree; 1=Not Sure; 2=Disagree)

- Performing HIV self-test is difficult
- I can confidently interpret the test result without professional assistance

Other predictors (recoded as 0=Agree; 1=Not Sure; 2=Disagree)

- I would regret it if I did not perform HIV self-test and I subsequently turned out to be HIV infected
- The need for privacy is an important factor in HIV self-testing

Responses from items that were similar in section B and C of the questionnaire were merged during the analysis using SPSS version 16.0. The merged responses were from

the following items; B2 and C2; B3 and C3; B5 and C4; B7 and C6; B8 and C7; B9 and C8; B10 and C9; B11 and C10; B12 and C11; B13 and C12; B14 and C13; B15 and C14; B16 and C15. Items B6 and C5 on the questionnaire were not included in the analysis as it was realised after data collection that it contained two questions in one.

The data analysis was purely quantitative. Initially, basic descriptive statistics were used to describe the respondents' socio-demographic characteristics. In this regard, frequency distributions were used to describe respondents' demographic characteristics, factors influencing HIV self-testing and willingness to gain access to psychosocial support, care and treatment.

Inferential statistics were then performed to identify the predictors of HIV self-testing. This was achieved by the use of binary logistic regressions which were performed with the help of the statistician. Logistic regression analysis is normally used to predict the probability of occurrence of an event (categorical dependent variable) based on certain predictor (independent) variables (Burns & Grove 2005:510). In this study, the predictor variables were demographic data, variables identified through the PMT and through the literature review.

Binary logistic regression analysis was therefore conducted to determine predictors of HIV self-testing. The outputs of the SPSS analysis are presented in Tables 4.6, 4.10 and 4.14. The variables in the equation presented in these tables have several elements that are generated by SPSS. The Wald statistic is an index of the significance of each predictor in the equation. The significance of the Wald statistic is reported in the column marked Sig. If the significance of the Wald statistic is less than 0.05, the null hypothesis is rejected as the variable makes a significant contribution in predicting HIV self-testing. The Exp(B) column in these tables show the extent to which raising the corresponding measure by one unit influences the odds ratio. When the value is greater than 1, the odds of HIV self-testing happening increase and vice versa. The B column represents the coefficient of the constant in the null model while the S.E. column is the standard error around the coefficient of the constant. The df column on the other hand

represents the degrees of freedom for the Wald chi-square test which shows the number of predictors in the model. The 95.0% C.I. column for EXP(B) shows the interval for the EXP(B) with 95% confidence. The interval is presented in Tables 4.6, 4.10 and 4.14 with both lower and upper limits.

Three levels of analysis were conducted using logistic regression. The goodness of fit for the logistic regression models was given as part of the SPSS output. These were useful in explaining the extent to which the models accurately predicted the dependent variable (HIV self-testing). The goodness of fit measures generated through the SPSS was Nagelkerke's R<sup>2</sup> and Cox and Snell R<sup>2</sup>. Nagelkerke's R<sup>2</sup> is normally higher than the Cox and Snell measure. The Nagelkerke's R<sup>2</sup> was reported in this study. The Nagelkerke value ranges from 0 to 1 and is a reliable measure of the relationship between predictors and prediction. An R<sup>2</sup> near 1 indicates that the model fits the data very well (strong relationship) while an R<sup>2</sup> closer to 0 indicates that the model does not fit the data very well (weak relationship). There is however no standard cut - off points for "low" or "high" R<sup>2</sup>.

A further analysis was done by comparing different categories of variables and that was illustrated by cross tabulations. Cross tabulations are useful in determining whether a given variable is associated with another variable. Chi squares were calculated through cross tabulations to determine the relationships between different variables.

The analysed data is presented in Chapter 4 and the findings discussed in Chapter 5.

## **3.8 RELIABILITY AND VALIDITY**

### **3.8.1 Reliability**

Reliability refers to the accuracy or inaccuracy rate in a measurement device and represents the consistency of the measure obtained (Basavanthappa 1998:214; Burns & Grove 2005:749).

In this study, internal consistency of the questionnaire was ensured through developing the questionnaire in consultation with the research supervisor and a professional statistician. Statistical reliability was promoted in the study through the use of SPSS in consultation with the statistician. Reliability was also ensured through careful and accurate phrasing of each question to avoid ambiguous and leading questions.

### **3.8.2 Validity**

Validity of an instrument refers to the extent to which the instrument actually reflects the abstract construct being measured or whether a measurement instrument accurately measures what it is supposed to measure (Basavanthappa 1998:212; Burns & Grove 2005:749). Several strategies were used in this study to ensure external validity and it included the use of several cadres of health care workers in the sample. Efforts were also made to ensure that, respondents participated in the study and that dropout rates were minimal. This included personalising administration of the questionnaires, making the questionnaire simple and short, and assuring the respondents of confidentiality of collected information. External validity refers to the approximate truth about conclusions that involve generalisations (Trochim 2006). On content validity which examines the extent to which a measurement method includes all the major elements relevant to the construct being measured, (Burns & Grove 2005:377) the researcher used the PMT model as a basis to include major concepts as applicable to the content of this study. A literature review was done to promote validity of the tool. The study supervisor was also consulted in developing the data collection tool as a content expert.

## **3.9 ETHICAL CONSIDERATIONS**

Ethics demand of a researcher to have a deep concern for human welfare and sensitivity for the rights of human subjects (Basavanthappa 1998:147). The following ethical issues were taken into consideration during the conduct of this study; respect for persons, the principle of justice, the principle of beneficence, institutional permission and scientific integrity. These ethical considerations are discussed below.

### **3.9.1 Respect for persons**

Respect for persons incorporates the treatment of individuals as autonomous agents and that, persons with diminished autonomy are entitled to protection. Individuals capable of deliberations about personal goals and acting on them are autonomous, while those who are not capable of self-determination have diminished autonomy (National Commission... 1979). The respondents in this study were all health care workers, capable of autonomous action.

The researcher protected the rights of the respondents by respecting their autonomy. This was ensured through properly informing the respondents' on issues relevant to making decisions to participate in the study. The respondents ' were informed of the purpose of the study. Informed written consent was sought without coercion and pressure to participate in the study. None of the prospective respondents declined to participate in the study. All respondents signed an informed consent form. An example of the consent form used is contained in the Appendix C.

Respecting participants' autonomy is closely related to ensuring confidentiality. Respondents were assured that personal information obtained during the study would not be shared. The questionnaires were coded and names of the respondents were not recorded on the questionnaires.

### **3.9.2 Principle of justice**

This principle entails fairness in distribution and that equals should be treated equally. Injustice occurs when a benefit that is entitled to someone is denied without good reason or some burden is imposed to a person unduly (National Commission... 1979).

The principle of justice was ensured through respondents' right to fair treatment. To achieve the right to fair treatment, the researcher was fair and non discriminatory in

selection of respondents through application of eligibility criteria and was prepared to non prejudicial in handling individuals who declined to participate or withdrew from the study after agreeing to participate. The researcher honoured all agreements made between the researcher and the respondents and was accessible to them at any point in the study to clarify information.

### **3.9.3 Principle of beneficence**

The principle of beneficence holds that, persons should be treated in an ethical manner by respecting their decisions, protecting them from harm and by making efforts to secure their well being. It covers acts of kindness that go beyond obligation. The two main components of this principle are doing no harm and maximizing possible benefits while minimizing possible harms (National Commission... 1979).

During the study, participants were free from physical harm as the study did not involve physical procedures. Exploring personal practices related to HIV, it was anticipated that participating in the study may result in some psychological harm. The researcher arranged for individual counselling should a respondent feel traumatised after completion of the questionnaire. Furthermore all participants were informed of the availability of comprehensive HIV care services and counselling services and would be linked to these services appropriately on request .

The amount of time the respondents would be involved in completing the questionnaire was explained to them and adhered to. Potential risks, like psychological harm and potential benefits for participating in the study, like gaining information on HIV/AIDS was communicated to the them .

### **3.9.4 Institutional permission**

Ethical clearance for the study was given by Health Studies Higher Degrees Committee, College of Human Sciences, University of South Africa after reviewing the study proposal. A copy of the ethical clearance certificate is contained in Appendix B.

A written request was made to the Medical Superintendent, Nyeri provincial hospital to seek approval to conduct the study. The request contained all the relevant information required to make informed consent about the approval. This helped in protecting the rights of the institution. The request was approved by the Medical Superintendent before data collection commenced. A copy of the approval letter from the Medical Superintendent giving permission to conduct the study is contained in Appendix A.

### **3.9.5 Scientific Integrity**

The researcher maintained scientific integrity during the study by maintaining scientific honesty and avoiding all forms of scientific misconduct, including fabrication, falsification, plagiarism, and other inappropriate actions. Other activities like selectively rejecting data from analysis, misinterpreting data to obtain desired results or producing false results was not practiced. Any ideas or information obtained from other sources was duly acknowledged in the study. There was no conflict of interest between the researcher and any element of the study.

## **3.10 SUMMARY**

This chapter has described the research design and method. It has explained the research paradigm, design, population, sampling, data collection and analysis, reliability and validity and ethical considerations used in the study. Chapter four discusses the data analysis.

## **CHAPTER 4: DATA ANALYSIS, RESEARCH FINDINGS AND INTERPRETATION**

### **4.1 INTRODUCTION**

This chapter presents the data analysis and interpretation in exploring the practice of HIV self-testing among HCW in Nyeri provincial hospital. The sections of the questionnaire, which were based on the protection motivation theory, served as framework for presentation of the data. The data presentation is organised as;

- Demographic data
- Predictors of HIV self-testing
  - Demographic predictors of HIV self-testing
  - Respondents' perception to vulnerability and severity to HIV infection and self efficacy and response efficacy of self-testers. This is presented as first level analysis, second level analysis and third level analysis.
  - Other factors that may influence the practice of HIV self-testing
- Access to HIV psychosocial support, care and treatment

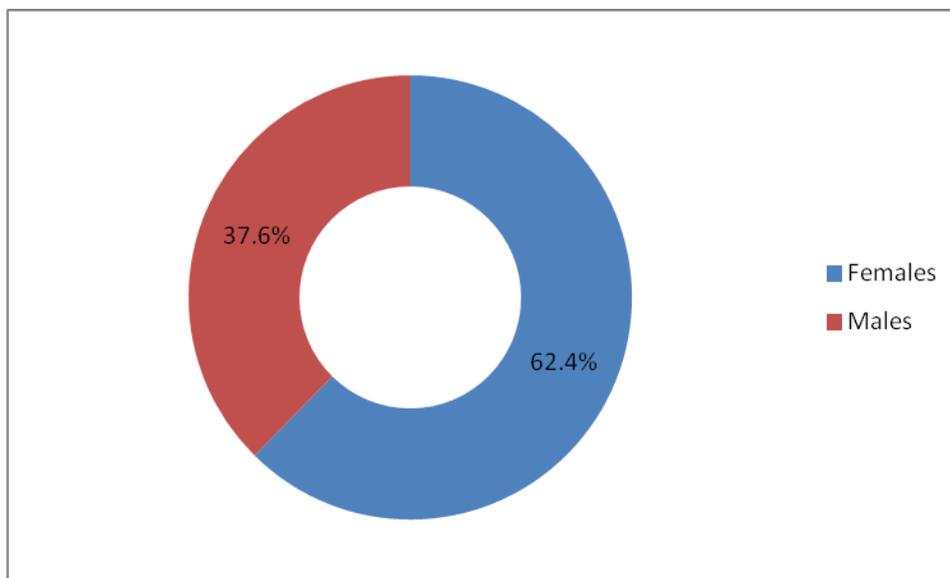
Using a structured questionnaire, data was collected at Nyeri provincial hospital in July 2012. A total of 380 questionnaires were distributed to health care workers and 358 of the health care workers responded. However, ten questionnaires were spoilt as some respondents answered all three sections contrary to instructions and thus 348 were included in the analysis. A computer program SPSS version 16.0 was used in the data analysis. The statistical procedures used were frequency analysis and logistic regression analysis.

Please note, N = is used to represent all the respondents to an item, while n = is used to denote responses from some respondents, as required by the question. There are cases where some respondents did not respond to certain items, in these cases n = is used to denote those who responded to the items.

## 4.2 DEMOGRAPHIC DATA

Figure 4.1 shows the gender (refer to item A1) of respondents. Most of the respondents were female health care workers who accounted for 62.4% (N=348) of the respondents. Male respondents accounted for 37.6% of the respondents.

### 4.2.1 Gender (Sex, item A1)



**Figure 4.1 Gender of the respondents (N=348)**

The study found no significant relation between the gender of health care workers in Nyeri provincial hospital and self-testing (Chi-Square = 4.770,  $p > 0.05$  with  $df = 2$ ).

### 4.2.2 Age (item A2)

Table 4.1 shows the results of item A2. According to the table, most respondents were aged between 25-29 years. This accounted for 27.3% (N=348) of all respondents in the

hospital. Age groups 20-24 and 45-49 were comparable with each contributing about 10% of the total health care workers in the hospital. The oldest respondents were in the category of 55-59 years accounting for only 0.6% of the total respondents. The missing category in Table 4.1 represented the respondents who did not respond to the item.

**Table 4.1 Age of respondents (N=348)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 20-24	36	10.3	10.5	10.5
25-29	95	27.3	27.8	38.3
30-34	58	16.7	17.0	55.3
35-39	65	18.7	19.0	74.3
40-44	40	11.5	11.7	86.0
45-49	35	10.1	10.2	96.2
50-54	11	3.2	3.2	99.4
55-59	2	.6	.6	100.0
Total	342	98.3	100.0	
Missing	6	1.7		
Total	348	100.0		

Age (refer to item A2) of health care workers in Nyeri provincial general hospital was significantly associated with self-testing (Chi-Square = 17.099,  $p < 0.05$  with  $df = 7$ ).

### 4.2.3 Level of education (item A3)

The respondents' level of education is presented in Table 4.2.

**Table 4.2 Respondents' level of education (N=348)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Secondary	2	.6	.6	.6
College	241	69.3	69.3	69.8
University	102	29.3	29.3	99.1
Post Graduate	3	.9	.9	100.0
Total	348	100.0	100.0	

Table 4.2 shows that 69.3% (N=348) of the respondents have a college education. University graduates accounted for the next high level of education with 29.3%. A few of the respondents had post graduate level of education and accounted for 0.9% of the respondents. An even smaller number of respondents had a secondary level of education, represented by only 0.6% of the respondents. This reflects the qualifications needed for the cadres of health care workers who met the inclusion criteria of this study. Therefore 100% of the respondents were literate and were able to respond to the questionnaire.

The study found no significant relation between level of education of health care workers in Nyeri provincial hospital and self-testing (refer to item A3) (Chi-Square = 4.651,  $p > 0.05$  with  $df = 2$ ).

#### 4.2.4 Professional group (item A4)

The respondents' professional groups are presented in Table 4.3.

**Table 4.3 Respondents' professional groups (N=348)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Nurse	277	79.6	79.8	79.8
Doctor	19	5.5	5.5	85.3
HTC Counsellor	10	2.9	2.9	88.2
Clinical Officer	17	4.9	4.9	93.1
Laboratory Technician	20	5.7	5.8	98.8
Social worker	4	1.1	1.2	100.0
Total	347	99.7	100.0	
Missing	1	.3		
Total	348	100.0		

Among the respondents, nurses accounted for the highest professional group with 79.6% (N=348) while doctors accounted for 5.5%. Other cadres of health care workers included HTC counsellors (2.9%), clinical officers (4.9%), laboratory technicians (5.7%) and social workers (1.1%). The missing category in Table 4.3 represented the respondents who did not respond to item A4.

The study found a significant relationship between the level of education of health care workers in Nyeri provincial hospital and self-testing (Chi-Square = 18.704,  $p < 0.05$  with  $df = 5$ ).

#### 4.2.5 Marital status (item A5)

Table 4.4 shows that 46.6% (N=348) of the respondents were married while 39.9 % of them were single. Those separated accounted for 8.3 % of the respondents while the divorced accounted for 3.4%. Widowed respondents accounted for 1.7%.

**Table 4.4 Marital Status (N=348)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Married	162	46.6	46.6	46.6
Single	139	39.9	39.9	86.5
Separated	29	8.3	8.3	94.8
Divorced	12	3.4	3.4	98.3
Widowed	6	1.7	1.7	100.0
Total	348	100.0	100.0	

The study found no significant relationship between marital status of the respondents and self-testing (Chi-Square = 6.009,  $p > 0.05$  with  $df = 4$ ).

#### 4.2.6 Rate of self-testing (item A6)

The rate of self-testing was assessed by item A6 which sought to find out whether the respondents had tested themselves for HIV (practiced self-testing).

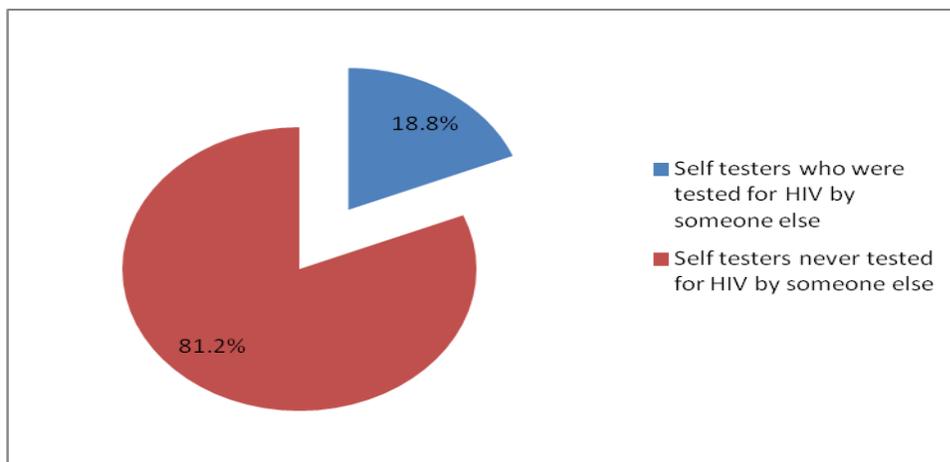
**Table 4.5 Rate of HIV self-testing (N=348)**

Tested yourself for HIV	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	229	65.8	65.8	65.8
No	119	34.2	34.2	100.0
Total	348	100.0	100.0	

Table 4.5 shows the rate of self-testing in Nyeri provincial hospital. It was found that most respondents (65.8%, N=348) had tested themselves for HIV and only 34.2% of the respondents had not tested themselves for HIV.

**4.2.6.1 Percentage of self-testers who were tested for HIV by someone else (item B1)**

Among the respondents who practised HIV self-testing, some were also tested for HIV by other health care workers. This was assessed under item B1 and the results are as shown in Figure 4.2.

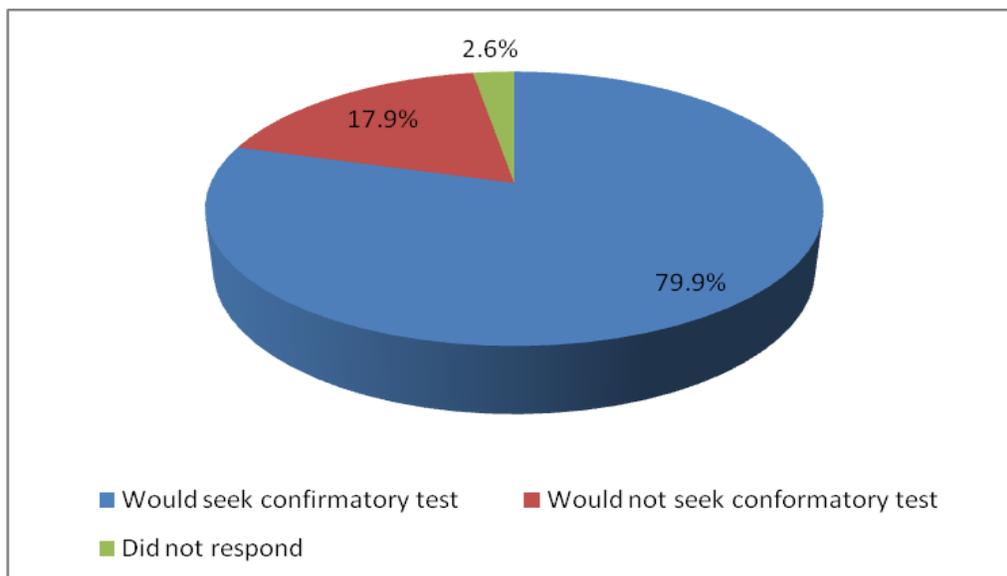


**Figure 4.2 Percentage of self-testers who were tested for HIV by someone else (n=229)**

Of the 65.8% self-testers, 81.2 % (n=229) had been tested for HIV by someone else. This is depicted well in figure 4.2 that shows the percentage of self-testers who were tested for HIV by someone else. This meant that 18.8% (n=229) only knew their HIV status through self-testing.

#### 4.2.6.2 Percentage of self-testers who would seek confirmatory test (item B16)

The proportion of HIV self-testers who would seek a confirmatory HIV test from a qualified professional if HIV self-test results showed they were HIV infected was assessed using item B16. The results showed that 79.9% (n=229) of self-testers would seek a confirmatory test from a qualified professional if self-test results showed that they were HIV infected. However, 17.5% (n=229) of the respondents indicated that they would not seek confirmatory test following positive results of HIV self-test. Some respondents (2.6%) did not respond to this item.



**Figure 4.3 Proportion of self-testers who would seek HIV confirmatory test (n=229)**

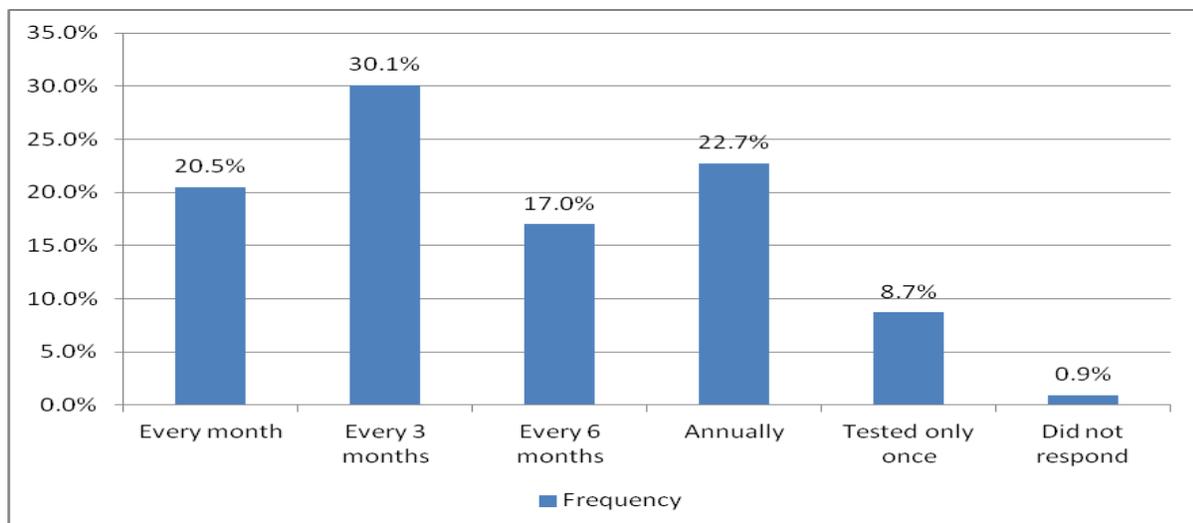
#### 4.2.6.3 Percentage of non self-testers who would seek confirmatory test (item C15)

Among the respondents who had not practiced self-testing, 74% (n=119) indicated that they would seek a confirmatory HIV test from a qualified professional if they self-tested and the results showed that they were HIV infected. This high willingness to seek a confirmatory HIV test from a qualified professional was similar to the one showed among self-testers of HIV.

Therefore, self-testers and non self-testers of HIV are not significantly different in willingness to seek confirmatory test from a qualified professional if self-test results showed that they were HIV infected ( $p>0.05$ ).

#### 4.2.7 Frequency of HIV self-testing (item B4)

The HIV self-testers were grouped in terms of frequency of self-testing and the results presented in Figure 4.4.



**Figure 4.4 Frequency of HIV self-test (n=229)**

Among the HIV self-testers, 20.5% (n=229) practiced self-testing every month, while 30.1% did it once every three months. Another 17.0% tested themselves once every six months while 22.7% did HIV self-testing on annual basis. A considerable number, 8.7% had tested themselves for HIV just once. Self-testers who did not respond to this item accounted for 0.9% of the respondents.

#### **4.2.7.1 Factors influencing frequency of HIV self-testing**

Cross tabulation was done on several factors to assess for relationship between these factors and frequency of HIV self-testing. The factors included demographic variables like gender, age, educational level, profession and marital status (Refer to items A1 – A5). Other factors assessed were those identified using the PMT and included confidence in interpreting self-test results, confidence in normal and abnormal self-test results, anticipated regret, difficulty in performing self-testing, need for privacy (Refer to items B7-B15) and perceived vulnerability (Refer to Item B2 – B3) and severity of HIV infection (refer to items B4).

To enable easy interpretation of the assessment of these relationships described in section 4.2.7.1.1, the researcher re-coded responses obtained under item B4 which was responded to by self-testers only. The frequency of self-testing was re-coded as high by combining those who practiced self-testing every month and every three months, moderate for those who practiced self-testing every six months and low for those who self-tested once or on annual basis.

##### **4.2.7.1.1 Frequency of self-testing (item B4) vs. Demographic factors**

Assessment of the relationship between gender (refer to item A1) and the frequency of self-testing was done by use of cross tabulation. The results showed that there was no significant relationship between gender and the frequency of HIV self-testing (chi square=4.150,  $p>0.05$  with  $df= 2$ ).

To assess the relationship between age (refer to item A2) and frequency of self-testing, cross tabulation with row percentages were run and gave an output of percentage of respondents within age groups. The results showed that the frequency of HIV self-testing was significantly associated with the age of the respondents. Seventy five percent (75 % n = 64) of self-testers aged 25-29 years had a high frequency of self-testing while 53.3 % (n = 45) of respondents aged 30 – 34 years also had a high frequency of HIV self-testing. More than a third (35.3 %, n = 17) of the respondents aged 45 - 49 years had a low frequency of self-testing while 50 % (n = 28) of the respondents aged 40 – 44 years also had a low frequency of HIV self-testing (chi square = 31.975,  $p < 0.05$  with  $df = 14$ ).

The study found a significant relationship between the educational level (refer to item A3) and frequency of HIV self-testing, as 65% (n = 76) of respondents with a high education level had a high frequency of self-testing while 41% of respondents (n = 150) with intermediate education level had a low frequency of HIV self-testing (chi square = 19.844,  $p < 0.05$  with  $df = 4$ ).

There was no significant relationship between the frequency of self-testing and the professional group (refer to item A4) of the respondents (chi square = 13.659,  $p > 0.05$  with  $df = 8$ ).

Marital status (refer to item A5) of the respondents had no significant relationship with frequency of HIV self-testing (chi square = 13.801,  $p > 0.05$  with  $df = 8$ ).

#### **4.2.7.1.2 Frequency of self-testing (item B4) vs. Factors based on PMT**

To examine the relationship between the frequencies of HIV self-testing and the factors identified using the PMT model, cross tabulation of these factors and the frequency of HIV self-testing was done. The factors identified through the PMT were perceived vulnerability (items B2, C2, B3 and C3), perceived severity (items B5 and C4), perceived self efficacy (items B7, C6, B8 and C7) and perceived response efficacy

(items B10, C9, B11, C10, B12 and C11). Other factors were assessed as other predictors (items B9, C8, B15 and C14). The findings were as reported below.

- **Perceived vulnerability (items B2, C2, B3 and C3)**

A significant relationship was found between the frequency of HIV self-testing and how respondents perceived their vulnerability to become HIV positive. The relationship was significant on the two items used to assess perceived vulnerability. Seventy one percent (n = 55) of those who perceived their chances of becoming HIV infected (refer to items B2 and C2) as high had a high frequency of HIV self-testing. On the other hand, only 44% (n = 99) of those who perceived their chances of becoming HIV infected as low had a high frequency of self-testing (chi square = 13.069,  $p < 0.05$  with  $df = 4$ ).

When respondents compared their perception of HIV infection to others of similar age and gender (refer to items B3 and C3), the findings were also significant. The findings show that 75.5% (n = 49) of these had a high frequency of HIV self-testing compared to 48.5% (n = 101) whose perception of HIV infection was low compared to others of similar age and gender (chi square = 23.609,  $p < 0.05$  with  $df = 4$ ).

- **Perceived severity (items B5 and C4)**

Perceived severity (refer to items B5 and C4) had a significant relationship with the frequency of HIV self-testing. Seventy two percent (n = 33) of those who felt HIV infection is not severe had a high frequency of HIV self-testing. On the other hand, 39.1% (n = 151) who reported that HIV infection is severe had low frequency of self-testing (chi square = 23.799,  $p < 0.05$  with  $df = 4$ ).

- **Perceived self efficacy (items B7, C6, B8 and C7)**

The frequency of HIV self-testing had no significant relationship with difficulty of performing HIV self-test (refer to items B7 and C6) (chi square = 3.446,  $p > 0.05$  with  $df =$

4) and the ability to interpret HIV self-test results without professional assistance (refer to items B8 and C7) (chi square = 5.174,  $p > 0.05$  with  $df = 4$ ).

- **Perceived response efficacy (items B10, C9, B11, C10, B12 and C11)**

The frequency of HIV self-testing had no significant relationship with the respondents' belief that self-test results are reliable (refer to items B10 and C9) (chi square=2.638,  $p > 0.05$  with  $df = 4$ ). A non significant relationship (chi square 5.480,  $p > 0.05$  with  $df = 4$ ) was found when the frequency of self-testing was compared with the respondents' confidence in a normal HIV self-test result, which meant they felt sure that they were HIV negative (refer to items B11 and C10).

The frequency of HIV self-testing had a significant relationship with confidence of abnormal (HIV positive) test results (refer to items B12 and C11). About half (51.6%,  $n = 31$ ) of those who disagreed with the statement that 'If the test result is abnormal (HIV positive), I can be sure that this result is correct, had a high frequency of HIV self-testing (chi square = 14.733,  $p < 0.05$  with  $df = 4$ ).

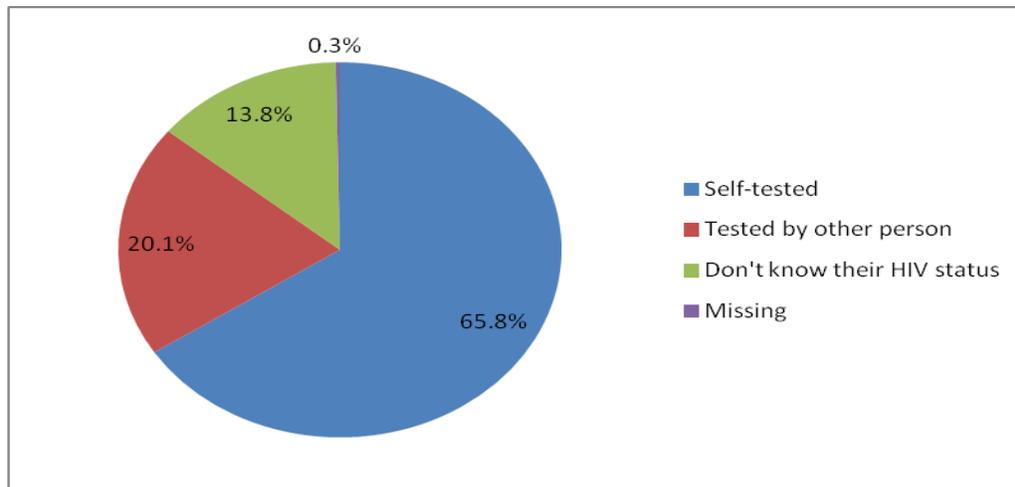
- **Other predictors (items B9, C8, B15 and C14)**

There was no significant relationship between anticipated regret (refer to items B9 and C8) if one did not perform self-test and subsequently turned out to be HIV infected, with the frequency of HIV self-testing (chi square = 5.238,  $p > 0.05$  with  $df = 4$ ).

The frequency of HIV self-testing had no significant relationship with the perceived benefit of privacy (refer to items B15 and C14) offered by the self-testing (chi square = 7.491,  $p > 0.05$  with  $df = 4$ ).

#### 4.2.8 Knowledge of HIV status (items A6 and C1)

Knowledge of HIV status was assessed by computing the number of respondents who practiced self-testing (item A6) and the number of non self-testers who were tested for HIV by someone else (item C1).



**Figure 4.5 Knowledge of HIV status (N=348)**

The study found that 13.8% (N=348) of the respondents did not know their HIV status. Those who knew their HIV status through HIV self-testing accounted for 65.8% (N=348) while those who knew their HIV status through being tested by other persons accounted for 20.1% (N=348). Combining the percentages of those who knew their HIV status showed that 85.9% (N=348) of the respondents knew their HIV status.

### 4.3 PREDICTORS OF HIV SELF-TESTING

#### 4.3.1 Introduction

The predictors of self-testing were based on the theoretical framework used in the study. These factors identified through the PMT were perceived vulnerability (items B2,

C2, B3 and C3), perceived severity (items B5 and C4), perceived self efficacy (items B7, C6, B8 and C7) and perceived response efficacy (items B10, C9, B11, C10, B12 and C11). These four components predict people's health behaviour as identified in Roger's model and later revisions of the model (Beck 1984:121). It is these four components that comprise the two appraisal pathways: threat appraisal and coping appraisal. The factors assessed in the two appraisal pathways would help predict intention and the practice of HIV self-testing (behaviour) (refer to Figure 2.1).

Other factors were identified through the literature review as possible predictors of HIV self-testing (items B9, C8, B15 and C14). These were included in the analysis and the findings were as reported in the sections below.

#### **4.3.2 Re-coded variables**

For data analysis by logistic regression using SPSS version 16.0, certain variables were re-coded. The variables that were re-coded are explained in the respective data analysis sections.

During the analysis, a significant result ( $p < 0.05$ ) in any of the categories implied that the whole variable was significant.

#### **4.3.3 First level analysis**

A logistic regression analysis was conducted to predict HIV self-testing, using demographic and other variables related to the concepts in the PMT (refer to Figure 2.1).

The first level analysis was conducted using the demographic factors as shown in Table 4.6. The demographic factors included in the model, were marital status (item A5), education level (item A3), age (item A2), profession (item A4) and gender (item A1).

Three hundred and forty two cases were included in the model as the SPSS programme automatically eliminated the six cases from analysis where some information was missing. Therefore, if there was any missing value for any variable in the model, the entire case was excluded from analysis.

**Table 4.6 First level analysis (n=342)**

**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Single			8.974	4	.062			
Married	.237	.346	.469	1	.494	1.267	.643	2.497
Seperated	-.634	.542	1.371	1	.242	.530	.183	1.534
Divorced	-.767	.738	1.080	1	.299	.464	.109	1.973
Widowed	3.214	1.593	4.073	1	.044	24.884	1.097	564.432
Low education			1.564	2	.457			
Intermediate education	-18.327	1.609E4	.000	1	.999	.000	.000	.
High education	-17.920	1.609E4	.000	1	.999	.000	.000	.
Age (20-24)			12.462	7	.086			
Age (25-29)	.010	.457	.000	1	.983	1.010	.412	2.475
Age (30-34)	.575	.524	1.205	1	.272	1.777	.637	4.959
Age (35-39)	.067	.542	.015	1	.901	1.069	.370	3.095
Age (40-44)	.458	.609	.565	1	.452	1.581	.479	5.213
Age (45-49)	-.390	.584	.447	1	.504	.677	.216	2.125
Age (50-54)	-2.968	1.231	5.818	1	.016	.051	.005	.573

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Age (55-59)	-2.165	2.039	1.127	1	.288	.115	.002	6.242
Nurse			5.613	5	.346			
Doctor	.462	.629	.539	1	.463	1.587	.462	5.450
HTC counselor	1.162	.944	1.515	1	.218	3.196	.502	20.329
Clinical Officer	1.379	.785	3.089	1	.079	3.972	.853	18.498
Laboratory Technician	.586	.589	.991	1	.320	1.797	.567	5.700
Social worker	-41.383	2.276E4	.000	1	.999	.000	.000	.
Males	.211	.273	.597	1	.440	1.234	.723	2.106
Constant	18.576	1.609E4	.000	1	.999	1.168E8		

#### 4.3.3.1 Marital status (item A5)

During the analysis, marital status of the respondents was treated as a categorical variable and the reference category was single. The model showed that marital status was a significant predictor of HIV self-testing ( $p < 0.05$ ). The 95% confidence interval for widowed was wide (1.097 – 564.432) which indicated more variability in the sample leading to less specific point estimates. Perhaps this could have been addressed if the sample was bigger though this was not possible in this study as all the target population was included.

The results showed that married people were more likely to self-test compared to single people with an odds ratio of 1.267. Those who were separated were less likely to self-test compared to single people with an odds ratio of 0.530 while those who were divorced were also less likely to self-test (odds ratio 0.464). On the other hand, widowed respondents were more likely to self-test with an odds ratio of 24.884.

#### **4.3.3.2 Educational level (item A3)**

Before the analysis, the level of education was re-coded to group both primary and secondary school as low, college as intermediate and both university and post graduate as high.

During the analysis the education level of the respondents was included in the model as a categorical variable with low being the reference category. Regression analysis showed that educational level was not a significant predictor of HIV self-test ( $p > 0.05$ ) as shown on Table 4.6.

#### **4.3.3.3 Age (item A2)**

The age of the respondents were re-coded in five year age groups from 20 years to 59 years before the analysis. All the respondents who responded to item A2 were included in either of the age groups.

During the analysis, age group 20-24 was used as the reference category. The results showed that age was a significant predictor of HIV self-test use ( $p < 0.05$ ).

Respondents in the age group 25-29 (refer to Table 4.6) were found to be 1.01 times likely to self-test, compared to the 20-24 year olds. This showed that, respondents in this age group were similar in self-test use with respondents in the reference category age group. Those aged 30-34 were 1.777 times more likely to self-test compared to

those aged 20-24 years while those aged 35-39 years were very similar to those aged 20-24 years in self-test use with an odds ratio of 1.069.

Respondents aged 40-44 (refer to Table 4.6) were 1.581 times more likely to self-test compared to the 20-24 year olds. For those aged 45 and older, the likelihood to self-test decreased with increasing age. Those aged 45-49 years were 0.677 times less likely to self-test compared to those aged 20-24 years. Those aged 50-54 years are 0.051 less likely to self-test compared to the reference category. Those aged 55 and older are 0.115 times less likely to self-test compared to those aged 20-24 years.

#### **4.3.3.4 Profession (item A4)**

The professional groups indicated the cadres of staff among the respondents. The option of 'other (please specify)' was not included in the analysis as there was no one who responded to this category.

During the analysis, nurses were used as the reference category. The results showed that profession was not a significant predictor of HIV self-testing ( $p>0.05$ ).

#### **4.3.3.5 Gender (item A1)**

The reference category during the analysis was females. The results showed that gender was not a significant predictor of HIV self-test use ( $p>0.05$ ).

### **4.3.4 Summary of first level analysis**

A binary logistic regression analysis was conducted using demographic factors to predict HIV self-testing practice. The predictors included in the model were, marital status (item A5), education level (item A3), age (item A2), profession (item A4), and gender (item A1).

Logistic regression compares a constant only model (the results with only the constant included in the equation) with a model including other coefficients. In the first level of analysis, the coefficients included in the model were, demographic predictors.

The overall significance of the model was tested by SPSS using model Chi square which is derived from the likelihood of observing the actual data with the assumption that the model which has been fitted is accurate. The Sig. column in Table 4.7 is the probability of obtaining the chi-square statistic (50.494) if there is no effect of the demographic predictors, taken together, on the dependent variable (HIV self-testing). The model is statistically significant because the p-value is less than 0.05.

The Omnibus tests of model coefficients (Table 4.7) give a measure of how well the model fits. The null hypothesis states that the information about the independent variables (predictors) does not allow for better prediction of the dependent variable (HIV self-testing). Therefore if the chi squared value is significant ( $p < 0.05$ ) the null hypothesis is rejected and a conclusion that the demographic predictors in the model allow for good prediction of HIV self-testing is made.

**Table 4.7 Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	50.494	19	.000
	Block	50.494	19	.000
	Model	50.494	19	.000

The Nagelkerke's R<sup>2</sup> is part of SPSS output in the 'Model Summary' table. The Nagelkerke value ranges from zero to one and is a reliable measure of the relationship

between predictors and prediction. Nagelkerke's R<sup>2</sup> is normally higher than the Cox and Snell measure.

In this study, the Nagelkerke's R<sup>2</sup> value was 0.189 (refer to Table 4.8). This indicated a weak relationship between the prediction and demographic predictors of 18.9%. Therefore the demographic variables included in the first level analysis and the practice of self-testing had a weak relationship of 18.9%.

The SPSS output also includes a classification table as part of the output which shows classification error rate of the model. By adding the demographic variables in the model, one is able to explain 70.8% (refer to Table 4.9) of the variability. This means that by including the demographic variables in the model, one could predict the practice of self-testing with 70.8% accuracy.

In the classification table (Table 4.9), the columns are the two predicted values of the dependent while the rows represent the two observed values of the dependent. In a perfect model, the overall percent correct would be 100%. In this study, 96% were correctly classified as HIV self-testers and 23.5% as HIV non self-testers. Overall, 70.8% were correctly classified.

**Table 4.8 First level model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	391.486a	.137	.189

**Table 4.9 Classification table**

Observed		Predicted		
		Self-test2		Percentage Correct
		0	1	
Step 1	Self-test2 0	28	91	23.5
	1	9	214	96.0
Overall Percentage				70.8

a. The cut value is .500

#### 4.3.5 Second level analysis

Predictors of HIV self-test use as identified through the PMT were added to the model developed from the first level of analysis. The factors identified through the PMT were perceived vulnerability (items B2, C2, B3 and C3), perceived severity (items B5 and C4), perceived self efficacy (items B7, C6, B8 and C7) and perceived response efficacy (items B10, C9, B11, C10, B12 and C11). Other factors were assessed as other predictors (items B9, C8, B15 and C14).

The variables added under perceived vulnerability were perceived chances of HIV infection (items B2 and C2) and chances of HIV infection compared to others of age and gender (items B3 and C3). Perceived severity of HIV infection was assessed using items B5 and C4. Perceived self efficacy was assessed as difficulty of conducting HIV self-test (items B7 and C6), confidence of interpreting HIV test results (items B8 and C7). Perceived response efficacy was assessed as reliability of self-test results (items B10 and C9), confidence in normal results (items B11 and C10) and confidence in abnormal results (items B12 and C11). The other factors assessed as other predictors included anticipated regret if one did not perform self-testing and they subsequently turned out to be HIV infected (items (B9 and C8) and privacy as a benefit of self-testing

(items B15 and C14). This formed the second level of analysis. Three hundred and twenty nine cases were included in the analysis.

**Table 4.10 Second level analysis (n=329)**

**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Single			3.029	4	.553			
Married	-.396	.544	.529	1	.467	.673	.232	1.957
Separated	-1.146	.784	2.136	1	.144	.318	.068	1.478
Divorced	-.719	1.122	.410	1	.522	.487	.054	4.391
Widowed	1.387	2.108	.433	1	.510	4.003	.064	249.086
Low education			.202	2	.904			
Intermediate education	-12.916	1.468E4	.000	1	.999	.000	.000	.
High education	-12.696	1.468E4	.000	1	.999	.000	.000	.
Age (20-24)			12.101	7	.097			
Age (25-29)	-.820	.773	1.124	1	.289	.441	.097	2.005
Age (30-34)	-.208	.845	.060	1	.806	.813	.155	4.260
Age (35-39)	-.480	.907	.280	1	.597	.619	.105	3.659
Age (40-44)	.209	.976	.046	1	.831	1.232	.182	8.342
Age (45-49)	-1.220	.958	1.623	1	.203	.295	.045	1.929
Age (50-54)	-4.414	1.669	6.991	1	.008	.012	.000	.319
Age (55-59)	-1.131	8.271	.019	1	.891	.323	.000	3.542E6
Nurse			4.961	5	.421			

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Doctor	-.610	.887	.472	1	.492	.544	.095	3.095
HTC Counsellor	.662	1.369	.234	1	.629	1.938	.132	28.360
Clinical officer	2.355	1.147	4.211	1	.040	10.533	1.111	99.830
Laboratory technician	-.444	.827	.288	1	.592	.642	.127	3.248
Social worker	-30.943	2.076E4	.000	1	.999	.000	.000	.
Male	.527	.410	1.652	1	.199	1.693	.758	3.780
Chanceself (low)			2.373	2	.305			
chanceself(moderate)	.694	.570	1.480	1	.224	2.001	.654	6.119
chanceself(high)	1.137	.935	1.478	1	.224	3.117	.499	19.486
Chancesothers(smaller)			.169	2	.919			
chancesothers(moderate)	.176	.606	.085	1	.771	1.193	.364	3.908
chancesothers(larger)	.370	1.023	.131	1	.718	1.448	.195	10.742
Not severe			5.219	2	.074			
Severity (neutral)	-.270	.710	.144	1	.704	.764	.190	3.072
Severe	-1.196	.634	3.558	1	.059	.302	.087	1.048
Difficulty (agree)			30.965	2	.000			
Difficulty (Not sure)	-.897	.736	1.484	1	.223	.408	.096	1.726
Difficulty (disagree)	3.278	.614	28.519	1	.000	26.525	7.964	88.338
Interpret (agree)			3.000	2	.223			
Interpret (not sure)	-2.093	1.245	2.827	1	.093	.123	.011	1.415
Interpret (disagree)	.600	1.639	.134	1	.714	1.823	.073	45.287

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Regret (agree)			2.385	2	.304			
Regret (not sure)	.005	.490	.000	1	.992	1.005	.384	2.628
Regret (disagree)	.905	.626	2.089	1	.148	2.473	.725	8.441
Reliable (agree)			25.958	2	.000			
Reliable (not sure)	-2.771	.575	23.194	1	.000	.063	.020	.193
Reliable (disagree)	-2.953	1.329	4.935	1	.026	.052	.004	.706
Normal (agree)			2.886	2	.236			
Normal (not sure)	-.080	.685	.014	1	.907	.923	.241	3.534
Normal (disagree)	2.068	1.227	2.843	1	.092	7.912	.715	87.593
Abnormal (agree)			7.034	2	.030			
Abnormal (not sure)	-.194	.469	.171	1	.679	.823	.328	2.066
Abnormal (disagree)	-1.490	.564	6.974	1	.008	.225	.075	.681
Privacy (agree)			.735	2	.692			
Privacy (not sure)	.760	.904	.706	1	.401	2.137	.363	12.568
Privacy (disagree)	-.130	1.405	.009	1	.927	.878	.056	13.791
Constant	14.922	1.468E4	.000	1	.999	3.024E6		

#### 4.3.5.1 Factors included from the first level analysis

The demographic factors included from the first level analysis (marital status (item A5), education level (item A3), age (item A2), profession (item A4), and gender (item A1))

were also included in the second level analysis. Among the factors that were significant predictors of HIV self-testing in the first level analysis namely age and marital status, only age was still a significant factor when included in the second level of analysis.

All the other demographic factors namely education level, profession, marital status and gender, included from the first level analysis were not significant predictors of HIV self-testing.

#### **4.3.5.2 Perceived vulnerability (item B2, C2, B3 and C3)**

Responses to items related to perceived vulnerability were re-coded before data analysis as follows:

- Chances of becoming HIV infected: chanceself (low) = low; chanceself (moderate) = moderate and chanceself (high) = high (refer to item B2 and C2). During analysis, respondents who perceived their chances of HIV infection as low were used as the reference category.
- Chances of becoming HIV infected compared to others of the same age and gender: chancesothers (smaller) = Smaller; chancesothers (moderate) = moderate and chancesothers (larger) = larger (refer to item B3 and C3). The reference category during the analysis was respondents who perceived their chances of contracting a HIV infection as smaller when they compared themselves with others of similar age and gender.

The results showed that perception of vulnerability in regards to the chances that the individuals could become HIV infected was not a significant predictor of HIV self-test use (refer to items B2 and C2) ( $p > 0.05$ ).

It therefore means that, respondents who perceived their chances of becoming HIV infected as moderate or high have similar probabilities of practicing HIV self-testing.

Perception of vulnerability in regards to comparing self to others of the same age and gender, was also not a significant predictor of self-test use (refer to items B3 and C3) ( $p>0.05$ ).

#### **4.3.5.3 Perceived severity (items B5 and C4)**

Perceived severity of HIV infection was re-coded as: not severe; severity (neutral) = neutral and severe (refer to item B5 and C4). Those who perceived HIV infection as not severe were used as the reference category during the analysis.

The findings showed that the perception of severity was not a significant predictor of self-test use among the respondents. Those who considered becoming HIV infected as moderately severe had similar outcomes of self-testing as those who perceived becoming HIV infected as not severe ( $p>0.05$ ).

#### **4.3.5.4 Perceived self efficacy (items B7, C6, B8 and C7)**

The responses to variables that were used to assess self efficacy were, re-coded as follows:

- Difficulty of performing HIV self-test: difficulty (agree) = agree; difficulty (not sure) = not sure and difficulty (disagree) = disagree (refer to items B7 and C6).
- Ability to interpret self-test results without professional assistance: interpret (agree) = agree; interpret (not sure) = not sure and interpret (disagree) = disagree (refer to items B8 and C7).

The results showed that HIV self-testers had a higher level of self efficacy ( $p<0.05$ ) when compared to non self-testers. Self-testers were more likely to disagree with the statement that 'performing HIV self-test is difficult'. Those who disagreed with this statement (refer to difficulty (disagree) in Table 4.10) were 26.525 times more likely to self-test than those who agreed with the same statement.

The ability to confidently interpret the test result without professional assistance was not a significant predictor of self-test use of HIV among the respondents. Those who disagreed with the statement that 'I can confidently interpret the test result without professional assistance' had an odds ratio of 1.823 when compared with those who agreed with the same statement. However, this was not statistically significant ( $p>0.05$ ).

#### **4.3.5.5 Perceived response efficacy (Items B10, C9, B11, C10, B12 and C11)**

Responses to items on response efficacy were re-coded before data analysis as follows:

- HIV self-test results are reliable: reliable (agree) = agree; reliable (not sure) = not sure and reliable (disagree) = disagree (refer to item B10 and C9).
- Confidence in normal (HIV negative) results: Normal (agree) = agree; Normal (not sure) = not sure and Normal (disagree) = disagree (refer to item B11 and C10).
- Confidence in abnormal (HIV positive) results: Abnormal (agree) = agree; Abnormal (not sure) = not sure and Abnormal (disagree) = disagree (refer to item B12 and C11).

The study showed that perceived reliability of self-test results was a significant predictor of HIV self-testing (refer to reliable (agree) on Table 4.10) ( $p<0.05$ ). This meant that, HIV self-testers were more likely to agree with the statement that 'the result of HIV self-test is reliable'. Those who disagreed with this statement were 0.052 times less likely to self-test while those who were not sure were 0.063 times less likely to self-test compared to those who agreed with the statement.

The confidence of HIV self-test results was assessed with the statement that 'if the test result is negative, I can be sure that this result is correct' (refer to items B11 and C10). The findings were not significant ( $p>0.05$ ) as a predictor of HIV self-test use.

However, confidence in HIV self-test results was a significant predictor of self-test use (refer to Abnormal (disagree) on Table 4.10) ( $p < 0.05$ ) when assessed using the statement that 'if the test result is abnormal (HIV positive), I can be sure that this result is correct' (refer to items B12 and C11). HIV self-testers indicated to have more confidence ( $p < 0.05$ ) in the accuracy of abnormal results (HIV positive) than non self-testers. Those who disagreed with the statement were, 0.225 times less likely to self-test compared to those who agreed with the statement.

#### **4.3.5.6 Other predictors (items B9, C8, B15 and C14)**

Other predictors included in the model were, anticipated regret (items B9 and C8) and privacy (items B15 and C14). The responses to these items were re-coded as follows:

- Anticipated regret if one does not perform self-test and subsequently turned out to be HIV infected: regret (agree) = agree; regret (not sure) = not sure and regret (disagree) = disagree (refer to items B9 and C8).
- Privacy is an important factor when self-testing: Privacy (agree) = agree; Privacy (not sure) = not sure and Privacy (disagree) = disagree (refer to items B15 and C14).

One factor assessed in the regression model included anticipated regret if individuals did not perform HIV self-test and they subsequently turned out to be HIV infected. This factor was however found to be non significant ( $p > 0.05$ ) (refer to regret (not sure) or regret (disagree) on Table 4.10) as a predictor of HIV self-testing in the model.

The need for privacy as an important factor in HIV self-testing was also assessed and was found that it was not statistically significant ( $p > 0.05$ ) (refer to privacy (not sure) or privacy (disagree) on Table 4.10) as a potential benefit that would predict HIV self-test use among the health care workers in Nyeri provincial hospital.

#### 4.3.6 Summary of second level analysis

A second level analysis was conducted by including predictors of HIV self-testing as identified through the PMT into the first level analysis that involved demographic factors. These additional predictors were; perceived chances of HIV infection (items B2 and C2), chances of HIV infection compared to others of age and gender (items B3 and C3), perceived severity of HIV infection (items B5 and C4), difficulty of conducting HIV self-test (items B7 and C6), confidence of interpreting HIV test results (items B8 and C7), anticipated regret (items B9 and C8), reliability of self-test results (items B10 and C9), confidence in normal results (items B11 and C10), confidence in abnormal results (items B12 and C11) and privacy as a benefit of self-testing (B15 and C14).

A test of the model against a constant only model was statistically significant indicating that the predictors as a set reliably distinguished between HIV self-testers and non self-testers (refer to Table 4.11) (chi square =192.160,  $p < 0.05$  with  $df = 39$ ). By looking at the Sig. column in Table 4.11, it shows that the model is statistically significant because the p-value is less than 0.05. The Omnibus tests of model coefficients (Table 4.11) give a measure of how well the model fits. The null hypothesis states that the information about the independent variables (predictors) does not allow for better prediction of the dependent variable (HIV self-testing). Therefore if the chi squared value is significant the null hypothesis is rejected and a conclusion that the predictors in the model allow for good prediction of HIV self-testing is made.

**Table 4.11 Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	192.160	39	.000
	Block	192.160	39	.000
	Model	192.160	39	.000

The Nagelkerke's R<sup>2</sup> of 0.542 (refer to Table 4.12) indicated a moderately strong relationship between prediction and the predictors of 54.2%. The model was able to explain 83% of the variability (refer to Table 4.13). This meant that by including the variables in Table 4.10 in the model, one could predict the practice of HIV self-testing with 83% accuracy. This is an improvement on the 70.8% prediction accuracy when using demographic variables in the model only (Table 4.9). From the second level analysis, 90.3% were correctly classified as self-testers and while 68.8% were correctly classified as non self-testers (Table 4.13).

**Table 4.12 Second level model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	258.547a	.392	.542

**Table 4.13 Classification table**

Observed		Predicted		
		Self-test2		Percentage Correct
		non self-tester	Self-tester	
Step 1 Self-test2	non self-tester	77	35	68.8
	Self-tester	21	196	90.3
Overall Percentage				83.0

a. The cut value is .500

### 4.3.7 Third level analysis

A third level analysis was conducted with predictors that were found significant from the first two levels of analysis. These predictors included age (item A2), difficulty of conducting HIV self-test (items B7 and C6), reliability of self-test results (items (B10 and C9) and confidence in abnormal results (items B12 and C11). Three hundred and forty cases were included in the analysis.

**Table 4.14 Significant predictors of HIV self-test (n=340)**

#### Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Age (20-24)			16.948	7	.018			
Age (25-29)	-.436	.603	.523	1	.469	.647	.198	2.107
Age (30-34)	.173	.657	.069	1	.793	1.189	.328	4.310
Age (35-39)	-.360	.632	.325	1	.569	.698	.202	2.407
Age (40-44)	-.298	.695	.184	1	.668	.742	.190	2.900
Age (45-49)	-1.120	.689	2.641	1	.104	.326	.084	1.260
Age (50-54)	-3.833	1.157	10.978	1	.001	.022	.002	.209
Age (55-59)	-.852	4.687	.033	1	.856	.426	.000	4.167E3
Difficulty (agree)			34.198	2	.000			
Difficulty (not sure)	-.493	.614	.645	1	.422	.611	.183	2.034
Difficulty (disagree)	2.991	.524	32.528	1	.000	19.903	7.121	55.627
Reliable (agree)			35.767	2	.000			

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Reliable (not sure)	-2.374	.411	33.402	1	.000	.093	.042	.208
Reliable (disagree)	-1.434	.686	4.373	1	.037	.238	.062	.914
Abnormal (agree)			14.246	2	.001			
Abnormal (not sure)	-.427	.335	1.626	1	.202	.652	.338	1.258
Abnormal (disagree)	-1.581	.419	14.245	1	.000	.206	.091	.468
Constant	1.581	.591	7.164	1	.007	4.859		

All the variables included in the third level of analysis were significant predictors (refer to Table 4.14) of HIV self-testing ( $p < 0.05$ ). These factors were age (item A2), difficulty of conducting HIV self-test (items B7 and C6), reliability of HIV self-test results (items B10 and C9) and confidence in abnormal HIV self-test results (items B12 and C11).

A test of the model against a constant only model was statistically significant indicating that all the predictors, taken together, reliably distinguished between HIV self-testers and non self-testers (refer to Table 4.15) (chi square = 150.657,  $p < 0.05$  with  $df = 13$ ).

**Table 4.15 Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	150.657	13	.000
	Block	150.657	13	.000
	Model	150.657	13	.000

The Nagelkerke's R<sup>2</sup> of .494 (refer to Table 4.16) indicated a moderate relationship between prediction (HIV self-testing) and the predictors of 49.4 %.

The model was able to explain 81.8 % of the variability (90.6 % for self-testers and 65 % for non self-testers) (refer to Table 4.17). This meant that the model using significant factors, age (item A2), difficulty of conducting HIV self-test (items B7 and C6), reliability of HIV self-test results (items (B10 and C9) and confidence in abnormal HIV self-test results (items B12 and C11) was able to predict HIV self-testing with 81.8% accuracy. This accuracy rate was very similar to the 83% accuracy obtained from second level analysis (Table 4.13).

**Table 4.16 Third level model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	287.079a	.358	.494

**Table 4.17 Classification table**

Observed	Self-test2	Predicted		
		Self-test2		Percentage Correct
		non tester	self- Self-tester	
Self-test2 non self-tester	76	41	65.0	
Self-tester	21	202	90.6	
Overall Percentage			81.8	

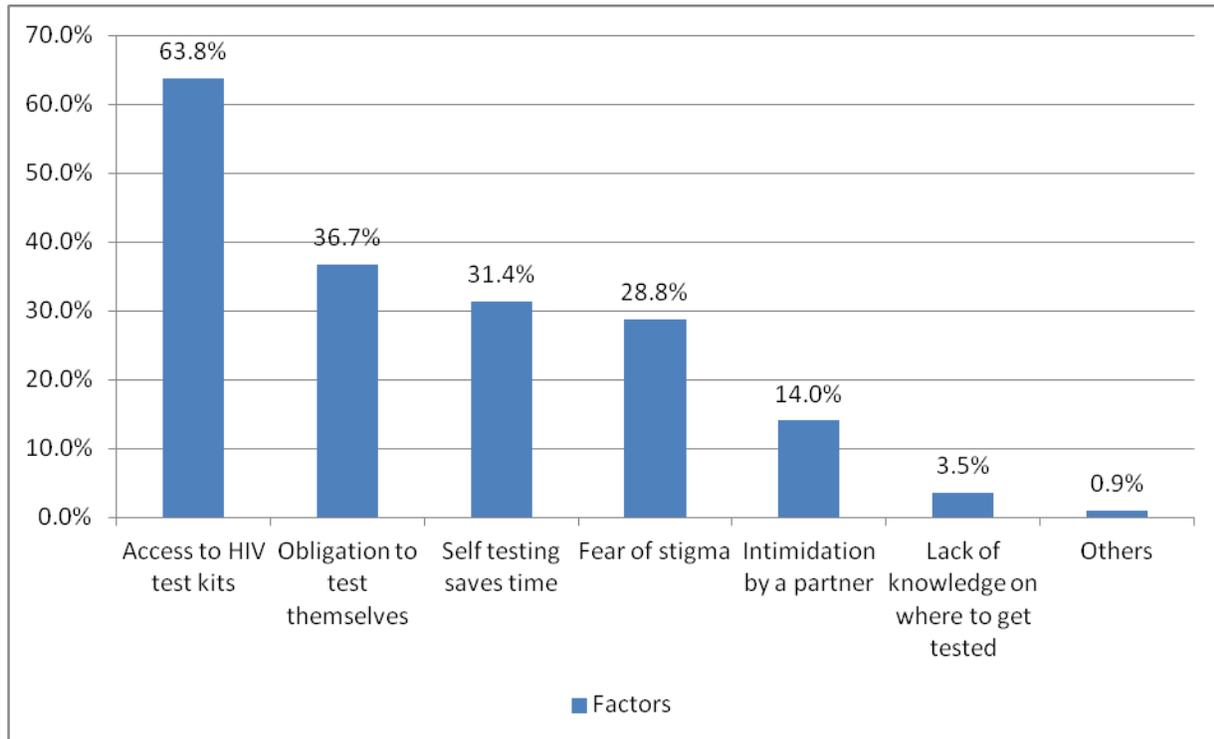
a. The cut value is .500

### 4.3.8 Factors influencing HIV self-testing (Items B17 and C16)

The factors influencing HIV self-testing were classified into two; among self-testers and among non self-testers.

#### 4.3.8.1 Factors among self-testers (item B17)

Self-testers were asked to identify some of the factors that may have influenced them to practice HIV self-testing (item B17). The item allowed respondents to pick more than one option. The responses were presented graphically in Figure 4.6.



**Figure 4.6 Factors influencing HIV self-testing among self-testers (n=229)**

Among the self-testers, easy access to HIV test kits was identified by the majority (63.8%, n=229) as a main factor that influenced them to self-test for HIV. More than a third (36.7%, n=229) of the respondents felt that they had an obligation to test

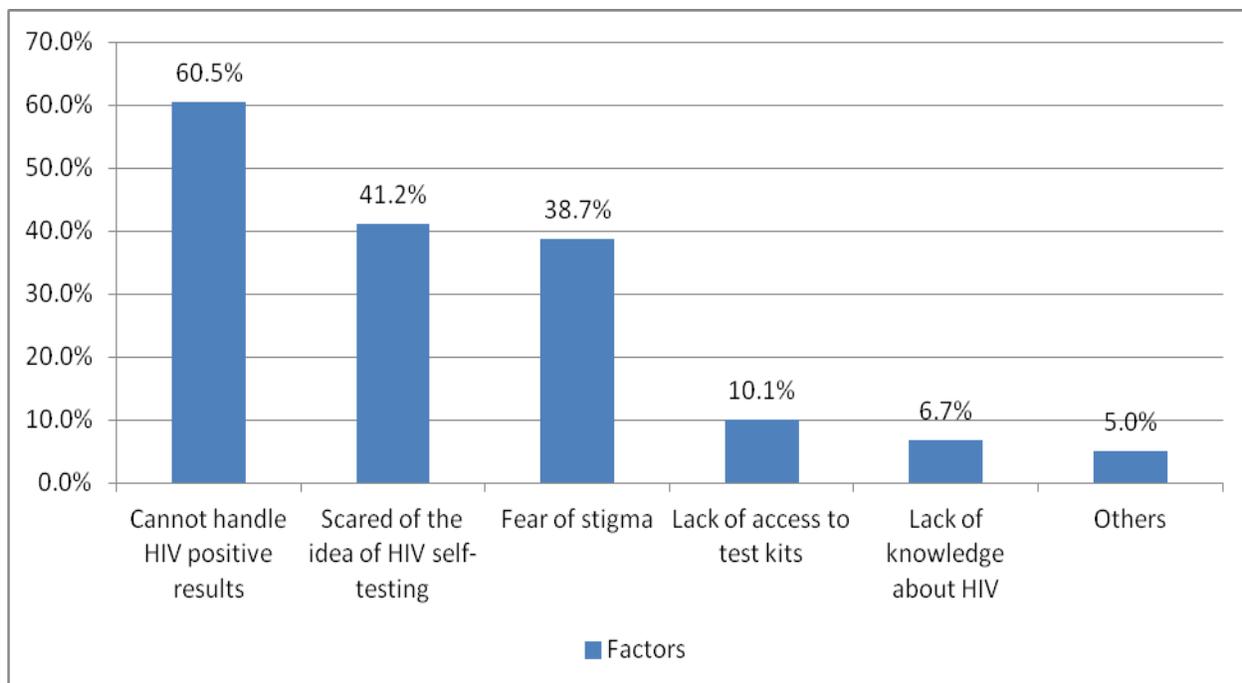
themselves for HIV. Another popular factor identified by self-testers was the belief that HIV self-test saves time. This view was identified by 31.4% (n=229) of the respondents. Fear of stigma was identified by 28.8% (n=229) as a factor that may have also influenced them to choose HIV self-test.

Intimidation by a partner was identified as a factor contributing to HIV self-testing by 14.0% of the respondents (n=229). Lack of knowledge on where to get tested for HIV was identified by 3.5% (n=229) as a factor influencing self-test use.

A small proportion (0.9%, n=229) identified other factors like self exposure to needle prick at work as contributing factors to self-testing of HIV.

#### **4.3.8.2 Factors inhibiting HIV self-testing among non self-testers (item C16)**

Non self-testers were requested to identify the factors that may have led to them not to practice HIV self-testing (item C16). The item allowed respondents to choose more than one option. The responses are presented graphically in Figure 4.7.



**Figure 4.7 Factors inhibiting HIV self-testing among HIV non self-testers (n=119)**

The majority (60.5%, n=119) of non self-testers agreed with the statement that ‘I cannot handle HIV positive results’ as an inhibiting factor to self-testing of HIV. This was followed in popularity by non self-testers who agreed with the statement that ‘the idea of self-test scares me’. Those who agreed with this statement accounted for 41.2% (n=119) of the respondents. About a similar number (38.7%, n=119) identified fear of stigma as an inhibiting factor to choosing HIV self-test.

About a tenth (10.1%, n=119) of the respondents identified lack of access of test kits as an important factor that may have influenced them not to test themselves for HIV. This may be so because some health care workers in certain departments that provide routine HIV testing have more access to HIV test kits than others in different departments where HIV testing is not routinely provided.

Others (6.7%, n=119) identified a lack of knowledge about HIV as a factor that may have influenced them not to opt for self-testing of HIV. A small group (5.0%, n=119) of

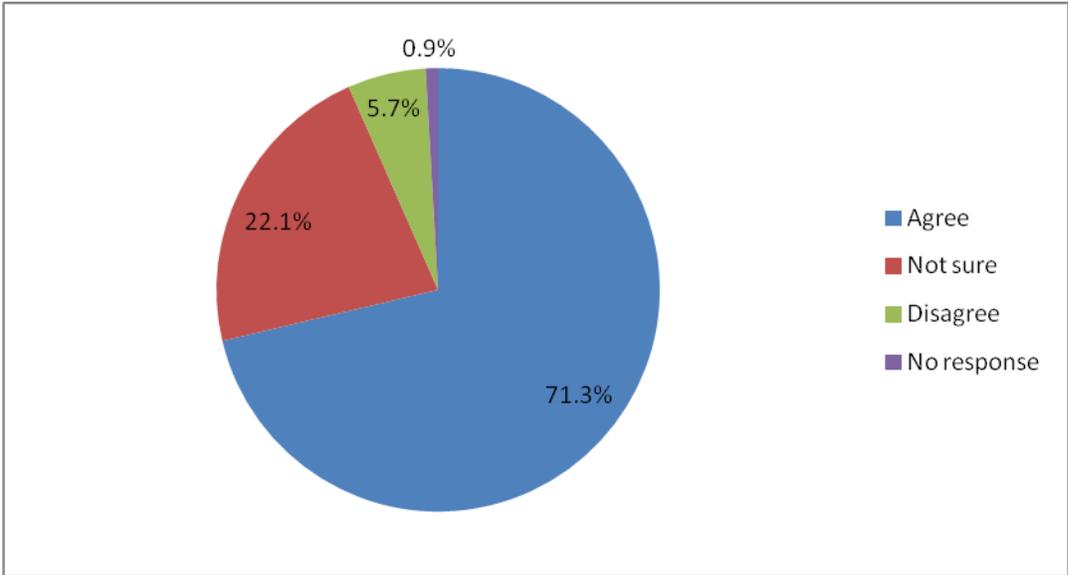
the respondents indicated other factors that may have influenced them not to seek self-testing of HIV. These factors included fear of unknown (especially if they turned to be HIV infected), others felt it was unethical to practice self-testing and some felt there were people trained to do HIV testing and thus there was no need to self-test.

**4.4 ACCESS TO HIV PSYCHOSOCIAL SUPPORT, CARE AND TREATMENT**

Willingness to gain access HIV psychosocial support, care and treatment if respondents were diagnosed to be HIV infected was assessed through two questions. The respondents were presented with the statements that ‘if the test result indicates that I am infected with HIV, I will seek HIV psychosocial support’ and ‘if the test result indicates that I am infected with HIV, I will seek HIV care and treatment’. The responses were re-coded as 0=agree, 1=not sure and 2=disagree.

**4.4.1 Access to HIV psychosocial support (items B13 and C12)**

Responses to items B13 and C12 were analysed and the data presented in Figure 4.8 which shows willingness to access to HIV psychosocial support.

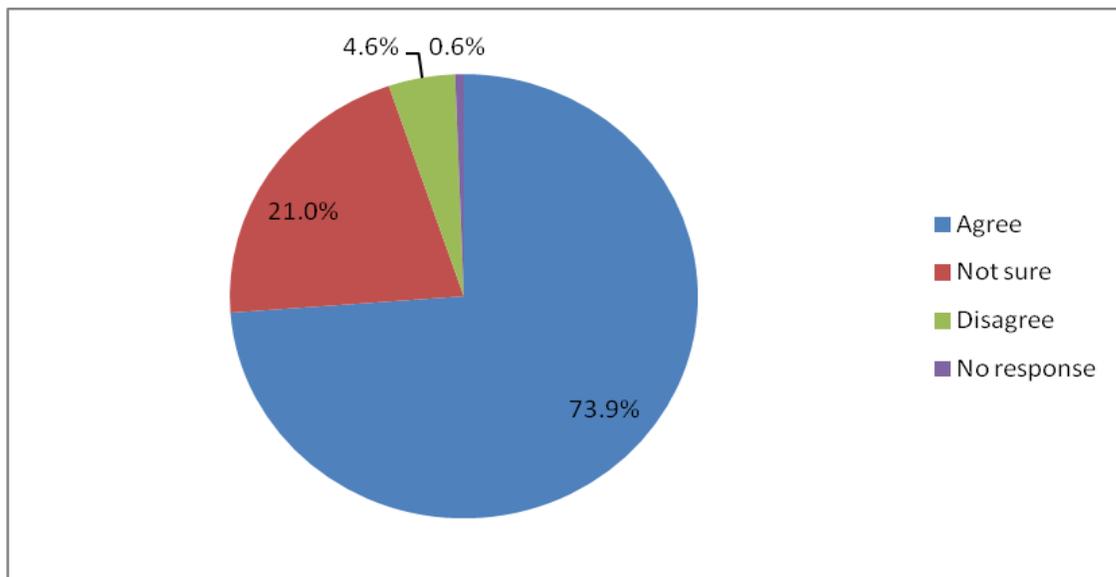


**Figure 4.8 Willingness to access to HIV psychosocial support (N=348)**

Most of the respondents showed willingness to gain access to psychosocial support with 71.3% (N=348) of the respondents agreeing with this option. Less than a quarter (22.1%) of the respondents were not sure whether they would access psychosocial supported if diagnosed to be HIV infected. Only 5.7% of the respondents showed unwillingness to gain access psychosocial support if diagnosed to be HIV infected. Those who did not respond to this item accounted for 0.9% of the respondents.

**4.4.2 Access to HIV care and treatment (items B14 and C13)**

The results of willingness to gain access to HIV care and treatment were comparable to those of willingness to gain access to HIV psychosocial support if respondents were diagnosed to be HIV infected. Figure 4.9 shows results of willingness to gain access to HIV care and treatment.



**Figure 4.9 Willingness to access to HIV care and treatment (N=348)**

From Figure 4.9, the majority of the respondents (73.9%, N=348) showed a willingness to gain access to HIV care and treatment while 21.0% were not sure if they would access HIV care and treatment if diagnosed HIV infected. A considerable number of the respondents indicated that they would not be willing to gain access to HIV care and treatment if they were diagnosed to be HIV infected. This group accounted for 4.6% of the respondents. Those who did not respond to this item accounted for 0.6% of the respondents.

#### **4.5 SUMMARY**

Chapter four presented and interpreted the study findings on the practice of HIV self-testing at Nyeri provincial hospital. Chapter five will present the discussion, study limitations and recommendations.

## **CHAPTER 5: DISCUSSION, LIMITATIONS AND RECOMENDATIONS**

### **5.1 INTRODUCTION**

This chapter presents the discussion, limitations, conclusions and recommendations that were deduced from the study. The objectives of the study were to

- determine the rate of HIV self-testing among health care workers in Nyeri provincial hospital
- explore the factors influencing the practice of HIV self-testing among health care workers in Nyeri provincial hospital
- describe access to HIV psychosocial support, care and treatment among health care workers in Nyeri provincial hospital

The objectives of the study were achieved by carrying out a quantitative descriptive cross-sectional study. The accessible study population was small and so the researcher carried out a census that included collecting data from the entire target population of 414 health care workers of which 348 responded. Data was collected using a structured questionnaire and analysed using SPSS version 16.0.

### **5.2 DISCUSSION OF THE FINDINGS**

The findings are discussed according to the objectives of the study. Where relevant, references are made to the PMT and findings in chapter 4.

#### **5.2.1 Objective 1: Determine the rate of HIV self-testing among health care workers in Nyeri provincial hospital**

The first objective of the study which was to determine the rate of HIV self-testing among health care workers in Nyeri provincial hospital was met. Data revealed that

most respondents (65.8%, N=348) had tested themselves for HIV and only 34.2% of the respondents had not tested themselves for HIV (Table 4.5).

Among the 65.8% self-testers, 81.2 % (n=229) had been tested for HIV by someone else. This meant that 18.8% (n=229) only knew their HIV status through self-testing (refer to figure 4.2). With 81.2% (n=229) of respondents having been tested for HIV by another person, it can be concluded that one key consideration for implementation of effective HIV self-testing system as proposed by WHO has been met in the hospital (Mavedzenge et al 2011).

A survey of health workers conducted in 2005 in Kenya showed high interest in self-testing among health care workers who reported 77% interest in self-testing (NASCOP 2006:22). This high interest in self-testing was also reported in a study of feasibility of HIV self-testing among health care workers in Kenya by Kalibala et al (2011:17). The high interest in self testing is in line with the high testing rates found in this study among health care workers in Nyeri provincial hospital.

The proportion of HIV self testers who would seek a confirmatory HIV test from a qualified professional if HIV self test results indicated they were HIV infected was assessed. The results indicate that 79.9% (n=229) of self-testers would seek confirmatory test from a qualified professional if self-test results indicated that they were HIV infected (refer to Figure 4.3). However, this meant that 17.5% (n=229) of the respondents indicated that they would not seek confirmatory test following positive results of HIV self-test. This is in contrast to the Kenya national guidelines in HIV testing and counselling in Kenya which recommends having a confirmatory test for all HIV tests that indicate the individual is HIV infected (NASCOP 2010a:5,17).

Among the HIV self-testers, 20.5% (n=229) practiced self-testing every month, while 30.1% did it once every three months. Another 17.0% tested themselves once every six months while 22.7% did HIV self-testing on annual basis. A considerable number, 8.7% had tested themselves for HIV just once (refer to Figure 4.4). The Kenya operational

manual for carrying out PITC in clinical settings (NASCO 2010b:42-43) clarify the specific populations and settings in which persons who previously tested HIV negative would benefit from re-testing. The manual generally recommends annual re-testing of persons who have previously tested HIV negative except in persons who are pregnant, have sexually transmitted infections, or have a specific incident of known HIV exposure within the past three months or within the past 72 hours. The findings of this study, indicate that most health care workers in Nyeri provincial hospital who practice HIV self-testing do not adhere to this national recommendation.

#### **5.2.1.1 Knowledge of HIV status**

The study found that 13.8% (N=348) of the respondents did not know their HIV status. Those who knew their HIV status through HIV self-testing accounted for 65.8% (N=348) while those who knew their HIV status through being tested by others accounted for 20.1% (N=348). Combining the percentages of those who knew their HIV status showed that 85.9% (N=348) of the respondents knew their HIV status (refer to Figure 4.5).

These findings showed a higher number (85.9%) of health care workers in Nyeri provincial hospital knew their HIV status in 2012 compared to the 64% knowledge of HIV status according to a 2005 Kenya health workers survey. This survey also showed that the knowledge of HIV status among health workers in Central Province (where Nyeri provincial hospital is located) was 57.7% (NASCO 2006:19-20). This survey was however done 7 years ago and with the many campaigns for people to know their HIV status, many health care workers have been tested for HIV since. This may be an indication that continued campaigns for health care workers to know their HIV status may eventually lead to universal knowledge of HIV status. The hospital authorities need to realise the potential benefit of HIV campaigns in increasing knowledge of HIV status.

## **5.2.2 Objective 2: Explore the factors influencing the practice of HIV self-testing among health care workers in Nyeri provincial hospital**

The second objective, to explore the factors influencing the practice of HIV self-testing among health care workers in Nyeri provincial hospital was met as revealed by the discussion below.

A logistic regression analysis was conducted to predict the practice of HIV self-testing using demographic and other variables related to the concepts in the PMT (refer to Figure 2.1).

After several levels of analyses, some factors were identified as significant predictors of HIV self-testing ( $p < 0.05$ ). These factors were age (item A2), difficulty of conducting HIV self-test (items B7 and C6), confidence in abnormal HIV self-test results (items B12 and C11) and reliability of HIV self-test results (items (B10 and C9) (refer to Table 4.6, 4.10 and 4.14).

Self-testers were further asked to identify factors that may have influenced them to practice self-testing (item B17) while non self-testers were asked to identify factors that may have influenced them not to practice self-testing (item C16). These factors are presented below under other factors (refer to 5.2.2.3).

### **5.2.2.1 Demographic factors**

The age of respondents was the only demographic factor that significantly influenced the practice of self-testing. The findings on age are discussed below.

- **Age**

The results show that age is a significant predictor of HIV self-test use ( $p < 0.05$ ) (refer to Table 4.6).

Respondents in the age group 25-29 (refer to age(1) in Table 4.6) were found to be 1.01 times likely to self-test compared to the 20-24 year olds. This showed that, respondents in this age group were similar in self-test use with respondents in the reference category age group. Those aged 30-34 were 1.777 times more likely to self-test compared to those aged 20-24 years While those aged 35-39 years were very similar to those aged 20-24 years in self-test use with Exp(B) value of 1.033.

Respondents aged 40-44 (refer to Table 4.6) were 1.581 times more likely to self-test compared to the 20-24 year olds. For those aged 45 and above, the likely hood of self-test use decreased with increasing age. Those aged 45-49 years were 0.656 times likely to self-test compared to those aged 20-24 years. Those aged 50-54 years have an odds ratio of 0.051 to self-test. Those aged 55 and above are 0.115 times likely to self-test compared to those aged 20-24 years.

The KDHS (2010) reported that HIV prevalence in Kenya varies by age and gender with women aged 40 - 44 and men aged 35 - 39 most likely to be HIV infected. Male and female health care workers aged between 35 - 44 years account for a significant number of the health work force. In this study, they accounted for about a third of the health care workers (refer to Table 4.1). This indicates that a significant number of health care workers fall within the age groups most infected with HIV. The hospital authorities should take note of this and develop expanded HIV testing options targeting health care workers to increase the level of knowledge of HIV status among them.

#### **5.2.2.2 Factors identified through PMT**

The factors identified through the PMT are discussed below under the categories of perceived vulnerability, perceived severity, perceived self efficacy, perceived response efficacy and other predictors.

- **Perceived vulnerability**

The results show that the perception of vulnerability with regards to the chances that the individuals could become HIV infected was not a significant predictor of HIV self-test use (refer to items B2 and C2) ( $p>0.05$ ).

Therefore, it means respondents who perceived their chances of becoming HIV infected as moderate or high have similar probabilities of practicing HIV self-testing.

The perception of vulnerability with regards to comparing self to others of the same age and gender, was also not a significant predictor of self-test use (refer to items B3 and C3) ( $p>0.05$ ).

These findings are in contrast to findings in a similar study that found perception of vulnerability being higher among HIV self-testers when compared to non self-testers (Grispen et al 2011).

Literature shows that perceived vulnerability is one of the important components of the threat appraisal in the protection motivation theory. Perceived vulnerability in this study was assessed by evaluating the likelihood of becoming infected with HIV. Threat appraisals indirectly enhance protection motivation by increasing perceived vulnerability (Boer & Seydel 1996:98). In relation to this study, people estimate their own likelihood (vulnerability) of having HIV infection and if high, the theory postulates that, people will have the intention to protect themselves. However, the findings of this study found that the perception of vulnerability was not significantly different between self-testers and non self-testers.

- **Perceived severity**

The findings show that the perception of severity is not a significant predictor of self-test use among the respondents. Those who considered becoming HIV infected as

moderately severe had similar outcomes of self-testing as those who perceived becoming HIV infected as not severe ( $p>0.05$ ).

These findings were consistent with findings in a similar study that found perceived severity in HIV self-testing was not a significant predictor of HIV self-testing (Grispen et al 2011). However, these findings are in contrast with literature that shows that perceived severity is one important component of the threat appraisal in the protection motivation theory. The threat appraisals indirectly enhance the protection motivation by increasing perceived severity (Boer & Seydel 1996:98). The PMT postulates that people's intention to protect themselves from a threat is influenced by their estimation of the seriousness (or severity) of the consequences of the threat (in this case HIV infection). The magnitude of harmful consequences about a depicted event leads to a corresponding cognition of appraised severity. The protection motivation will be high as well as decisions to engage in the recommended protective activity (Beck 1984:121).

However, the findings of this study found that the perception of severity was not significantly different between HIV self-testers and HIV non self-testers. Therefore this factor was not a predictor of HIV self-testing.

- **Perceived self efficacy**

The results showed that HIV self-testers had a higher level of self efficacy ( $p<0.05$ ) when compared to non self-testers. Self-testers were more likely to disagree with the statement that 'performing HIV self-test is difficult'. Those who disagreed with this statement (refer to difficulty (disagree) in Table 4.10) were 26.525 times more likely to self-test than those who agreed with the same statement. This meant that those who perceived HIV self-testing as easy were more likely to practice self-testing than those who perceived it as difficult.

The ability to confidently interpret the test result without professional assistance was not a significant predictor of self-test use of HIV among the respondents. Those who

disagreed with the statement that 'I can confidently interpret the test result without professional assistance' had an odds ratio of 1.823 when compared with those who agreed with the same statement. However, this was not statistically significant ( $p>0.05$ ).

The ability to interpret the test results is a requirement for performing HIV self-testing in Kenya according to the Kenya national HTC guidelines (NAS COP 2010a:6). Considering that the respondents were all health care workers, their ability to confidently interpret the test result without professional assistance may be similar. This therefore means that this is not an important predictor of HIV self-testing.

These findings on perceived self efficacy were consistent with another study carried out by Grispen et al (2011) that reported that self-testers had higher self efficacy when compared to non self-testers of HIV.

Perceived self efficacy is one of the components of coping appraisal in the PMT. The coping appraisal is the assessment of the effectiveness of the possible responses to the threat (response efficacy). Several studies examining health behaviour have supported the structure of the model in predicting intention and behaviour (Boer & Seydel 1996:99, Lee et al 2007). The findings of this study on self efficacy are therefore consistent with the postulation of the PMT.

- **Perceived response efficacy**

The study findings show that perceived reliability of self-test results is a significant predictor of HIV self-testing (refer to reliable (not sure) on Table 4.10) ( $p<0.05$ ). This means that, HIV self-testers are more likely to agree with the statement that 'the result of HIV self-test is reliable'. Those who disagreed with this statement were, 0.052 times less likely to self-test while those who were not sure were 0.063 times less likely to self-test compared to those who agreed with the statement. These findings imply that those who perceive HIV self-test results as reliable are more likely to practice self-testing compared to others who perceive self-test results as unreliable.

The confidence in HIV self-test results was assessed with the statement that 'if the test result is negative, I can be sure that this result is correct' (refer to items B11 and C10). The findings were not significant ( $p>0.05$ ) as a predictor of HIV self-test use.

However, confidence in HIV self-test results was a significant predictor of self-test use (refer to Abnormal (disagree) on Table 4.10) ( $p<0.05$ ) when assessed using the statement that 'if the test result is abnormal (HIV positive), I can be sure that this result is correct' (refer to items B12 and C11). HIV self-testers indicated to have more confidence ( $p<0.05$ ) in the accuracy of abnormal results (HIV positive) than non self-testers. Those who disagreed with the statement were 0.225 times less likely to self-test compared to those who agreed with the statement.

These findings on response efficacy were consistent with a study carried out by Grispen et al (2011) that found self-testers of HIV had a higher response efficacy when compared to non self-testers of HIV.

Response efficacy is the belief that carrying out the recommended protective action (HIV self-testing) will be effective in protecting self. Response efficacy is one of the components of coping appraisal in the PMT. The coping appraisal evaluates the ability to cope with the threatened danger (HIV infection in this study) (Conner & Norman 2005:83). The findings of this study on response efficacy are therefore consistent with the postulation of the PMT.

### **5.2.2.3 Other predictors**

Other predictors were identified through the literature review and were included in the model. One of the factors assessed in the regression model included anticipated regret if individuals did not perform a HIV self-test and they subsequently turned out to be HIV infected. This factor was however found to be non significant ( $p>0.05$ ) (refer to regret (not sure) or regret (disagree) on Table 4.10) as a predictor of HIV self-testing in the

model. This finding was in contrast with findings of a study done by Grispen et al (2011) that found that HIV testers were more likely to indicate that they would regret if they did not perform HIV self-testing and were subsequently diagnosed with HIV infection.

The need for privacy as an important factor in HIV self-testing was also assessed and it was found that it was not statistically significant ( $p>0.05$ ) (refer to privacy (not sure) or privacy (disagree) on Table 4.10) as a potential benefit that would predict HIV self-test use among the health care workers in Nyeri provincial hospital. Contrary to findings of this study, Grispen et al (2011) conducted a similar study that identified privacy as an important advantage of HIV self-testing among self-testers. Privacy is identified as an important factor in HIV self-testing and is chosen by some health care workers as a HIV testing option because it is private and anonymous (Kalibala et al 2011:38).

This study therefore found that the two additional factors identified through the literature review were not significant predictors of HIV self-testing among health care workers.

#### **5.2.2.4 Other factors**

Other factors that may influence the practice of self-testing among health care workers were also assessed. They were categorised as factors influencing HIV self-testing among self-testers and factors inhibiting HIV self-testing among non self-testers as presented below.

- **Factors influencing HIV self-testing among self-testers**

Among the self-testers, easy access to HIV test kits was identified by the majority (63.8%, n=229) as a main factor that influenced them to self-test for HIV. About a third of the respondents (36.7%, n=229) felt that they had an obligation to test themselves for HIV. Another popular factor identified by self-testers was the belief that a HIV self-test saves time. This view was identified by 31.4% (n=229) of the respondents. Self-testing

has been reported as a quick method of HIV detection and this is seen as beneficial by many people (Kachroo 2006).

Fear of stigma was identified by 28.8% (n=229) as a factor that may have also influenced them to choose HIV self-testing (refer to Figure 4.6). Literature shows that HIV/AIDS related stigma and discrimination presents a major challenge in HIV testing. This may lead some to choose self-testing (Stewart et al 2002:1).

While there are many benefits associated with accessing HIV testing as a couple (CDC 2007:6; Uganda Ministry of Health 2005:138; WHO 2012:9), self-testing presents a new challenge in cases where a partner intimidates another to seek the HIV test. In this study, intimidation by a partner was identified as a factor contributing to HIV self-testing by 14.0% of the respondents (n=229). The national HTC guidelines recommend strict adherence to certain core principles in all forms of HIV testing. One of those core principles is consent. Intimidation by a partner to perform HIV self-testing violates this principle (NASCOP 2008:19). According to the WHO (2007a:17), individuals require sufficient information to make an informed and voluntary decision to be tested for HIV. The hospital management need to address this issue in totality to ensure health care workers do not intimidate or get intimidated by their partners to self-test. One of the methods the management can do is to sensitise the health care workers on the dangers of intimidating their partners to perform HIV self-testing.

A lack of knowledge on where to get tested for HIV was identified by 3.5% (n=229) as a factor influencing self-test use. According to KAIS of 2007, lack of knowledge on where to get tested for HIV was cited as a barrier for HIV testing by 6.6% of women and 4.9% of men. However, the KAIS focussed on the general population and one would expect health care workers to know where to get a HIV test (MOH 2008:76). HIV testing information forums held in the hospital should be organised to impart knowledge to health care workers on where to get tested for HIV. Posters and pamphlets with information about places one can get HIV testing services should also be provided in the hospital.

A small proportion (0.9%, n=229) of respondents identified other factors like self exposure to needle prick at work as contributing factors to self-testing of HIV (refer to Figure 4.6). Health care workers are at risk for occupational exposures to needle pricks. HIV self-testing enables health care workers to access post exposure prophylaxis (PEP). A HIV test is a prerequisite to PEP and HIV self-testing enables those who are occupationally exposed to HIV to take the baseline HIV test (Kalibala et al 2011:24). This may explain the proportion of health care workers who cited this as the factor that influenced them to practice HIV self-testing.

- **Factors inhibiting HIV self-testing among non self-testers**

The majority (60.5%, n=119) of non self-testers agreed with the statement that 'I cannot handle HIV positive results' as an inhibiting factor to self-testing of HIV. This was followed in popularity by non self-testers who agreed with the statement that 'the idea of self-test scares me'. Those who agreed with this statement accounted for 41.2% (n=119) of the respondents. One of the roles of counselling is to help clients deal with HIV positive results. HIV self-testing lacks this important component and this explains why opponents of self-testing point out that HIV testing is not sufficient without pre-test and post-test counselling. Telephone counselling has been identified as a safe and effective alternative for face-to-face counselling (Kachroo 2006). If this option was made available to health care workers, the majority of non self-testers may as well practice HIV self-testing.

Some non self-testers (38.7%, n=119) identified fear of stigma as an inhibiting factor to choosing HIV self-test (refer to Figure 4.7). This inhibiting factor is supported by literature. The fear of marginalisation, ridicule, social isolation or other discriminatory practices are real in the workplace and may discourage workers from HIV testing or seeking HIV prevention and care services following HIV testing (Stewart et al 2002:1). Kachroo (2006) reports that social stigma and discrimination associated with HIV infection is an inhibiting factor to accessing HIV testing services. Lack of HIV awareness

among people may be the cause of stigma and discrimination and the management should organise forums to raise HIV awareness among the health care workers. Kalibala et al (2011:38) reports that there is a high level of stigma that exists around HIV that makes a huge number of health care workers in Kenya to seek HIV testing at facilities outside the one in which they work.

About ten percent (10.1%, n=119) of the respondents identified a lack of access to test kits as an important factor that may have influenced them not to test themselves for HIV. Access to HIV test kits appears to be a main factor in influencing self-testing as easy access to HIV test kits was identified by the majority of self-testers as the main influencing factor. This may indicate that increasing accessibility to HIV test kits may increase the number of health care workers who know their HIV status.

Some of the respondents (6.7%, n=119) identified a lack of knowledge about HIV as a factor that may have influenced them not to opt for self-testing of HIV. Another group of respondents (5.0%, n=119) indicated other factors that may have influenced them not to seek self-testing of HIV (refer to Figure 4.7). These factors included fear of unknown (especially if they turned to be HIV infected), others felt it was unethical to practice self-testing and some felt there were people trained to do HIV testing and thus there was no need to self-test.

### **5.2.3 Objective 3: Describe access to HIV psychosocial support, care and treatment among health care workers in Nyeri provincial hospital**

The third objective, to describe access to HIV psychosocial support, care and treatment among health care workers in Nyeri provincial hospital was met. The researcher assessed the aspect of willingness to gain access to HIV psychosocial support, care and treatment if respondents were diagnosed to be HIV infected through two items.

The hospital has a HIV comprehensive care centre where health care workers could access HIV psychosocial support, care and treatment services. There are also a

neighbouring health facility, Mt. Kenya Hospital, which specialised in providing psychosocial support, care and treatment services to HIV infected health care workers.

#### **5.2.3.1 Access to HIV psychosocial support**

Most of the respondents showed willingness to gain access to psychosocial support with 71.3% (N=348) of the respondents agreeing with this option. However, 22.1% of the respondents were not sure whether they would access psychosocial support if diagnosed to be HIV infected. Only 5.7% of the respondents showed unwillingness to gain access to psychosocial support if diagnosed to be HIV infected (refer to Figure 4.8).

#### **5.2.3.2 Access to HIV care and treatment**

The majority of the respondents (73.9%, N=348) showed willingness to gain access to HIV care and treatment while 21.0% were not sure if they would access HIV care and treatment if diagnosed HIV infected. A considerable number of the respondents indicated that they would not be willing to gain access to HIV care and treatment if they were diagnosed to be HIV infected. This group accounted for 4.6% (N=348) of the respondents (refer to Figure 4.9).

Knowledge of HIV status may not automatically lead to seeking access to care and treatment (Kachroo 2006). However, the high willingness to gain access to care and treatment among the respondents may indicate that health care workers may access these services if they were diagnosed to be HIV infected. This would therefore indicate that access to care and treatment may not be a major weakness in HIV self-testing among health care workers.

It is important to link HIV positive clients to care to initiate treatment. The current approaches for HIV testing have a weakness in this linkage and self-testing may exacerbate the weakness (Walensky & Paltiel 2006:2). However, Choko et al (2011:8)

feels that this argument may not be adequately supported by evidence. In this study, the high willingness among self-testers and non self-testers to gain access to psychosocial support, care and treatment could have been an indicator that linkage to HIV services among health care workers may not be a major weakness.

### **5.3 LIMITATIONS OF THE STUDY**

The study focussed on health care workers from Nyeri provincial hospital and therefore the findings cannot be generalised. The hospital where the study was conducted was one of the eight provincial hospitals in Kenya. It had a wide range of health care workers but if more provincial hospitals were included, it could have led to different data and findings.

In this study, health care workers who were not nurses, doctors, clinical officers, social workers, laboratory technicians and HIV counselling and testing staff were excluded from the study as they were not directly involved in HIV/AIDS service delivery. However, the excluded categories of HCW form an important workforce in the hospital and their practice of HIV self-testing should also be explored.

Some of the items in the questionnaires should have asked for more details; for example, on access to HIV psychosocial support, care and treatment, more information should have been sought on where the health care workers would prefer to seek these services and the factors which would influence their choice.

Two of the items in the questionnaire (items B6 and C5) 'do you or someone in your immediate environment have HIV infection?' were double-barrelled questions and should have been more specific. They could have been formulated as 'do someone in your immediate environment have HIV infection?' The double-barrelled items were not included in the analysis to avoid reaching inaccurate conclusions and interpretations of the data.

Doing qualitative research may have elicited information of a more personal nature to understand the phenomenon of HIV self-testing. This information would complement the information obtained through quantitative research.

However, despite these limitations, the study elicited important information on the extent of HIV self-testing practice, factors influencing HIV self-testing and access to HIV psychosocial support, care and treatment. This information could serve as basis to streamline HIV self-testing in Nyeri provincial hospital.

## **5.4 RECOMMENDATIONS**

Recommendations of the findings of the study are made in terms of health authorities, Nyeri provincial hospital, health care workers and further research.

### **5.4.1 Health authorities**

The ministry of health in Kenya should develop specific guidelines to address HIV self-testing among health care workers using blood based HIV rapid test kits in health facilities.

### **5.4.2 Nyeri provincial hospital**

- To avoid the high frequency of HIV retesting, the Nyeri provincial hospital management team should consider disseminating and implementing the Kenya HIV retesting guidelines to health care workers.
- The Nyeri provincial hospital management team should organise sensitisation forums to address HIV related stigma.
- The Nyeri provincial hospital management team should develop a policy and hold sensitisation forums to address partner intimidation to HIV self-testing.

### **5.4.3 Health care workers**

- The health care workers in Nyeri provincial hospital need to be trained to adhere to Kenya National HIV counselling and testing guidelines when practicing HIV self-testing.
- The health care workers in Nyeri provincial hospital need to be trained to adhere to Kenya HIV retesting guidelines when practicing HIV self-testing.
- The health care workers in Nyeri provincial hospital need to be explained their rights in order to address their fear of HIV related stigma.

### **5.4.4 Further research**

This study could be repeated in a larger scale by including other provincial hospitals and other levels of health facilities such as primary health care clinics. The study could also include private hospitals and faith based hospitals. A proportionate stratified random sampling method could be used in such a study that would allow for generalisation of the findings.

Willingness to seek HIV psychosocial support, care and treatment may not translate to actual access. Therefore, further research could be conducted to determine actual access to these HIV services among health care workers.

## **5.5 CONCLUSION**

This chapter concluded the study titled 'Exploring the practice of HIV self-testing among health care workers at Nyeri provincial hospital in Kenya'. A discussion of the results, limitations and recommendations were described in this chapter.

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## **APPENDICES**

Appendix A: Permission to conduct a study

Appendix B: Ethical Clearance Certificate

Appendix C: Informed Consent

Appendix D: The Questionnaire

Appendix E: The Editors Declaration

Permission to Conduct a Study

March 30, 2012

Dr. Mwago,  
Medical Superintendent  
P. O. Box 27, 10100, Nyeri

To Pay 2000 K  
Research fee

RE: Permission to Conduct a Research Study

*[Handwritten Signature]*  
14/6/12

Dear Dr. Mwago,

I am writing to request permission to conduct a research study at your hospital. I am currently enrolled in the Master of Public Health program at University of South Africa (UNISA), and am in the process of writing my Master's Thesis. The study is entitled "Exploring the practice of HIV self-testing among health care workers at Nyeri Provincial Hospital in Kenya".

I ask permission from the hospital administration to request health care workers from the hospital to anonymously complete a 5-page questionnaire (copy enclosed). Due to the nature of the study, all cadres of health care workers will be included in the study. Health care workers, who volunteer to participate, will be asked to give written informed consent (copy enclosed). If approval is granted, participants will complete the questionnaire in a quiet setting on the hospital site at their convenient time. It should take no longer than thirty minutes. The data will be analyzed and reported on in a dissertation for the MPH qualification. Individual data of this study will remain absolutely confidential and anonymous. Should this study be published, only pooled results will be documented. No costs will be incurred by either your hospital or the individual participants.

Your approval to conduct this study will be greatly appreciated. I will follow up with a telephone call next week and would be happy to answer any questions or concerns that you may have at that time. You may contact me at my email address: [45564663@mylife.unisa.ac.za](mailto:45564663@mylife.unisa.ac.za) or telephone 0720 262659.

If you agree, kindly sign below and I would collect the signed form next week. Alternatively, kindly submit a signed letter of permission on your institution's letterhead acknowledging your consent and permission for me to conduct this study at your institution.

Sincerely,  
Kennedy Muthoka  
Enclosures

cc: Supervisor: Mrs H du Toit

Joint Supervisor: Mr T Makua

Approved by:

DR JK MALHARIA



Signature

14/6/12

Date

Print your name and title here



## INFORMED CONSENT

Exploring the practice of HIV self-testing among health care workers at Nyeri Provincial Hospital in Kenya

March 30, 2012

Dear Respondent,

I am a Master of Public Health student at University of South Africa (UNISA) and I am conducting a study entitled "Exploring the practice of HIV self-testing among health care workers at Nyeri Provincial Hospital in Kenya". This research project is funded by me as part of my masters program. The objective of this research is to determine the rate of HIV self-testing among health care workers in Nyeri provincial hospital, describe the factors influencing the practice of HIV self-testing and describe the access to psychosocial support, care and treatment of HCW who test positive after self testing of HIV. Your participation will be significant in informing health authorities on viability of HIV self-testing as an option for increasing the number of health workers who know their status.

Enclosed with this letter is a brief questionnaire that asks you a variety of questions about perceptions and practices about HIV self-testing. I am asking you to look over the questionnaire and, if you choose to do so, complete the questionnaire and hand it over to the research assistant.

If you choose to participate, do not write your name on the questionnaire. I do not need to know who you are and no one will know whether you participated in this study. Your responses will not be identified with you personally, nor will anyone be able to determine whether you practice self testing or not.

The risks of this study are minimal. These risks are similar to those you experience when disclosing HIV-related information to others. The topics in the study may be uncomfortable to some respondents. You may decline to answer any or all questions and you may terminate your involvement at any time if you choose. There will be no direct benefit to you for your participation in this study.

I hope you will take a few minutes to complete this questionnaire. Without the help of people like you, research on HIV self testing among health care workers could not be conducted. Your participation is voluntary and there is no penalty if you do not participate.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me at +254 720 262659 or at [45564663@mylife.unisa.ac.za](mailto:45564663@mylife.unisa.ac.za). This study was approved by Dr. Mwago, The Medical Superintendent Nyeri PGH.

Sincerely,

Kennedy Muthoka  
Master of Public Health Student  
University of South Africa (UNISA)

# THE QUESTIONNAIRE

## SECTION A

Code: .....

Today's date: (dd: mm: yyyy).....

1. Please indicate your sex

1.  Female
2.  Male

2. Please indicate your age (years): .....

3. Please tick the **highest** level of education completed (*tick only one*):

1.  Primary School
2.  Secondary School
3.  College
4.  University
5.  Post Graduate

4. Which Professional Group do you belong to? (*tick only one*):

1.  Nurse
2.  Doctor
3.  HIV Testing and Counseling (HTC) Counselor
4.  Clinical officer
5.  Laboratory technicians
6.  Community health worker
7.  Other (please specify) .....

5. Are you currently (*tick only one*):

1.  Married
2.  Single
3.  Separated
4.  Divorced
5.  Widowed

6. Have you ever tested **yourself** for HIV?

- 1  Yes
- 2  No

*Continue with section B if you have ever tested yourself for HIV, if not please go to section C*

**SECTION B**

1. Have you ever been tested for HIV by someone else?
  - 1  Yes
  - 2  No
  
2. According to you, what are the chances that you could become HIV infected?
  - 1  Very Low
  - 2  Low
  - 3  Neither Low nor High
  - 4  High
  - 5  Very High
  
3. According to you, what are the chances that you could become HIV infected compared to others of your age and gender?
  - 1  Much Smaller
  - 2  Smaller
  - 3  Neither Smaller nor Larger
  - 4  Larger
  - 5  Much larger
  
4. How frequently do you test *yourself* for HIV?
  - 1  Every Month
  - 2  Every 3 Months
  - 3  Every 6 Months
  - 4  Annually
  - 5  Did only once
  
5. According to you, how severe do you consider HIV infection to be?
  - 1  not severe at all
  - 2  a little severe
  - 3  neutral
  - 4  severe
  - 5  very severe
  
6. Do you or someone in your immediate environment have HIV infection?
  - 1  Yes
  - 2  No

Indicate for each of the statements (7-15) to which degree you agree, by making an X in the appropriate block

<i>Item No.</i>	<i>Statement</i>	<i>Completely agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Completely disagree</i>
7	Performing HIV self-test is difficult					
8	I can confidently interpret the test result without professional assistance					
9	I would regret it if I did not perform HIV self-test and I subsequently turned out to be HIV infected					
10	The result of HIV self-test is reliable					
11	If the test result is normal (HIV Negative), I can be sure that this result is correct					
12	If the test result is abnormal (HIV positive), I can be sure that this result is correct					
13	If the test result indicates that I am infected with HIV, I will to seek HIV psychosocial support					
14	If the test result indicates that I am infected with HIV, I will to seek HIV care and treatment					
15	The need for privacy is an important factor in HIV self testing					

16. If the test result indicates that I am infected with HIV, I will to seek further confirmatory test from a qualified professional

- 1  Yes
- 2  No

17. Which among the following factors influenced you to test yourself for HIV? (*you can choose more than one option*)

- 1.  Fear of stigma
- 2.  Lack of knowledge on where to get tested
- 3.  Easy access to HIV test kits
- 4.  HIV self test saves time
- 5.  Intimidation by your partner
- 6.  I have an obligation to test my self
- 7.  Other (Specify) .....

*-Thank you for participating-*

**SECTION C**

1. Have you ever been tested for HIV by someone else?
  - 1  Yes
  - 2  No
2. According to you, what are the chances that you could become HIV infected?
  - 1  Very Low
  - 2  Low
  - 3  Neither Low nor High
  - 4  High
  - 5  Very High
3. According to you, what are the chances that you could become HIV infected compared to others of your age and gender?
  - 1  Much Smaller
  - 2  Smaller
  - 3  Neither Smaller nor Larger
  - 4  Larger
  - 5  Much larger
4. According to you, how severe do you consider HIV infection to be?
  - 1  not severe at all
  - 2  a little severe
  - 3  neutral
  - 4  severe
  - 5  very severe
5. Do you or someone in your immediate environment have HIV infection?
  - 1  Yes
  - 2  No

Indicate for each of the statements (6-14) to which degree you agree, by making X in the appropriate block

<i>Item No.</i>	<i>Statement</i>	<i>Completely agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Completely disagree</i>
6	Performing HIV self-test is difficult					
7	I can confidently interpret the HIV test result without professional assistance					
8	I would regret it if I did not perform HIV self-test and I subsequently turned out to be HIV infected					
9	The result of HIV self-test is reliable					
10	If the test result is normal (HIV Negative), I can be sure that this result is correct					
11	If the test result is abnormal (HIV positive), I can be sure that this result is correct					
12	If the test result indicates that I am infected with HIV, I will to seek HIV psychosocial support					
13	If the test result indicates that I am infected with HIV, I will to seek HIV care and treatment					
14	The need for privacy is an important factor in HIV self testing					

15. If the test result indicates that I am infected with HIV, I will seek further confirmatory test from a qualified professional.

1  Yes

2  No

16. Which among the following factors influenced you **not** to test yourself for HIV?

1.  Fear of stigma

2.  The idea of self test scares me

3.  Lack of access to HIV test kits

4.  I cannot handle HIV positive results

5.  Lack of knowledge about HIV

6.  Other (Specify) .....

## DECLARATION

I Consolata Wangechi hereby declare that I edited the Masters Dissertation, titled "*Exploring the practice of HIV self testing among health care workers at Nyeri provincial hospital in Kenya*" of Mr. JK Muthoka. The editing was completed on 11<sup>th</sup> February 2013. My qualification is a Bachelors degree in Education. I can be contacted at <consolata.njoki@gmail.com> or 254 722 340 231.



SIGNATURE

(Ms. Consolata Wangechi)

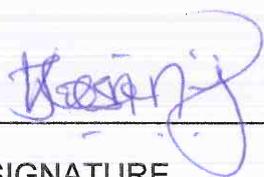
11<sup>th</sup> February 2013

DATE

Student number: 45564663,

## DECLARATION

I declare that "*Exploring the practice of HIV self-testing among health care workers at Nyeri provincial hospital in Kenya*" is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.



SIGNATURE

(Mr)

**Kennedy Muthoka**

31st October 2012

DATE