FACTORS INFLUENCING UPTAKE OF CERVICAL CANCER SCREENING AMONG FEMALE EMPLOYEES OF MULAGO HOSPITAL

NANKYA ESTHER
2015-BNS-TU-025

AN UNDERGRADUATE RESEARCH REPORT SUBMITTED TO THE SCHOOL OF NURSING IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A BACHELORS DEGREE IN NURSING SCIENCES OF INTERNATIONAL HEALTH SCIENCES UNIVERSITY

NOVEMEBER, 2018

DECLARATION

I Nankya Esther solemnly declare that the iformantion presented in this dissertation was a result of independent study and my original work that has never been submitted to this institution or any other institution for any academic award. Where other peoples' informaiton has been used, permission has been sought and acknoweldgement made

Signature……

Date…….

Nankya Esther

Researcher

APPROVAL

This dissertation titled **"Factors influencing uptake of cervical cancer screening among female employees of Mulago Hospital"** has been submitted to Clarke International University under my supervision.

Signature …….. Date ……

OKECHO FLORENCE

SUPERVISOR

DEDICATION

This dissertation is dedicated to my parents and family (my husband, children and sisters). Thanks for your support and may God reward you enormously.

ACKNOWLEDGEMENT

I would like to thank the almighty God for having guided me throughout the process of this research. My appreciation also goes to institutions which supported me directly or indirectly in this research namely; Clarke International University for offering this wonderful life changing course, Mulago Hospital for the enormous support rendered to me during this research and Uganda Cancer Institute for sponsoring me in this course.

Finally, I am thankful to my supervisor Mrs. Florence Oketcho, my mentors Mr. Obote Amos and Mss. Apio Judith, I am very grateful for your guidance throughout the development of this dissertation.

TABLE OF CONTENTS

Declaration i
Approval ii
Dedication iii
Acknowledgement iv
Table of contents v
List of figures viii
List of tables ix
Abstract xi
CHAPTER ONE: INTRODUCTION 1
1.0. Introduction 1
1.1. Background 1
1.2. Statement of the problem 3
1.3. Objectives of the study 3
1.3.1. General objectives 3
1.3.2. Specific objectives 3
1.4. Research questions 4
1.5. Significance of the study 4
1.6. Conceptual framework 5
1.7. Description of study variables 5
CHAPTER TWO: LITERATURE REVIEW 7
2.0. Introduction 7
2.1. Prevalence of cervical cancer screening 7
2.2. Socio demographic factors 8
2.3. Individual factors 10
2.3.3. Attitudes towards cervical cancer and cervical cancer screening 13
3.3.4. Cervical cancer screening practices 14
2.4. Health facility factors 15
2.4.1. Access to health information and education on cervical cancer and cervical cancer screening 15
2.4.2The waiting time 15
2.4.3. The number and attitudes of staff 16
2.4.4. The space and logistics for cervical cancer screening 16
2.4.5. The cost of cervical cancer screening 17

CHAPTER THREE: METHODOLOGY 18
3.0. Introduction. 18
3.1. Study area 18
3.2. Study design 18
3.3. Sources of data. 18
3.4. The target population. 18
3.5. The study population 19
3.6. Sample size calculation 19
3.7. Sampling techniques and procedures 20
3.8. Study variables and their measurements. 20
3.8.1. Dependent variables. 20
3.8.2. Independent variables. 20
3.8.3. Socio demographic factors 20
3.8.4. Awareness about cervical cancer and cervical cancer screening 20
3.8.5 Attitudes towards cervical cancer screening 21
3.8.6 Knowledge on cancer of the cervix and cancer of the cervix screening 21
3.8.7. Cervical cancer screening practices 21
3.8.8 Health facility factors that determine cervical cancer screening uptake 22
3.9. Data collection tools. 22
3.10. Data collection procedure. 22
3.11. Data management 22
3.12. Data analysis 22
3.13. Quality control 23
CHAPTER FOUR: PRESENTATION OF RESULTS 24
4.0. Introduction 24
4.1. Uptake of cervical cancer screening among respondents 24
4.2. Socio-demographic characteristics of respondents 25
4.2.1 Association of socio demographic characteristics with cervical cancer screening uptake among female employees of Mulago Hospital, Uganda, 2018 (n=117) 26
4.3. Individual factors 27
4.4. Health facility related factors 30
4.5. Association of uptake of cervical cancer screening uptake and health facility characteristics 31

CHAPTER FIVE: DISCUSSION....32
5.0. Introduction....32
5.1. Uptake of cervical cancer screening....32
5.2. Sociodemographic characteristics of respondents....32
5.3. Individual factors....33
5.4. Health facility factors....35
5.5. Study limitation....36
CHAPTER SIX: CONCLUSION AND RECOMMENDATION....37
6.1. Conclusion....37
6.2. Recommendations....37
REFERENCES....38
APPENDIX 1: INFORMED CONSENT FORM....43
APPENDIX II: QUESTIONNAIRES....45
APPENDIX III: MAP SHOWING MULAGO HOSPITAL....50
APPENDIX IV: INTRODUCTION LETTER....51
APPENDIX V: APPROVAL LETTERS....52
APPENDIX VI: ADMINISTRATIVE CLEARENCE....54

LIST OF FIGURES

Figure 1: The conceptual frame work of the study.....5
Figure 2: Sowing cervical cancer screening uptake among respondents.....24

LIST OF TABLES

Table 1: Sample size selection from each hospital 38
Table 2: Socio-demographic characteristics of respondents 45
Table 3: Awareness about cervical cancer and cervical cancer screening 47
Table 4: Frequencies and percentages of respondents' level of knowledge according to their nature of employment 48
Table 5: Frequencies and percentages of correct and incorrect answers among respondents regarding cervical cancer prevention knowledge 49
Table 6: Frequencies and percentages of respondents' level of attitudes towards cervical cancer screening 50
Table 7: Frequencies and percentages of correct and incorrect answers among respondents regarding cervical cancer screening attitude 51
Table 8: Frequencies and percentages of respondents' level of cervical cancer screening practices by nature of employment 52
Table 9: Frequencies and percentages of cervical cancer screening practices 53
Table 10: Health facility factors 55
Table 11: Association of socio demographic characteristics and uptake of cervical cancer screening 57
Table 12: Association of cervical cancer screening uptake and cervical cancer prevention knowledge 59
Table 13: Association of cervical cancer screening uptake and cervical cancer prevention attitudes 59
Table 14: Association of cervical cancer screening practice and health facility factors 60

ABBREVIATIONS

WHO	World Health Organization
UHI	Uganda Heart Institute
UCI	Uganda Cancer Institute
HPV	Human Papilloma Virus
IEC	Information Education and Communication
MOH	Ministry of Health

ABSTRACT

Introduction: Cervical cancer screening helps detect precancerous lesions which when not treated can develop into invasive cervical cancer. Low prevalence of cervical cancer screening among female employees of Mulago Hospital prompted the researcher to assess the factors influencing uptake of cervical cancer screening among female employees of Mulago Hospital.

Methodology: A cross sectional study that targeted female employees of Mulago Hospital was done using a self-administered questionnaire. Data analysis was done using SPSS software version 20, presented in frequencies and percentages; and Chi Square test was used to test association of factors and uptake of cervical cancer screening.

Results: 64.1% of respondents had ever screened for cervical cancer. The socio demographic characteristics that showed significant association to cervical cancer screening uptake were age and nature of employment. Cervical cancer awareness was high among all respondents. High levels of adequate knowledge, positive attitude and good cervical cancer practice was reported more among Nurses/Midwives, Doctors and paramedical staff than among administrative and support staff; and were significantly association to cervical cancer screening uptake. Good practice of cervical cancer was found among 60% of respondents and there was strong significant association to all hospital factors that was assessed.

Conclusion: Uptake of cervical cancer screening was higher among female employees of Mulago Hospital compared to the national average and it was higher among Nurses/Midwives, Doctors, and paramedical staff than administrative and support staff.

Recommendation: Ministry of Health and Mulago Hospital should develop and implement national cervical cancer program that targets all eligible women, including female staff of Mulago Hospital. In addition, they should harmonize cervical cancer screening data nationally to inform planning and implementation of cervical cancer prevention program.

CHAPTER ONE: INTRODUCTION

1.0. Introduction

The background to the study, statement of the problem, study objectives, conceptual framework and the significance of this study has been described in this chapter.

1.1. Background

Globally, cancer of the cervix is the fourth most common cancer in women with 528,000 new cases and 266,000 deaths reported in 2012. About 90% the 270,000 cervical cancer deaths occurred in low- and middle-income countries in 2015 (WHO, 2017).

Sub Saharan Africa has unacceptably high burden of cervical cancer, with 35 out of 100,000 women diagnosed with cancer of the cervix and 23 out of 100,000 women die from cervical cancer annually, compared to 3 per 100,000 women in North America every year (WHO, 2012)**.** Lack of access to effective screening and early detection services in Sub Saharan Africa explains these huge differences(Bray *et al*., 2013). East Africa has got the highest age-standardized incidence rates for cervical cancer in the world at 42.7 per 100,000 women per year (WHO, 2012).

In Uganda, cervical cancer is the leading cause of cancer death among women. In addition, Uganda is one of the countries with the highest cervical cancer incidence rates in the world, estimated at 47.5 per 100,000 women. In 2012, it was estimated that 3,915 women develop cervical cancer and 2,275 women die from cervical cancer annually. This has been attributed to the high (33.6%) prevalence of human papilloma virus (HPV), low uptake of cervical cancer screening among women in Uganda (International Agency for Research on Cancer, 2017) and late stage diagnosis of cancer (Nakisige *et al*., 2017). This has been attributed to low level of awareness about cervical cancer and low uptake of cervical cancer screening (Bruni *et al*., 2017).

To prevent most of these cervical cancer deaths, WHO recommends universal access to comprehensive cervical cancer prevention and control programs, which includes vaccination of young girls against human Papilloma Virus (HPV), screening and treatment of all eligible women for pre cancer lesions (WHO, 2014).

Ministry of Health Uganda developed a five years (2010-2014) strategic plan for cervical cancer prevention and control with the targets of reaching 90 percent of Ugandans with

Information, Education and Communication (IEC) materials about cervical cancer, Vaccinating 80 percent of eligible girls aged 10–14 years in the implementing districts with HPV Vaccine, screening and treating 80 percent of eligible women ages 25–49 years for cervical precancerous lesions and providing diagnostic services to 80 percent of eligible women with cervical precancerous lesions among others. The major interventions were focused on prevention of HPV infection through HPV vaccination of girls 10–14 years old, for primary prevention, and cervical screening using visual inspection with acetic acid and pre-cancer treatment using cryotherapy, for secondary prevention of cervical cancer amongst women ages 25–49 years (MOH, 2010). To date no new strategic plan has been put in place.

Cervical cancer screening is done every 3 years for HIV-negative women and annually for HIV-positive women. Midwives and nurses are the primary providers of cervical cancer screening as well as treatment of precancerous lesions. Unfortunately, the baseline lifetime screening rate for cervical cancer in Uganda is reported to be between 4.8% and 30% which is very low (Ndejjo *et al*., 2016).

Uganda Cancer Institute (UCI) which is established by the Uganda Cancer Institute Act, 2016, is responsible for cancer prevention and control in Uganda. It provides free cancer screening, including cervical cancer screening on all week days and Tuesdays have been set aside for female workers of Mulago Hospital to screen for cervical cancer.

Female workers of Mulago Hospital include Doctors, Nurses and Midwives, administrative and support staffs who work in Mulago National Referral hospital, Uganda Cancer Institute and Uganda Heart Institute, including workers of civil society organizations. Ensuring that all the female workers access cervical cancer screening does not only ensure that they are healthy but it helps them to communicate and motivate clients whom they regularly come in contact with while doing their work to screen for cervical cancer.

1.2. Statement of the problem

There is low uptake of cervical cancer screening among female employees of Mulago Hospital. Data from Uganda Cancer Institute indicates that only 8.3% of female employees of Mulago Hospital were screened for cervical cancer between January 2015 and December 2017 (Uganda Cancer Institute, 2016), which is far much lower than the upper limit of national cervical cancer screening rates which stands at 30% (Ndejjo *et al*., 2016).

These female employees risk developing late stage cervical cancer which is difficult and expensive to treat. In addition, clients, caregivers and patients may miss the opportunity to benefit from cervical cancer education and motivation to screen for cervical cancer from female employees of Mulago Hospital and because health workers are presumed to know more about health, failure by female employees to take up cervical cancer screening may be copied by other women who look at them as role models for health.

The management of UCI set aside Tuesdays for female employees to access free cervical cancer screening services, but very few employees had taken up these services. It was not known why female employees of Mulago Hospital did not take up the free cervical cancer screening services offered at UCI.

The researcher therefore intended to study the factors influencing cervical cancer screening uptake by female employees of Mulago Hospital.

1.3. Objectives of the study

1.3.1. General objectives

To identify the factors influencing cervical cancer screening uptake by female employees of Mulago Hospital from March-June, 2018.

1.3.2. Specific objectives

1) To determine the proportion of female employees of Mulago Hospital who have ever screened for cervical cancer in the last three years.
2) To identify the socio-demographic factors that influence cervical cancer screening uptake among female employees of Mulago Hospital.
3) To assess individual factors that influence cervical cancer screening uptake among female employees of Mulago Hospital.
4) To determine health facility factors that influence uptake of cervical cancer screening among female employees of Mulago Hospital.

1.4. Research questions

a) What is the proportion of female employees of Mulago Hospital who have ever screened for cervical cancer in the last three years?
b) What are the socio-demographic factors that influence cervical cancer screening uptake among female employees of Mulago Hospital?
c) What are the individual factors that influence cervical cancer screening uptake among female employees of Mulago Hospital?
d) What are the health facility factors that influence uptake of cervical cancer screening female employees of Mulago Hospital?

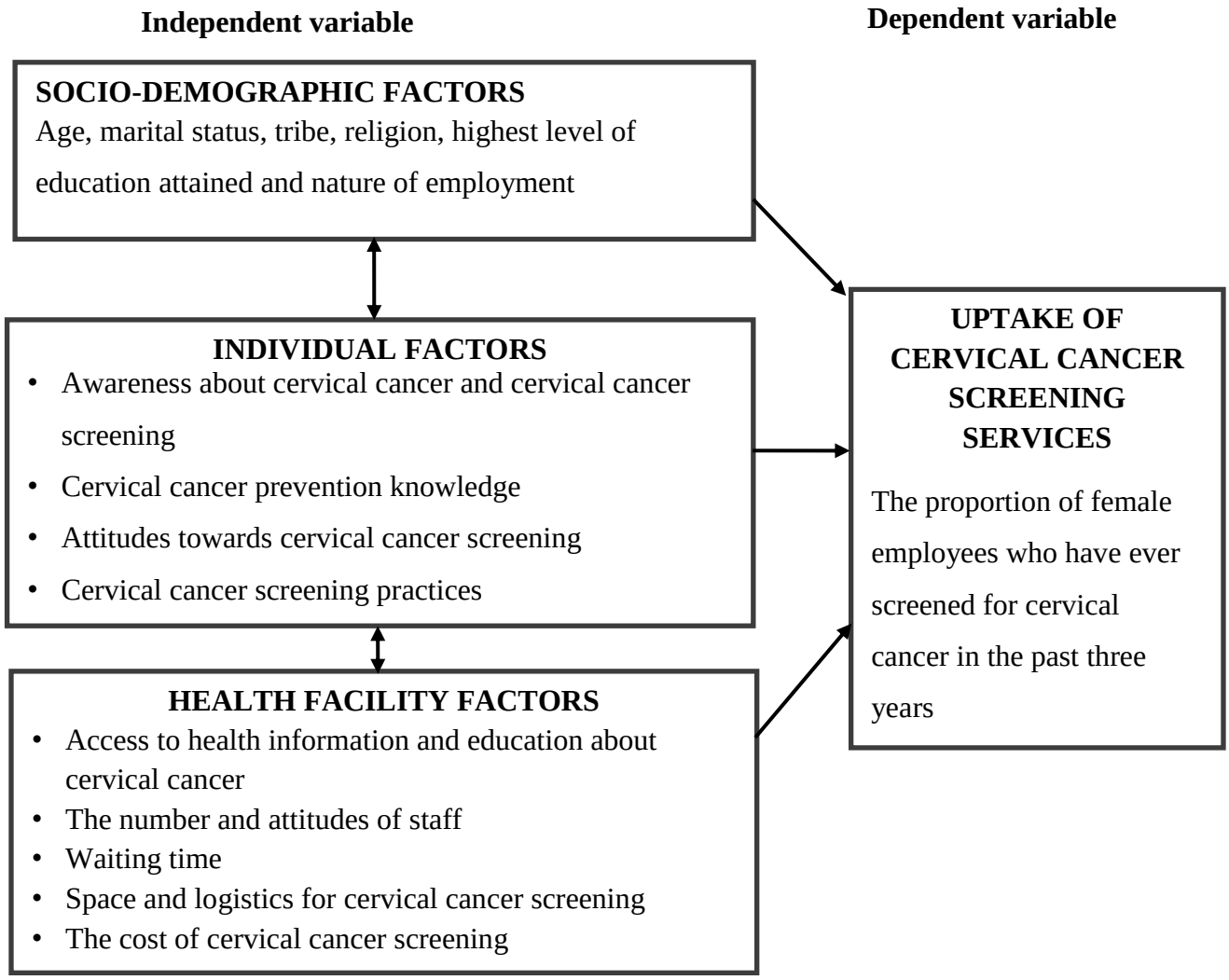
1.5. Significance of the study

The result of this study will help;

a) Ministry of health and Mulago Hospital to design and implement appropriate interventions that can successfully increase uptake of cervical cancer screening among female employees.
b) Results will also be used by other researchers for further references.
c) The researcher will get an academic award of Bachelor of Nursing Sciences

1.6. Conceptual framework

Figure 1: The conceptual frame work of the study



1.7. Description of study variables

1.7.1. Dependent variable

Uptake of cervical cancer screening among female employees of Mulago Hospital refers to the proportion of female employees who have ever used the free cervical cancer screening services offered at Mulago Hospital.

1.7.2. Independent variable

1.7.2.1. Socio Demographic factors

Socio demographic factors in this study refers to age, marital status, tribe, religion, level of education attained and nature of employment of female employees of Mulago Hospital, and how they influence uptake of cervical cancer screening services.

1.7.2.2. Individual Factors

Individual factors in this study refers to awareness about cervical cancer and cervical cancer screening, knowledge about cervical cancer prevention, attitudes towards cervical cancer screening and cervical cancer screening practices of female employees of Mulago Hospital. How these factors influence uptake of cervical cancer screening among female employees will be assessed.

1.7.2.3. Health Facility Factors

In this study, health facility factors refers to access to health information and education about cervical cancer, the number and attitudes of staff , waiting time, space and logistics for cervical cancer screening and the cost of cancer screening. How these factors influence cervical cancer screening uptake among female employees of Mulago Hospital shall be assessed.

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

This chapter presents literature related to prevalence of cervical cancer screening, socio-demographic factors, individual factors and health system factors that influence cervical cancer screening uptake among female staff of Mulago Hospital.

2.1. Prevalence of cervical cancer screening

Cervical cancer screening is one of the strategies for reducing cervical cancer incidence and mortality. In high income countries, the recommended screening methods are Pap test and HPV testing, while in low and middle income countries, visual inspection with acetic acid (VIA) is recommended in addition to pap and HPV testing. Cervical cancer screening using VIA is recommended in Low and Middle income countries because of its affordability (Path, 2010; WHO, 2013).

The prevalence of cervical cancer screening is higher in high income countries than in low income countries. For example, in USA, the percent of women aged 21-65 years who had a pap smear test within the past 3 years between 1987-2015by highest level of education attained, ranged between 69.7% - 74.8%(American Cancer Society, 2012). Similarly, in Australia, about 6 in 10 women between the age of 20-69years participated in National Cervical Cancer Screening Program in 2015 and 2016 (Australian Institute of Health and Welfare, 2018). This has been attributed to availability of resources and organized national cervical cancer screening programs (WHO, 2013).

In low income countries, cervical cancer screening rates varied by country, ranging from 1.1% in Bangladesh to 57.6% in Congo (Akinyemiju, 2012).The average prevalence of cervical cancer screening is estimated at only 5%. This is due to inadequate healthcare resources and high cost(Bradford and Goodman, 2013). For example, A hospital based pilot study of factors influencing uptake of cervical cancer screening in India using in-depth interview, revealed that only 11.62% had had one cervical cancer screening in their lifetime (Singh and Badaya, 2012).

A similar study done in Nigeria on cervical cancer awareness and cervical cancer screening uptake at the Mater Misericordiae Hospital, Afikpo, Southeast Nigeria, revealed low cervical cancer screening uptake of 0.6%. this was attributed to lack of awareness, non-availability of screening centers locally, cost and time (Eze *et al*., 2012).

In East Africa, prevalence of cervical cancer screening has remained low. For example, a cross sectional study done in Tanzania on demographic, knowledge, attitudinal, and accessibility factors associated with uptake of cervical cancer screening among women in a rural district found that only 22.6% of the participants had screened for cervical cancer (Lyimo and Beran, 2012). Furthermore, uptake of cervical cancer screening was even much lower (12.3%) in Kenya as revealed in a cross sectional study done using questionnaires on perceptions of risk and barriers to cervical cancer screening at Moi Teaching and Referral Hospital (Were, Nyaberi and Buziba, 2011).

In Uganda, no national cervical cancer screening program exist, however studies done in rural parts of the country revealed that cervical cancer prevalence ranges from 4.8-30% (Ndejjo *et al*., 2016).

Statistics from Uganda Cancer Institute revealed that only 8.3% of female employee have ever screened for cervical cancer in the past three years despite the availability of free cervical cancer screening services offered at Uganda Cancer Institute (Uganda Cancer Institute, 2016).

2.2. Socio demographic factors

Previous studies conducted in high income countries revealed that socio demographic characteristics influenced uptake of cervical cancer screening. In Korea, higher rates of cervical cancer screening were significantly associated with having attained higher level of education of a college graduate or higher, being married, living in rural area and having a private health insurance. The study was done using the Korean National Cancer Screening Survey (KNCSS) data from 2005 to 2009 (Park *et al*., 2011).

Similar findings were reported in a study done in Ontario to identify socio demographic characteristics associated with cervical cancer screening and follow up of abnormal results. There were variations in the screening rates by age, income and region. Very young women aged between 18 to 24 years were least likely to undergo screening. Similarly, women with low income levels were less likely who resides in low income neighborhood were less likely to be screened for cervical cancer (odds ratio = 0.56, $P < .001$). This study was a population-based, retrospective cohort that employed administrative sources of health care data (Elit *et al*., 2012).

Low and middle income countries, the significant determinants of cancer screening were household socio economic status, rural residence, health care access and country health expenditure (as a percent of GDP) (Akinyemiju, 2012).
In Turkey, a study on the determinants of breast and cervical cancer screening uptake among women revealed that 22.0% of women had ever had a Pap smear test for cervical cancer screening(n = 6846).Women with a university degree and social security were more likely to receive Pap smear test (Sözmen *et al*., 2016).

A cross sectional study done in Nigeria on the determinants of cervical cancer screening uptake among Nigerian women revealed that the mean age of the women who participated in the study (n=360) was 30 ± 8 years. More than three-quarters (88.8%) of them were in the 21–35-year age range. Two hundred and twenty seven (67.2%) of them were married; most (43.2% and 36.7%) were in the lower and middle socioeconomic classes, respectively. Majority (68.0%) of the respondents practiced Islam (Chen *et al*., 2014). The study was a community based study focusing at women in the community.
Another study done in Nigeria to assess awareness and practice of cervical cancer screening among Female Health Professionals in Murtala Mohammed Specialist Hospital, using structured questionnaires, found that married respondents were more than four times likely to have had a previous Pap smear compared to their single counterparts with p value of 0.0003. In contrast, religion appeared to have no significant influence on the practice with p value of 0.35 (Kabir *et al*., 2017). This study only focused on clinical staff.

In East Africa, several studies have clearly shown the influence of socio-demographic factors on uptake of cervical cancer screening. For example, in Kenya, a multilevel analysis of a nationwide survey to identify individual-level and community-level determinants of cervical cancer screening among Kenyan women found that cervical cancer screening uptake was higher among women who were between 35-39 years old, higher household wealth index, were employed, were insured, and had visited a health facility in 12 months than their counterparts (Tiruneh *et al*., 2017).

In Uganda, few studies done did not explore the influence of socio-demographic variables of women on uptake of cervical cancer screening (Bukirwa *et al*., 2015; Ndejjo *et al*., 2016; Mukama *et al*., 2017; Nakisige, Schwartz and Ndira, 2017). However community based survey done in Uganda to understand the low level of cervical cancer screening in Masaka,

using the ASE Model revealed that the prevalence of intention to screen was 20% higher among the formally employed compared to the unemployed (Twinomujuni, Nuwaha and Babirye, 2015).

Another study done in Mayuge District in Uganda on factors affecting cervical cancer screening services found that four socio-demographic factors that significant influenced up take of cervical cancer screening services. These were age of respondent marital status education level and the number of children produced (Nakku and Buyinza, 2018).

2.3. Individual factors

2.3.1. Awareness about cervical cancer and cervical cancer screening

Cervical cancer awareness is the initial step towards cervical cancer screening and treatment. In United States of America, the burden of cervical cancer has been reducing due to increased used of cervical cancer screening which has been attributed to high level of awareness and organized cancer screening services (Society., 2005). However, in Jamaica, a cross sectional descriptive study done among women in Portland to identify factors associated with the uptake of cervical cancer screening found that not knowing where to go for cervical cancer screening was a strong predictor of cervical cancer screening. Women who didn't know where to go for a Pap smear were 85% less likely to have been screened (Ncube *et al*., 2015)

A hospital based pilot study done in India on uptake of cervical cancer screening among women found a large amount of lack of cervical cancer awareness. 0nly 9.95% had ever heard about cervical cancer. This was majorly attributed to lack of public health education (Singh and Badaya, 2012),

A cross sectional study done among Nigerian women regarding the uptake of cervical cancer screening found that most (67%) of the respondents had heard about cancer of the cervix. Mass media were the commonest sources of information, reported by 102 (44.7%) of the 228 of the women who were aware of the disease. The proportion of women who have ever been screened (12.0%) was significantly higher among those who were aware of cancer of the cervix with p value of 0.001 as well as those who were aware of cervical cancer screening (p value of 0.001) (Chen *et al*., 2014).

In another study done in Nigeria on awareness of female health workers and non-health workers on cervical cancer and cervical cancer screening, revealed high level of awareness on cervical cancer 80.9% and cervical cancer screening 74.5%. Mass media was the main source

of information in non-health workers group (56.1%) while health workers (96.2%) received their information from doctors and fellow health workers (Ekine and West, 2015).
A similar study done in Nigeria on awareness and practice of cervical smear as a screening procedure for cervical cancer among female nurses in South-South Nigeria found that majority of respondents (92.6%) had not screened for cervical cancer. The commonest reasons were; not being a candidate for cervical cancer (31.9%) and ignorance as to where screening is done (28.8%) (Unang, Abasiattai and Udoma, 2011).

In Tanzania, analysis of data from the 2011-12 Tanzania HIV and Malaria Indicators Survey to determine cervical cancer awareness among Women in Tanzania found high level of cervical cancer awareness. Only 30.9 of women had never heard about cervical cancer. Having secondary or more level of education residing in urban areas, being affluent, having one to four children, and age of 30–44 years were the predictors of awareness (Moshi, Vandervort and Kibusi, 2018).

In Uganda, across sectional study done on uptake of cervical cancer screening and associated factors among women in rural Uganda found that almost half416 (48.5%) of the 900 women were not aware about cervical cancer. The study recommended the use of health workers to discuss about cervical cancer with clients seeking health care (Ndejjo *et al*., 2016).

2.3.2. Knowledge about cervical cancer and cervical cancer screening

In Thailand, a study done on knowledge about human papillomavirus infection and cervical cancer prevention among nurses in Chiang Mai University Hospital found that nursing staff had adequate knowledge about cervical cancer. However the natural history of HPV and cervical cancer was optimal (Phianmongkhol *et al*., 2011).
Another study done in India to assess awareness and knowledge of cervical cancer and its prevention among the nursing staff of a tertiary health institute in Ahmedabad, Gujarat, revealed inadequate levels of knowledge and understanding of cervical cancer. Continuing nursing education was recommended to bridge the knowledge gap (Shah *et al*., 2012).

Another study on awareness of cervical cancer screening among nursing staff in a tertiary institution of rural India, using a structured self-administered questionnaire, revealed that low knowledge on cancer of the cervix and cervical cancer screening. 74% of respondents knew that Pap smear is used for detection of cervical cancer, but only 59% knew that it can detect

both cancerous as well as precancerous lesions of the cervix. Only 18% of the respondents knew about human papilloma virus vaccine (Singh *et al*., 2012).

In Nigeria, a study done the knowledge, attitude and practice regarding prevention of cervical cancer among female health professionals in a secondary health facility in Kano, Nigeria found that over 60% of the respondents were able to correctly identify all the important etiological factors associated with cervical cancer, while a similar figure knew the important signs and symptoms of the disease. The study concluded that there is a need for continuing education to improve uptake of these services by health professionals so as to serve as a motivating factor for the public (Chen *et al*., 2014). This study however, was done on only health professionals.

Another study done in Nigeria on awareness of female health workers and non-health workers on cervical cancer and cervical cancer screening, revealed adequate good knowledge on cervical cancer screening 232 (60.7%) (Ekine and West, 2015).

In Tanzania, a study done to determine demographic, knowledge, attitudinal, and accessibility factors associated with uptake of cervical cancer screening among women in a rural district of Tanzania found that cervical cancer knowledge and its prevention with Odds Ratio of 8.90, 95% Confidence Interval) was significantly associated with screening uptake. The study recommended that cervical cancer information must be accessible to women and that specific information on cancer prevention and the available screening services must be included in public education (Lyimo and Beran, 2012).

In Uganda, a qualitative study done among HIV infected women in HIV care to determine motivations and barriers to cervical cancer screening found that lack of knowledge was among the biggest barriers to screening for cervical cancer and related services (Bukirwa *et al*., 2015).

A cross sectional study done in Eastern Uganda to identify women's knowledge and attitudes towards cervical cancer prevention found that most respondents (88.2%) had heard about cervical cancer. Radio was the commonest source of information (70.2%) followed by the health facility (15.1%). Most respondents (62.4%) knew at least one preventive measure and at least one symptom or sign of the disease (82.6%) (Mukama *et al*., 2017).

2.3.3. Attitudes towards cervical cancer and cervical cancer screening

A study done in Thailand on factors affecting the uptake of cervical cancer screening by Hmong hill tribe women found that perceived risk of developing cervical cancer was positively associated with uptake of cervical cancer screening (Wongwatcharanukul *et al*., 2014).

A cross sectional study done among Nigerian women regarding the uptake of cervical cancer screening found that majority (97.0%) of the respondents had positive attitude to cervical cancer screening. The proportion (45.5%) of women who had ever been screened for cancer of the cervix was significantly higher among respondents who had positive attitude towards screening compared to those who had negative attitude with p value of 0.001 and only respondents' attitude towards screening for cancer of the cervix was found to be a significant predictor of screening uptake. The study recommended creating awareness in the community regarding cervical cancer prevention (Chen *et al*., 2014).

Another study done in Nigeria to assess the knowledge, attitude and practice regarding prevention of cervical cancer among female health professionals in a secondary health facility in Kano, Nigeria found that Up to 94.7% of the respondents had a positive attitude towards pap smear (Kabir *et al*., 2017). This study was only done on health professionals.

In Kenya, a cross-sectional mixed quantitative and qualitative study done to identify factors influencing cervical cancer screening in a Kenyan Health Facility found that fear of screening due to concerns about excessive pain or bleeding was one of the major barrier to uptake of cervical cancer screening (Njuguna *et al*., 2017).

A community based survey done in Uganda to understand the low level of cervical cancer screening in Masaka, using the ASE Model, found that there were three attitudinal factors independently associated with intention to screen for cervical cancer. The prevalence of intention to screen for cervical cancer was two times higher among respondents who said they were at risk of developing cervical cancer compared to those who had a low risk perception; the prevalence was also 40% higher among those who said they would refer other women for screening and 60% higher among those who said they were unafraid of being diagnosed with cervical cancer (Twinomujuni *et al*., 2015).

A cross sectional study done in Uganda on uptake of cervical cancer screening and associated factors among women in rural Uganda found that the major barriers to cervical cancer screening was negative individual perceptions (64.5%) (Ndejjo *et al*., 2016).

3.3.4. Cervical cancer screening practices

In India, a study done on cancer screening among female nursing staff working in a government hospital found that the utilization of Pap smear among nurses was 5.6%. The commonest reason for not undergoing screening was that respondents did not feel the need are young for screening (14.8%), shyness (11.1%), fear (11.1%) and lack of time (7.4%) (Mukesh S, 2016).

Another study done in India to assess the knowledge, attitudes and practice of Sikkimese nursing staff toward cervical cancer screening found that only 16.6% nurses, who were aware of a Pap smear (11.9% of the total sample), had ever undergone a Pap smear test. The commonest reason for not undergoing Pap smear test were; they felt they were not at risk (41%), uncomfortable pelvic examination (25%) and fear of a bad result (16.6%) (Rahman and Kar, 2015)

A cross sectional study done among Nigerian women regarding uptake of cervical cancer screening revealed low uptake of cervical cancer screening. Only 27 (8.0%) of the respondents had ever been screened for cancer of the cervix. Eight (29.6%) of such women claimed that they had been screened twice, while 25.9% of them said that they had been screened on three occasions. Low risk perception regarding cancer of the cervix was the commonest reason for not participating in screening activities among respondents who had never been screened before; this was reported by 36.3% of such women (Chen *et al*., 2014). Although this study didn't focus at health employees, it recommended creating cervical cancer awareness and opening up other cancer screening centers.

Another study done in Nigeria to assess the knowledge, attitude and practice regarding prevention of cervical cancer among female health professionals in a secondary health facility in Kano, Nigeria found that Only 20.8% of the respondents have had a Pap smear done previously(Kabir *et al*., 2017). This study was only done on health professionals.

In Uganda, A cross sectional study done using structured questionnaire to determine the uptake of cervical cancer screening and associated factors among women in rural Uganda found that only 4.8% of respondents had ever been screened for cervical cancer. The

associated factors for screening were; being requested by a health worker (48.8%), having had certain signs and symptoms (39.5%) and 37.2% did it voluntarily to know their status(Ndejjo *et al*., 2016).

Another study done in Eastern Uganda on factors affecting uptake of cervical cancer screening Services found that that uptake of cervical cancer screening by women in their reproductive age stands at 5%. This was so mainly because of misconceptions and myths associated with screening.

2.4. Health facility factors

2.4.1. Access to health information and education on cervical cancer and cervical cancer screening

A mixed qualitative and quantitative study done in Kenyan health facilities on factors influencing cervical cancer screening revealed that lack of proper communication on screening procedures was one of the barriers to uptake of cervical cancer screening (Njuguna *et al*., 2017)

A qualitative study done on the motivations and barriers to cervical cancer screening among HIV infected women in HIV care in Mildmay Uganda, found that inadequate health education was being provided to clients who went there for cancer screening. Almost all women across all categories reported that health education was not readily available, had gaps and was not well structured. In addition, the time given to health education talks was very short and as such many issues about cervical cancer were not adequately explained to clients (Bukirwa *et al*., 2015).

2.4.2 The waiting time

Factors influencing cervical cancer screening in a Kenyan Health Facility: a mixed qualitative and quantitative study done in Kenyan Health Facilities to identify factors influencing cervical cancer screening revealed that long waiting time was one of the barriers to uptake of cervical cancer screening (Njuguna *et al*., 2017)

A qualitative study done on the motivations and barriers to cervical cancer screening among HIV infected women in HIV care in Mildmay Uganda, found that clients were waiting for a long time before they get screened for cervical cancer. The long waiting time could not make other women who had commitments at home and office access cervical cancer screening (Bukirwa *et al*., 2015).

2.4.3. The number and attitudes of staff

A study done in India to identify the knowledge and attitude of Nurses towards cervical cancer screening found that, 89% of female nursing staff had a positive attitude towards cervical cancer screening (Pegu *et al*., 2017)

A study done on factors influencing uptake of cervical cancer screening among female health workers in University of Port Harcourt Teaching Hospital, Rivers State found that poor attitude of female health workers was among the major factors that hinder uptake of cervical cancer screening (Dike and Ijeoma, 2016).

A study to determine health systems challenges in cervical cancer prevention program in Malawi found that one of the major challenge was inadequate service providers who were poorly supervised (Maseko, Chirwa and Muula, 2015).

The same qualitative study done on the motivations and barriers to cervical cancer screening among HIV infected women in HIV care in Mildmay Uganda also revealed low staff numbers as well as poor staff attitude towards cervical screening. This affects access to cervical cancer screening and it was attributed to few staff trained in cervical cancer screening and thus the task overload as the same staff who do cervical screening are also involved in providing other health services at the clinic (Bukirwa *et al*., 2015).

2.4.4. The space and logistics for cervical cancer screening

A study done on factors influencing uptake of cervical cancer screening among female health workers in University of Port Harcourt Teaching Hospital, Rivers State found that unavailability of screening services was one of the major factors that hinder uptake of cervical cancer screening(Dike and Ijeoma, 2016).

A study to determine health systems challenges in cervical cancer prevention program in Malawi found that the major challenges were lack of basic equipment for cervical cancer screening, stock-outs of basic medical supplies in some health facilities and inadequate funding of cervical cancer prevention program(Maseko, Chirwa and Muula, 2015).

A qualitative study done on the motivations and barriers to cervical cancer screening among HIV infected women in HIV care in Mildmay Uganda revealed that the space for cervical cancer screening was inadequate and other sexual and reproductive health services were being provided in the same room by other staff which breached privacy as people could crowd in the room. This was reported in all the six KI interviews, including the few screening rooms which lead to long waiting time and missed opportunities for screening. Because

cervical cancer screening involver exposing the private parts of a woman, lack of privacy bars other women from accessing cervical cancer screening services (Bukirwa *et al*., 2015).

A community based survey done in Uganda to understand the low level of cervical cancer screening in Masaka, using the ASE Model also revealed concerns for privacy at the cervical cancer screening Centre as were reported by 48.6% of respondents that these concerns were a barrier for intention to screen for cervical cancer (Twinomujuni *et al*., 2015).

2.4.5. The cost of cervical cancer screening

The Korean National Cancer Screening Survey that assessed the socio-demographic gradients in breast and cervical cancer screening in Korea found that private health insurance that covered cancer screening was associated with higher rates of breast and cervical cancer screening (Park *et al*., 2011).

A study done in Central Region of Ghana to identify socio-demographic characteristics of HIV positive women that influenced cervical cancer screening intention found that the cost of cervical cancer screening was not a determinant of intention to screen (Ebu, 2018).

In Uganda, cervical cancer screening services are free in government facilities. However, a community based survey done in Uganda to understand the low level of cervical cancer screening in Masaka, using the ASE Model found that clients incurred cost in obtaining cervical cancer screening services as reported by respondents (4.6%). The cost for services ranged from Uganda shillings 3000 (equivalent to US$ 1.2) to 100,000 (equivalent to US$ 40) with an average cost of Uganda shillings 43,000 (equivalent to US$ 17.2). The total costs incurred for services were reportedly prohibitive for service utilization among 89.7% (174/194) of the respondents although this finding was not statistically significant (Twinomujuni *et al*., 2015).

CHAPTER THREE: METHODOLOGY

3.0. Introduction.

In this chapter, the details of study area, study design, study population, inclusion criteria, study variables, sample size calculation, sampling procedure, data collection tools and procedures, quality control, ethical consideration, study limitations and dissemination of study findings are described.

3.1. Study area

The study was conducted in Mulago Hospital. Mulago Hospital is the largest public hospital in Uganda. It was founded in 1913 and it is one of the three national referral hospitals. The hospital is located on Mulago Hill in the northern part of Kampala city, in the western part of Makerere University College of Health Sciences. It is approximately 5 kilometers by road, north-east of the Central Business District of Kampala. It comprises of Mulago Hospital Complex, Uganda Cancer Institute and Uganda Heart Institute. The sex ratio was 94 males to 100 females, implying that the number of female employees is more than that of males.

The study area was chosen because it provides free cervical cancer screening and treatment; and the female employees would take advantage of the free services. In addition the researcher was well conversant with the area.

3.2. Study design

The study design was a cross-sectional study. Cross sectional study design involves the collection of data at one point in time and is especially appropriate for describing the status of phenomena or relationships among phenomena at a fixed point in time (Polit & Hungler, 1997). Quantitative research approaches were used during data collection and analysis.

3.3. Sources of data.

Primary data sources were used in this study. Primary data was generated using questionnaires.

3.4. The target population.

The study targeted at all female employees of Mulago Hospital.

3.5. The study population.

The study population comprised of the sampled female employees (aged 25-49 years) of Mulago Hospital. The age group was chosen because cervical cancer screening guidelines in Uganda are based on a *"See and Treat"* algorithm that target women between the age group of 25 to 49 years old (MOH, 2010).

Inclusion criteria

- Female employees (aged 25-49 years) who consented to the study and who were working in Mulago Hospital at the time of the study.

Exclusion criteria

- Female employees of Mulago Hospital who were on leave during the period of data collection were excluded from the study.

3.6. Sample size calculation

The formula for estimating sample sizes for cross sectional studies by Kish Leslie will be used in this study (Kish, 1965).

Where;

$$N = \frac{Z\alpha^2\ P(1-P)}{\sigma^2}$$

N= the estimated sample size for the study P=the assumed true population prevalence of cervical cancer screening among female employees of Mulago Hospital as indicated by the annual report of Uganda Cancer Institute (Uganda Cancer Institute, 2016), so P = 8.3%.

1-P = the probability of not having been screened for cervical cancer, so 1-P =91.7%.

*Z*α=standard normal deviation at 96% confidence interval corresponding to 1.96.

ծ = absolute error between the estimated and true population prevalence of female employees of Mulago Hospital of 5%.

The calculated sample size

$$N = \frac{1.96 \text{ x } 1.96\ (0.083 \text{ x } 0.917)}{0.05^2}$$

Sample size proportional to population was used to select participants proportionately from Mulago National Referral Hospital, Uganda Cancer Institute and Uganda Heart Institute after obtaining the details of female employees from hospital administrators (Table 1).

Table 1: Sample size selection from each hospital

Institution	Total number of female employees 25-49 years old	Total number exclusive of leave	Proportion required (%)	Required sample size
Mulago National Referral Hospital	139	126	0.54	63
Uganda Cancer Institute	72	66	0.28	33
Uganda Heart Institute	44	42	0.18	21
Total	**255**	**234**		**117**

3.7. Sampling techniques and procedures

A stratified sampling method was used. The researcher divided the sample in to three strata based on the facility where the participants worked, these included; Mulago National Referral Hospital, Uganda Cancer Institute and Uganda Heart Institute. A list of all the female employees from the three strata was drawn and assigned numbers. Simple random sampling using a table of randomly generated numbers was used to select a sample of 117 female employees. The random sample was done proportionately (see Table 1).

3.8. Study variables and their measurements.

3.8.1. Dependent variables.

The dependent variable was the uptake of cervical cancer screening among female employees of Mulago Hospital.

3.8.2. Independent variables.

Independent variables were socio demographic factors, individual factors and health facility factors that influence cervical cancer screening uptake among female employees of Mulago Hospital.

3.8.3. Socio demographic factors

Respondents were asked about their age, marital status, religion, the highest level of education attained and nature of employment.

3.8.4. Awareness about cervical cancer and cervical cancer screening

Respondents were asked if they had ever heard about cancer of the cervix, the risks, signs and prevention of cancer of the cervix. They were also asked about cancer screening, its benefit, who qualifies for screening, the screening interval and treatment of cervical pre-cancerous

lesions. The response to each of the questions was “yes” or “no.” Those whose responses were “yes” to either one or both questions were further asked about the sources of their information or reasons. Respondents were grouped as hiving high or low level of awareness if the total percentage of yes responses were 65% and above, and less than 65% respectively.

3.8.5 Attitudes towards cervical cancer screening

Respondents were asked about cervical cancer risk perception, whether they fear the screening method and cancer diagnosis, whether they are afraid of the discomfort during and after screening and whether they would educate and refer clients or other women for cervical cancer screening. Answers were “Yes” or “No”. Depending on the statements, responses were categorized as positive or negative. Respondents were grouped as having negative or positive attitude if they scored less than 70% or 70% and above respectively.

3.8.6 Knowledge on cancer of the cervix and cancer of the cervix screening

The knowledge of participants was assessed on what cervical cancer is, its risks, signs and symptoms and prevention. Participants were also asked about what cancer screening is, the frequency of cancer screening, who qualifies for cancer screening, the benefits of screening, the screening method and treatment of precancerous lesions. Responses were categorized as correct or incorrect. Respondents were grouped as having inadequate or adequate level of knowledge if the percentage of the correct answers were less than 75% or 75% and above, respectively. Those who didn’t give any answer or answered “I don’t know” were put together with incorrect answers for purposes of analysis.

3.8.7. Cervical cancer screening practices

Respondents were asked whether they have ever screened. For those who had ever screened, they were asked the last time they had the screening, the number of times they had ever screened and where they were screened from. All respondents were also asked about their intention to screen and after what interval intended to screen. The total percentage of those who had never screened and those who screened but were overdue for their next screening were considered as having poor practice. Those who screened and were adhering to their screening schedule were considered as having good practice.

3.8.8 Health facility factors that determine cervical cancer screening uptake

Respondents who had screened for cervical cancer were asked whether they accessed cervical cancer information and education at the facility. They were also asked about the availability of staff, the attitudes of staff, the duration they took to get screened at the facility, whether the screening room provided privacy, whether they were asked to buy some items for screening or referred due to lack of screening supplies, whether they paid some money, the amount paid and the mode of payment.

3.9. Data collection tools.

A self-administered questionnaire was used. It consisted of three sections that assessed socio demographic factor, individual and health system factors that influence cervical cancer screening uptake by female employees of Mulago Hospital.

3.10. Data collection procedure.

The researcher wrote to the head of the three institutions, requesting them to permit her to carry out a study among their female employees. This was backed by introductory letter from Clarke International University. The researcher clearly indicated the purpose of the study and sought for their permission to access the details of their female employees. In addition, the researcher sought to self-administer questionnaires to the sampled female employees.

With the help of the human resource officers in the three institutions, the researcher obtained the list of all the female employees, located the respondents physically or through phone calls, explained the purpose of the study and ask for their consent. After consent, she gave them the questionnaires which were collected by the researcher within seven days.

3.11. Data management

Data was collected using self-administered questionnaires. All questionnaires returned were checked for completeness, filed and kept in a cupboard under lock and key. They were coded, entered and analyzed in SPSS software. The dataset has been stored in google drive which can only be accessed with permission from the researcher.

3.12. Data analysis

IBM SPSS statistics version 20 was used to analyze the data. After collecting, coding and entering data, it was analyzed in frequencies and percentages, and presented in tables.

Chi-square test was used for assess the association between socio-demographic characteristics of respondents, individual factors and health system factors.

3.13. Quality control

A pretest of the questionnaire was done to 10 female employees from different categories of employees who were excluded from the study and the outcome was used to improve on the final version of the questionnaire the correctness in wording and questions; and how well the items were understood and interpreted. In addition, questionnaires were cross checked every day for completeness. Respondents who returned incomplete questionnaires were followed up and requested to complete the missing parts.

CHAPTER FOUR: PRESENTATION OF RESULTS

4.0. Introduction

The result from this cross sectional study, conducted to assess the factors influencing uptake of cervical cancer screening among female employees of Mulago Hospital. Findings are presented according to the specific objectives of the study. 117 participants were invited to participate in the study, these all completed the study making 100% response rate.

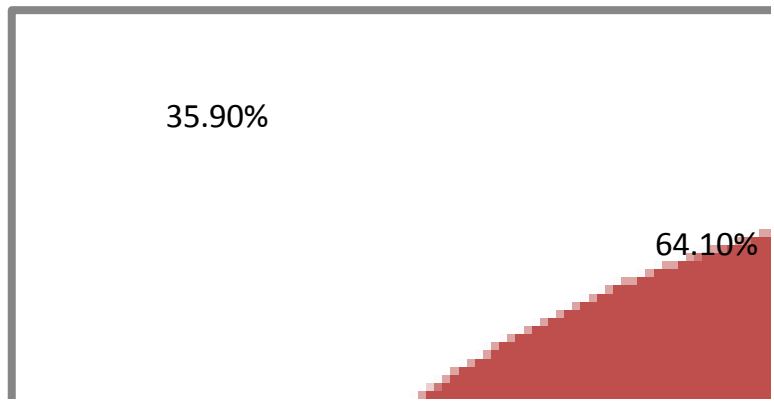
4.1. Uptake of cervical cancer screening among respondents

Among the participants that completed the study (n=117), majority of respondents (64.1%, n=75) had ever screened for cervical cancer in the last three years whilst 35.9% (n=42) (figure 2).

With regards to other aspects of cervical cancer screening, majority (64%) of these respondents reported had done cervical cancer screening once, followed by 44% who reported to have screened between one to three years ago and 45.3% reported having done cervical cancer screening from UCI (table 1).

All respondents were also asked about their intention to screen for cervical cancer in the near future, most respondents (93.2%) reported that they intend to screen in the near future. Of these, majority (40.4%) reported that they intend to screen after two years. Among those who have never screened, the commonest reason for not screening was fear of cervical cancer screening procedure (76.7%, table 1).

Figure 2: Sowing cervical cancer screening uptake among female employees of Mulago Hospital, Uganda, 2018 (n=117)



Source: primary data

Table 2: Other aspects of cervical cancer screening practices among female employees of Mulago Hospital, Uganda, 2018 (n=117)

Variable	Frequency	Percentage (%)
If yes, how many times have you ever screened for cervical cancer? (n=75)		
Once	48	64.0
Twice	13	17.3
three times	11	14.7
More than three times	3	4.0
When did you have your last screening?(n=75)		
Less than one year ago	12	16.0
Between one to three years	33	44.0
More than three years ago	30	40.0
Where did you do the screening from?(n=75)		
UCI	34	45.3
Mulago NRH	26	34.7
Private hospital/Clinic	7	9.3
Government HC/Hospital	3	4.0
Outreach/Health Camp	2	2.7
Others	3	4.0
Do you intend to screen for cervical cancer in the near future?		
Yes	109	93.2
No	8	6.8
If yes, when do you intend to screen for cervical cancer? (n=109)		
Within three months' time	28	25.7
Within 6 months' time	16	14.7
After one year	21	19.3
After two years	44	40.4
If you have never screened for cervical cancer, what are the reasons for not doing it? (n=43)		
Fear of the procedure	33	76.7
Fear of being found with cancer	2	4.7
No time to go for check up	4	9.3
No answer	4	9.3

4.2. Socio-demographic characteristics of respondents

Socio-demographic characteristics of the sample are shown in Table 2 below. Majority of the respondents were in the age bracket of 25 to 34 years (63.2%) and were married (65%) with regards to marital status. In perspective of tribal origin, more than half of the respondents were Baganda (57.3%).

Regarding religious denominations, Pentecostals constituted majority of the sample (30.8%), followed by Catholics and Protestants. There were almost equal proportions of Catholics and Anglicans (24.8% & 23.9% respectively). With regards to distribution by nature of employment, most respondents were either administrative staff or support staff (32.5% respectively) followed by nurses/midwives (17.9%). More than half (52.1%) of respondents had bachelor degree as their highest level of academic qualification followed by those with either diploma education or certificate of education (19.7% & 17.9% respectively) (table 2).

Table 3: Socio-demographic characteristics of female employees of Mulago Hospital, Uganda, 2018 (n=117)

Variable	Frequency (n)	Percentage (%)
Age (Years)		
25-34	74	63.2
35-44	29	24.8
45-54	14	12.0
Marital Status		
Single	38	32.5
Married	76	65.0
Divorced/separated	3	2.6
Tribe		
Muganda	67	57.3
Munyankole	10	8.5
Mukiga	4	3.4
Muteso	4	3.4
Others	32	27.4
Religion		
Catholic	29	24.8
Anglican	28	23.9
Moslem	11	9.4
Pentecostal	36	30.8
Others	13	11.1
Nature of employment or cadre		
Doctor	9	7.7
Nurse/Midwife	21	17.9
Paramedical staff	11	9.4
Administrative staff	38	32.5
Support staff	38	32.5
Highest academic qualification		
Certificate	21	17.9
Diploma	23	19.7
Bachelor	61	52.1
Master	10	8.5
PHD	1	.9
No qualification	1	.9

4.2.1 Association of socio demographic characteristics with cervical cancer screening uptake among female employees of Mulago Hospital, Uganda, 2018 (n=117)

The socio demographic characteristics that have shown significant association with cervical cancer screening uptake were age and nature of employment with p-values of 0.007 and 0.009 respectively. Marital status, tribe, religion and the level of academic qualification had no significant association with uptake of cervical cancer screening (p-value>0.05).

Table 4: Association of socio demographic characteristics and uptake of cervical cancer screening among female employees of Mulago Hospital, Uganda, 2018 (n=117)

Socio demographic characteristics	**Cervical cancer screening uptake [n (%)]**		**Chi-Square**	**p-Value**
	Yes	**No**		
Age in years				
25-34	46 (39.3)	28(23.9)	9.892	*0.007**
35-44	15(12.8)	14(12.0)		
45-54	14(12.0)	0(0.0)		
Marital status				
Single	27(23.1)	14(12.0)	0.084	0.772
Married	48(41.0)	28(23.9)		
Tribe				
Muganda	42(35.9)	25(21.4)	1.201	0.548
Munyankole	8(6.8)	2(1.7)		
others	25(21.4)	15(12.8)		
Religion				
Catholic	21(17.9)	8(6.8)	6.314	0.177
Anglican	17(14.5)	11(9.4)		
Moslem	4(3.4)	7(6.0)		
Pentecostals	26(22.6)	10(8.5)		
others	7(6.0)	6(5.1)		
Nature of employment or cadre				
Doctor	5(4.3)	4(3.4)	13.625	*0.009**
Nurse/Midwife	19(16.2)	2(1.7)		
Paramedical Staff	7(6.0)	4(3.9)		
Administrative staff	17(14.5)	21(17.9)		
Support staff	27(23.1)	11(9.4)		
Highest level of academic qualification				
No qualification/Certificate	16(13.7)	6(5.1)	5.450	0.142
Diploma	14(12.0)	9(7.7)		
Bachelor	35(29.9)	26(22.2)		
Master/PHD	10(8.5)	1(0.9)		

4.3. Individual factors

This section presents information on awareness about cervical cancer and screening. It was revealed that all respondents had ever heard about cervical cancer, cervical cancer screening and its benefits of cervical cancer. The commonest source of information about cervical cancer and cervical cancer screening was health workers (77.8% & 76.9% respectively) (table 3).

Table 3 below shows the distribution of individual knowledge about cervical cancer and screening. Most (60.7%) of respondents knew what cervical cancer is, slightly more than half (51.2%) gave incorrect answer regarding cervical cancer risk factors and 74.4% gave correct answers on cervical cancer prevention. More than half (53.8%) correctly defined cervical cancer screening, 65.8% correctly stated the benefits of cervical cancer screening,

58.1% gave incorrect answers about the interval of cervical cancer screening, 53.8% gave correct answers on what can disqualify a woman from cervical cancer and majority (63.2%) gave incorrect answers on how pre-cancerous lesions is treated. (table 4).

Most respondents positively responded that they were at risk of cervical cancer (69.2%) and 94.9% responded that they would educate and refer women for cervical cancer screening. On the other hand, most respondents negatively responded that they fear the screening procedure (54.7%), that they were afraid of the discomfort during and after the screening procedure (66.7%) and feared being diagnosed with cancer (88.9%) (table 4).

Table 5 Individual attributes to cervical cancer screening among female employees of MNRRH, Uganda, 2018 (n=117)

Variable	Frequencies	Percentage (%)
Do you fear the screening procedure?		
Yes	64	54.7
No	53	45.3
Are you afraid of the discomfort during and after the screening procedure?		
Yes	78	66.7
No	39	33.3
Would you educate and refer your clients and other women for cancer screening?		
Positive	111	94.9
Negative	6	5.1
What is cervical cancer screening?		
Correct answer	63	53.8
Incorrect answer	54	46.2
What are the benefits of cervical cancer screening?		
Correct answer	77	65.8
Incorrect answer	40	34.2
After what interval should a woman screen for cervical cancer?		
Correct answer	49	41.9
Incorrect answer	64	58.1
Have you ever heard about cervical cancer?		
Yes	117	100.0
No	00	0.0
Awareness about some of the benefits of cervical cancer screening		
Yes	117	100.0
No	00	0.0
Have you ever heard about cervical cancer screening?		
Yes	117	100.0
No	00	0.0
Sources of information about cervical cancer screening		
Friend	17	14.5
Health Worker	90	76.9
Mass Media	10	8.5

Source: primary data

Association of cervical cancer screening uptake and individual factors among female employees of MNRRH, Uganda, 2018 (n=117)

Table 6 below shows the bivariate association of cervical cancer screening and individual related characteristics of the respondents. Individual characteristics that were associated with screening included fear of the screening procedure, anticipation of discomfort during screening, awareness of what screening is, its intervals and awareness of cervical cancer ($p< 0.05$, table 6). In addition, awareness of the benefits of screening were not significantly associated with cervical cancer screening uptake ($p>0.05$, table 6).

Table 6 Association of cervical cancer screening uptake and individual factors among female employees of MNRRH, Uganda, 2018 (n=117)

Variable	**Uptake of screening**				**OR 95% CI**	**P-value**
	Uptake		**Never screened**			
	N=75	**%**	**N=42**	**%**		
Do you fear the screening procedure?						
Yes	33	44	30	71.4	1.00 2.3 (1.92–2.52)	0.002
No	42	56	12	29.6	1.00 1.2 (1.12–1.45)	0.001
Are you afraid of the discomfort during and after the screening procedure?						
Yes	65	86.6	36	85.7	1.00 2.8 (1.80–4.25)	0.001
No	10	13.4	4	14.3	1.00 1.6 (1.02–1.62)	0.042
Would you educate and refer your clients and other women for cancer screening?						
Yes	39	52	13	31	1.405 (1.189–1.660)	0.001
No	36	48	29	69	1.00 2.252 (1.638–3.458)	0.030
What is cervical cancer screening?						
Yes	22	29.3	22	52.3	1.00 1.420 (1.242–1.622)	0.001
No	53	70.7	20	47.7	1.00 3.220 (1.584–6.543)	0.001
Aware of the benefits of cervical cancer screening?						
Yes	30	40	27	64.3	1.00 1.500 (0.757–3.029)	0.239
No	45	60	15	35.7	1.00 1.600 (0.774–3.295)	0.203
After what interval should a woman screen for cervical cancer?						
Aware	55	73.3	29	69.1	1.00 3.220 (1.584–6.543)	0.001
Not aware	**20**	26.7	13	30.9	1.00 1.500 (0.757–3.029)	0.000
Have you ever heard about cervical cancer?						
Yes	50	66.7	24	58.2	1.00 1.405 (1.189–1.660)	0.001
No	25	33.3	18	42.8	1.00 2.252 (1.638–3.458)	0.030
Have you ever heard about cervical cancer screening?						
Yes	66	88	10	23.8	1.00 0.188 (0.019–1.900)	0.132
No	9	12	32	76.2	1.00 3.723 (1.709–8.111)	0.001

4.4. Health facility related factors

Respondents who had cervical cancer screening were asked about their experiences at the health facility when they went for cervical cancer screening. Most (85.3%) reported that they access cervical cancer and cervical cancer screening information, 86.7% reported that staff were available, 98.7% described the attitude of staff as positive, 53.3% reported that it took them less than 30 minutes to access cervical cancer screening, 96% reported that the rooms provided privacy, 76% reported that the nurse/doctor did not lack any thing and only 13.3% reported that they paid for cervical cancer screening. Half of those who paid for cancer screening cervices reported having paid between 10,000-40,000 Uganda shillings and 80% made formal payment (table 7).

Table 7: Health facility factors to cervical cancer screening among female employees of Mulago Hospital, Uganda, 2018 (n=117)

Variable	Frequency	Percentage (%)
Access information about cervical cancer and cervical cancer screening		
Accessible	77	65.8
Not accessible	40	34.2
Availability of staff		
Available	38	32.4
Not available	79	68.6
How would you describe the attitude of the staff?		
Positive	96	82
Negative	21	18
How long did it take you to be screened for cervical cancer?		
Less than 30 minutes	45	38.5
Between 30minutes-1 hour	5	4.3
Between 1-2 hours	16	13.7
More than 2 Hours	51	43.5
Did the room where you were being screened from provide privacy?		
Yes	100	85.5
No	7	14.5
Did the nurse/doctor lack something that you were asked to buy or you were told to come back another day or you were sent to another hospital?		
Yes	112	95.7
No	5	4.3
Did you pay for cervical cancer screening services?		
Yes	10	8.5
No	107	91.5
If yes, how much money did you pay? (n=10)		
10,000-40,000	5	50.0
50,000-90,000	5	50.0
What was the mode of payment? (n=10)		
Formal	8	80.0
Informal	2	20.0

4.5. Association of uptake of cervical cancer screening uptake and health facility characteristics

Bivariate analysis of health facility related factors and uptake screening is shown in table 6 below. It revealed that inaccessible information on screening, availability of staff, negative attitude of staff, perception that screening takes more than 2 hours, payment for screening services and how much was paid for the screening services were significantly associated with uptake of cervical screening services ($p<0.05$, Table 8). On the other hand, the mode of payment for those who paid for screening services and privacy were not significantly associated with uptake of screening services ($p>0.05$, table 8).

Table 8 Health facility factors to cervical cancer screening among female employees of Mulago Hospital, Uganda, 2018 (n=117)

Variable	**Uptake**		**OR (95% CI)**	**p-value**
	Screened (n=75) %	**Never screened (n=42) %**		
Access information about cervical cancer and cervical cancer screening				
Accessible	75.5	30.7	0.7 (0.3-2.1)	0.06
Not accessible	24.5	69.3	3.8 (1.6-8.9)	*<0.001**
Availability of staff				
Available	80	7	3.2 (0.44–2.60)	0.02*
Not available	20	93	1.77 (1.31–2.40	0.001*
How would you describe the attitude of the staff?				
Positive	60	20	1.32 (0.84–2.20)	0.07
Negative	40	80	1.77 (1.33–2.40	0.01*
How long did it take you to be screened for cervical cancer?				
Less than 30 minutes	58	3.5	3.8 (1.6-8.9)	1.000
Between 30minutes-1 hour	22.3	35.6	0.9 (0.3-2.4)	0.517
Between 1-2 hours	11	44.1	0.8 (0.0-14.5)	0.578
More than 2 Hours	8.7	16.8	0.5 (0.1-2.9)	0.002
Did the room where you were being screened from provide privacy?				
Yes	54	33.2	1.39 (0.97–1.99)	0.824
No	46	66.8	2.83 (2.27–3.54)	0.900
Did the nurse/doctor lack something that you were asked to buy or you were told to come back another day or you were sent to another hospital?				
Yes	45.3	55.2	0.8 (0.0-14.5)	0.517
No	54.7	44.8	0.5 (0.1-2.9)	0.578
Did you pay for cervical cancer screening services?				
Yes	67.2	51.1	1.2(1.91–2.52)	0.001
No	32.8	48.9	3.2(1.12–1.45)	0.002
If yes, how much money did you pay?				
10,000-40,000	56.7	22.6	0.8 (0.0-14.5)	0.046
50,000-90,000	43.3	77.4	0.5 (0.1-2.9)	0.001
What was the mode of payment?				
Formal	44.2	27.9	1.32 (0.84–2.10)	0.05
Informal	55.8	72.1	3.77 (1.43–2.40	0.9

CHAPTER FIVE: DISCUSSION

5.0. Introduction

In this chapter, we succinctly discuss the findings presented in the previous chapter. This was done in accordance to the research objectives. The researcher firstly discusses the results in self understanding and further goes on to compare them to similar findings from similar studies. Four variables were of interest in this study, these included; uptake of screening, socio-demographics, individual and health facility related factors.

5.1. Uptake of cervical cancer screening

In this study, findings have revealed that 64.1% of respondents had ever screened for cervical cancer. This represents a significant proportion of those who have utilized screening however; there is a significant proportion of those who had never screened (35.9%). This could be attributed to various factors that will be discussed in the following sections of this chapter. Notwithstanding, despite the fact that the importance and effectiveness of cervical cancer prevention through screening, there are reasons for not utilizing such programs. In our study, among those who have never screened, fear of the screening procedure was the major reason. This could be due to low level of knowledge, misconception and negative attitudes towards cervical cancer screening. The cervical cancer prevalence among female employees is much higher than the cervical cancer screening prevalence in Uganda which ranges between 4.8-30% (Ndejjo *et al.*, 2016) and that of female employees registered at UCI which stands at 8.3%(Uganda Cancer Institute, 2016). This could be explained by the fact that female employees of Mulago Hospital could have higher knowledge about cervical cancer, positive attitudes and have access to resources that makes them access screening with ease, including their proximity to cervical cancer screening services than those employees who are not working in a hospital setting. The big discrepancy may also be a result of lack of national data about cervical cancer screening prevalence causing persistence reliance on data from sporadic sites in Uganda. There is need for effective health promotion and disease prevention programs in all work sites, including Hospitals that integrates cervical cancer screening for female employees. In addition, there is need for accurate national data on cervical cancer.

5.2. Socio-demographic characteristics of respondents

Socio-demographic characteristics of women have been enumerated in this section. A large percentage (63.2%) of respondents was within the age group of 25-34 years which is a true

reflection of the young population of Uganda, which is also part of the majority of employees in Mulago Hospital.

In addition, this age group is targeted for cervical cancer screening. This finding concurs with the finding from a study done by Nakku and Buyinza (2018) in Mayuge District in Uganda, which found that age was among the four socio demographic factors that significantly influenced up take of cervical cancer screening services.

The uptake of cervical cancer screening was more among Nurses/Midwives, Doctors and paramedical staff than in administrative and support staff. The significant association of the nature of employment and cervical cancer screening uptake could be attributed to the high level of cervical cancer prevention knowledge and attitudes among nurses/midwives, doctors and paramedical staff than among administrative and support staff.

This high level of knowledge may have been acquired through health training and interaction with fellow clinicians but not through cancer prevention programs. In addition it could be easier for clinical staff to access cancer screening services than administrative and support staff.

Noteworthy, the characteristics that showed high significant association with cervical cancer screening uptake were age and nature of employment with p values of 0.007 and 0.009 respectively. There is need to target at more young female workers in hospitals and generally workplaces with effective cervical cancer prevention program.

5.3. Individual factors

Focusing at individual factor, all respondents were aware about cervical cancer and cervical cancer screening. The commonest source of cervical cancer prevention information was health workers. Their work within the hospital setting could have exposed them to cervical cancer prevention information from health workers and could account for the high level of cervical cancer prevention awareness.

This findings concurs with the findings of a study done by Ekine and West (2015) in Nigeria on awareness of female health workers and non-health workers on cervical cancer and cervical cancer screening, which revealed high level of awareness on cervical cancer 415 (80.9%) and cervical cancer screening 382 (74.5%). The commonest source of information for Health workers were Doctors and health workers. But for non-Health workers, the commonest source of information was mass media.

This high level of awareness is not commensurate with the cervical cancer screening uptake. But awareness is not the only factor that influence cervical cancer screening uptake. It would therefore, be important to deliberately turn this high level of awareness to cervical cancer screening uptake among female staff through effective cervical cancer prevention program that improves cervical cancer screening knowledge and motivates female employees to take up the available cervical cancer screening services.

Cervical cancer prevention knowledge and attitude levels were higher among Nurses/Midwives, Doctors and paramedical staff than in administrative and support staff. The health training that they underwent, their health practice and interaction with their fellow health workers may have contributed to their high levels of knowledge and attitudes. This finding concurs with finding of a study done in Nigeria on awareness of female health workers and non-health workers on cervical cancer and cervical cancer screening by Ekine and West (2015) which revealed adequate good knowledge on cervical cancer screening 60.7%. .Another study done by Kabir *et al* (2017) in Nigeria to assess the knowledge, attitude and practice regarding prevention of cervical cancer among female health professionals in a secondary health facility in Kano, Nigeria found high level of positive attitude (97.4%) towards pap smear. The high levels of cervical cancer prevention knowledge and attitudes have not been translated to 100% cervical cancer screening uptake among female employees of Mulago Hospital. There is need to motivate female employees of Mulago Hospital to take up available cervical cancer screening services through effective health education program.

In our study, individual characteristics that were associated with screening included fear of the screening procedure, anticipation of discomfort during screening, awareness of what screening is, its intervals and awareness of cervical cancer and screening. Congruently, the correlation between awareness about cervical cancer and screening has been reported else from studies conducted in Jamaica (Ncube et al., 2015); in India (Badaya, 2012); in Nigeria (Chen et al., 2014; Ekine and West, 2015; Unang, Abasiattai and Udoma, 2011). In Uganda, such findings are similar to those of Ndejjo and colleagues (2016). Awareness to cervical cancer and screening is the initial step towards cervical cancer screening and treatment. It reduces the burden of cervical cancer attributed to prevention and early detection. In addition, awareness of the benefits of screening were not significantly associated with cervical cancer screening uptake.

5.4. Health facility factors

In our study, we revealed that majority reported that they accessed information about cervical cancer and cervical cancer screening, that the staff were available, that the staff had positive attitude, that the room were private, that they didn't pay for the services and that it took them less than one hour to be screened. This shows that the cancer screening clinics had all the resources for cervical cancer screening and there for did not to a large extent provide any barrier to cervical cancer screening. Organizational insufficiencies in screening delivery and an overall lack of nationalized cervical cancer screening priorities, guidelines and policies have been noted in other studies. The findings of our studies contradict with the findings of a study done by Bukirwa *et al.* (2015) in Mildmay, Uganda which found that inadequate health education, long waiting time, few staff and lack of privacy in screening rooms were the barriers to cervical cancer screening. This findings further disagrees with the findings done by Twinomujuni *et al.*(2015) in Uganda which found that clients were incurring cost to access cervical cancer screening which was prohibiting women from accessing cervical cancer screening services. There is need to promote or raise awareness about the free cervical cancer screening services among workers in Mulago Hospital.

It revealed that inaccessible information on screening, availability of staff, negative attitude of staff, perception that screening takes more than 2 hours, payment for screening services and how much was paid for the screening services were significantly associated with uptake of cervical screening services. On the other hand, the mode of payment for those who paid for screening services and privacy were not significantly associated with uptake of screening services. Similar to our findings, waiting time as a correlate to cancer screening uptake has been reported else in a study in Kenya (Njuguna *et al*., 2017) and one in Uganda (Bukirwa *et al*., 2015). Perceived waiting time represents a significant bottleneck, clients waiting for a long time before they get screened for cervical cancer could be less likely to come for subsequent visits or even advise others to come for screening. The long waiting time could not make other women who had commitments at home and office access cervical cancer screening.

Furthermore, the attitude of health workers as a significant correlate to uptake of cervical cancer screening influences the clients' uptake of the service. This has also been reported in other studies (Dike and Ijeoma, 2016; Bukirwa *et al*., 2015).) This affects access to cervical cancer screening and it was attributed to few staff trained in cervical cancer screening and

thus the task overload as the same staff who do cervical screening are also involved in providing other health services at the clinic (Bukirwa *et al*., 2015).

In addition, logistics of screening services is a significant correlate to uptake of cervical cancer screening. This has also been reported elsewhere as one of the major factors that hinder uptake of cervical cancer screening(Dike and Ijeoma, 2016)(Maseko, Chirwa and Muula, 2015). Logistics are major challenges in cervical cancer prevention program in Malawi found that the major challenges were lack of basic equipment for cervical cancer screening, stock-outs of basic medical supplies in some health facilities and inadequate funding of cervical cancer screening program. Moreover, the cost of cervical cancer screening is also a determinant of intention to screen (Ebu, 2018). In Uganda, clients incurred cost in obtaining cervical cancer screening services as reported by respondents. The total costs incurred for services were reportedly prohibitive for service utilization among 89.7% (174/194) of the respondents although this finding was not statistically significant (Twinomujuni *et al*., 2015).

5.5. Study limitation

The study is limited to only health professionals who are most likely to have prior knowledge and a high likelihood to screen for cancer. The available research left out other workers like secretaries, accountants, administrators who are part of the hospital employees. This limited the findings on cervical cancer screening with regards to female employees in hospitals.

Self-reported data from self-administered questionnaires couldn’t be independently verified and elements that involved recall of the previous events may have caused biases.

CHAPTER SIX: CONCLUSION AND RECOMMENDATION

6.1. Conclusion

This was a cross sectional study conducted among female staff of Mulago Hospital to assess factors influencing cervical cancer screening uptake. Data was collected using self-administered questionnaires, analyzed using SPSS version 2.0 and presented in frequencies and percentages.

The total number of respondents was 117 which include 9 Doctors, 21 Nurses, 11 paramedical staff, 38 administrative staff and 38 support staff. 64.1% of respondents had ever screened for cervical cancer. Age and nature of employment were the socio demographic characteristics which showed significant association with uptake of cervical cancer screening.

Respondents had very high level of cervical cancer prevention awareness as all respondents said they were aware of cervical cancer, cervical cancer screening and the benefits of cervical cancer screening. In addition, cervical cancer prevention knowledge of respondents showed strong significant association with cervical cancer screening uptake. The level of knowledge and attitudes were higher among Doctors, Nurses/Midwives and paramedical staff than support and administrative staff.

60% of the 75 respondents who have ever screened for cervical cancer had good cervical cancer screening practices. Good cervical cancer screening practices were exercised more by Nurses/Midwives, paramedical staff and Doctors than administrative and support staff.

There was significant association of health facility factors to good cervical cancer screening practices.

6.2. Recommendations

The ministry of health and Mulago Hospital should design and implement work site health promotion and disease prevention program, where cervical cancer prevention is a key component to ensure healthy and productive workforce.

Ministry of health and Mulago Hospital should create awareness among female staff and promote uptake of the free cervical cancer screening services provided at Mulago Hospital.

Ministry of health and Mulago Hospital should ensure that cervical cancer screening statistics are aggregated at the central point and ensure their accuracy.

REFERENCES

Akinyemiju, T. F. (2012) 'Socio-Economic and Health Access Determinants of Breast and Cervical Cancer Screening in Low-Income Countries: Analysis of the World Health Survey', *PLoS ONE*. Edited by A. M. Noor. Public Library of Science, 7(11), p. e48834. doi: 10.1371/journal.pone.0048834.

American Cancer Society (2012) *Cancer Prevention & Early Detection Facts & Figures 2012*. Atlanta. Available at: https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/cancer-prevention-and-early-detection-facts-and-figures/cancer-prevention-and-early-detection-facts-and-figures-2012.pdf (Accessed: 2 August 2018).

Australian Institute of Health and Welfare (2018) *Cervical screening in Australia 2018, Summary - Australian Institute of Health and Welfare*. Available at: https://www.aihw.gov.au/reports/cancer-screening/cervical-screening-in-australia-2018/contents/summary (Accessed: 2 August 2018).

Bradford, L. and Goodman, A. (2013) 'Cervical cancer screening and prevention in low-resource settings', in *Clinical Obstetrics and Gynecology*, pp. 76–87. doi: 10.1097/GRF.0b013e31828237ac.

Bray, F. *et al.* (2013) 'Global estimates of cancer prevalence for 27 sites in the adult population in 2008.', *International journal of cancer*, 132(5), pp. 1133–45. doi: 10.1002/ijc.27711.

Bruni L, Barrionuevo-Rosas L, Albero G, Serrano B, Mena M, Gómez D, Muñoz J, Bosch FX, de S. and S (2017) 'Human Papillomavirus and Related Diseases Report', *ICO HPV Information Centre*, (July).

Bukirwa, A. *et al.* (2015) 'Motivations and barriers to cervical cancer screening among HIV infected women in HIV care: a qualitative study.', *BMC women's health*. BioMed Central, 15, p. 82. doi: 10.1186/s12905-015-0243-9.

Chen, A. A. *et al.* (2014) 'Determinants of Cervical Cancer Screening Uptake among Women in Ilorin, North Central Nigeria: A Community-Based Study', *Journal of Cancer Education*, pp. 362–367. doi: 10.1186/1472-6963-14-143.

Dike, F. M. and Ijeoma, O. E. (2016) 'Factors Influencing Uptake of Cervical Cancer Screening among Female Health Workers in University of Port Harcourt Teaching Hospital , Rivers State', 1(2), pp. 37–41. doi: 10.18311/jhsr/2016/8530.

Ebu, N. I. (2018) 'Socio-demographic characteristics influencing cervical cancer screening intention of HIV-positive women in the central region of Ghana', *Gynecologic oncology research and practice*. BioMed Central, 5, pp. 3–9. doi: 10.1186/s40661-018-0060-6.

Ekine and West (2015) 'Awareness Of Female Health Workers And Non Health Workers On Cervical Cancer And Cervical Cancer Screening : South -South ,Nigeria', *International Journal Of Medical Science And Clinical Inventions*, 2(02), pp. 713–725.

Elit, L. *et al.* (2012) 'Sociodemographic factors associated with cervical cancer screening and follow-up of abnormal results.', *Canadian family physician Medecin de famille canadien*, 58(1), pp. e22-31. Available at: http://www.ncbi.nlm.nih.gov/pubmed/22267636 (Accessed: 2 August 2018).

Eze, J. *et al.* (2012) 'Cervical cancer awareness and cervical screening uptake at the Mater Misericordiae Hospital, Afikpo, Southeast Nigeria', *Annals of African Medicine*, 11(4), p. 238. doi: 10.4103/1596-3519.102856.

International Agency for Research on Cancer (2017) *GLOBOCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012, International Agency for Research on Cancer*. Available at: http://globocan.iarc.fr/Pages/fact_sheets_population.aspx (Accessed: 9 July 2017).

Kabir *et al.* (2017) 'Awareness and Practice of Cervical Cancer Screening among Female Health Professionals in Murtala Mohammed Specialist Hospital, Kano', *Nigerian Postgraduate Medical Journal*, 12(3), p. 179.

Kish, L. (1965) *Survey sampling*. John Wiley & Sons.

Lyimo, F. S. and Beran, T. N. (2012) 'Demographic, knowledge, attitudinal, and accessibility factors associated with uptake of cervical cancer screening among women in a rural district of Tanzania: Three public policy implications', *BMC Public Health*. BioMed Central, 12(1), p. 22. doi: 10.1186/1471-2458-12-22.

Maseko, F. C., Chirwa, M. L. and Muula, A. S. (2015) 'Health systems challenges in cervical cancer prevention program in Malawi', *Global Health Action*, 8(1), p. 26282. doi: 10.3402/gha.v8.26282.

MOH (2010) 'Strategic Plan for Cervical Cancer Prevention, Ministry of Health'. Kampala, (April 2010). Available at: http://www.rho.org/files/PATH_Uganda_cxca_strat_plan_2010-2014.pdf (Accessed: 12 March 2018).

Moshi, F. V., Vandervort, E. B. and Kibusi, S. M. (2018) 'Cervical Cancer Awareness among Women in Tanzania: An Analysis of Data from the 2011-12 Tanzania HIV and Malaria Indicators Survey', *International Journal of Chronic Diseases*. Hindawi, 2018, pp. 1–7. doi:

10.1155/2018/2458232.

Mukama, T. *et al.* (2017) 'Women's knowledge and attitudes towards cervical cancer prevention: A cross sectional study in Eastern Uganda', *BMC Women's Health*. BioMed Central, 17(1), p. 84. doi: 10.1186/s12905-017-0365-3.

Mukesh S (2016) 'Cancer screening among female nursing staff working in a government hospital', *Journal of Clinical Oncology*, 34. Available at: http://meeting.ascopubs.org/cgi/content/abstract/34/15_suppl/e13062?sid=b1574933-7d62-4615-b468 8e3bed5cdb3e%0.

Nakisige, C., Schwartz, M. and Ndira, A. O. (2017) 'Cervical cancer screening and treatment in Uganda', *Gynecologic Oncology Reports*. Elsevier Inc, 20, pp. 37–40. doi: 10.1016/j.gore.2017.01.009.

Ncube, B. *et al.* (2015) 'Factors associated with the uptake of cervical cancer screening among women in portland, Jamaica.', *North American journal of medical sciences*. Wolters Kluwer -- Medknow Publications, 7(3), pp. 104–13. doi: 10.4103/1947-2714.153922.

Ndejjo, R. *et al.* (2016) 'Uptake of cervical cancer screening and associated factors among women in rural Uganda: A cross sectional study', *PLoS ONE*. Public Library of Science, 11(2), p. e0149696. doi: 10.1371/journal.pone.0149696.

Njuguna, E. *et al.* (2017) 'Factors influencing cervical cancer screening in a Kenyan Health Facility: a mixed qualitative and quantitative study', *International Journal of Reproduction Contraception, Obstetrics and Gynecology Njuguna E Int J Reprod Contracept Obstet Gynecol*, 66(44), pp. 1180–1185. doi: 10.18203/2320-1770.ijrcog20171381.

Park, M. J. *et al.* (2011) 'Sociodemographic gradients in breast and cervical cancer screening in Korea: The Korean National Cancer Screening Survey (KNCSS) 2005-2009', *BMC Cancer*. BioMed Central, 11(1), p. 257. doi: 10.1186/1471-2407-11-257.

Path (2010) *Outlook. Progress in preventing cervical cancer: Updated evidence on vaccination and screening*. Available at: http://www.rho.org/files/PATH_outlook_27_2.pdf (Accessed: 2 August 2018).

Pegu, B. *et al.* (2017) *Nurse's knowledge and attitude regarding cervical cancer screening at a tertiary care hospital, International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. Available at: http://www.ijrcog.org/index.php/ijrcog/article/view/2369/2055.

Phianmongkhol, Y. *et al.* (2011) 'Knowledge about human papillomavirus infection and cervical cancer prevention among nurses in Chiang Mai University Hospital, Thailand.', *Asian Pacific journal of cancer prevention : APJCP*, 12(3), pp. 823–825. Available at:

http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=med7&NEWS=N&AN=21627391.

Rahman, H. and Kar, S. (2015) 'Knowledge, attitudes and practice toward cervical cancer screening among Sikkimese nursing staff in India', *Indian Journal of Medical and Paediatric Oncology*, 36(2), p. 105. doi: 10.4103/0971-5851.158840.

Salimah Nakku, N. B. (2018) *Factors Affecting Uptake of Cervical Cancer Screening Services, Amazon*. Available at: https://www.amazon.com/Factors-Affecting-Cervical-Screening-Services/dp/6139586984 (Accessed: 4 August 2018).

Shah, V. *et al.* (2012) 'Awareness and knowledge of cervical cancer and its prevention among the nursing staff of a tertiary health institute in Ahmedabad, Gujarat, India', *ecancermedicalscience*, 6(1). doi: 10.3332/ecancer.2012.270.

Singh, E. *et al.* (2012) 'Awareness of cervical cancer screening among nursing staff in a tertiary institution of rural India', *Journal of Gynecologic Oncology*, 23(3), pp. 141–146. doi: 10.3802/jgo.2012.23.3.141.

Singh, S. and Badaya, S. (2012) 'Factors Influencing uptake of Cervical Cancer Screening among Women in India: A Hospital based Pilot Study', *Journal of Community Medicine & Health Education*, (January). doi: 10.4172/2161-0711.1000157.

Society., A. C. (2005) 'What are the key statistics for cervical cancer?', *American Cancer Society. October*. Available at: https://www.cancer.org/cancer/cervical-cancer/about/key-statistics.html (Accessed: 3 August 2018).

Sözmen, K. *et al.* (2016) 'Determinants of Breast and Cervical Cancer Screening Uptake Among Women in Turkey', *Asia Pacific Journal of Public Health*. SAGE Publications Sage CA: Los Angeles, CA, 28(6), pp. 528–538. doi: 10.1177/1010539516654541.

Tiruneh, F. N. *et al.* (2017) 'Individual-level and community-level determinants of cervical cancer screening among Kenyan women: A multilevel analysis of a Nationwide survey', *BMC Women's Health*, 17(1). doi: 10.1186/s12905-017-0469-9.

Twinomujuni, C., Nuwaha, F. and Babirye, J. N. (2015) 'Understanding the low level of Cervical cancer screening in Masaka Uganda using the ASE model: A community-based survey', *PLoS ONE*. Public Library of Science, 10(6), p. e0128498. doi: 10.1371/journal.pone.0128498.

Uganda Cancer Institute (2016) *Annual report: Gyne Oncology department*. Kampala.

Unang, I., Abasiattai, A. and Udoma, E. (2011) 'Awareness and Practice of Cervical Smear As a Screening Procedure for Cervical Cancer Among Female Nurses in South-South Nigeria', *TAF Preventive Medicine Bulletin*, 10(6), p. 1. doi: 10.5455/pmb.20110823055210.

Were, E., Nyaberi, Z. and Buziba, N. (2011) 'Perceptions of risk and barriers to cervical cancer screening at Moi Teaching and Referral Hospital (MTRH), Eldoret, Kenya', *African Health Sciences*, 11(1), pp. 58–64.

WHO (2013) *Guidelines for screening and treatment of precancerous lesions for cervical cancer prevention, WHO Guidelines*. Available at: http://apps.who.int/iris/bitstream/10665/94830/1/9789241548694_eng.df (Accessed: 9 March 2018).

WHO (2014) *Comprehensive Cervical Cancer Control A guide to essential practice*. Geneva: WHO. Available at: http://apps.who.int/iris/bitstream/10665/144785/1/9789241548953_eng.pdf?ua=1 (Accessed: 11 March 2018).

WHO (2017) *WHO | Cervical cancer, WHO*. World Health Organization. Available at: http://www.who.int/cancer/prevention/diagnosis-screening/cervical-cancer/en/ (Accessed: 1 March 2018).

WHO, A. (2012) *GLOBOCAN: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012*. Available at: http://globocan.iarc.fr/Pages/fact_sheets_population.aspx (Accessed: 14 August 2017).

Wongwatcharanukul, L. *et al.* (2014) 'Factors Affecting Cervical Cancer Screening Uptake by Hmong Hilltribe Women in Thailand', *Asian Pacific Journal of Cancer Prevention*, 15(8), pp. 3753–3756. doi: 10.7314/APJCP.2014.15.8.3753.

APPENDIX 1: INFORMED CONSENT FORM

I am Nankya Esther a Nursing student from Clarke International University. I'm conducting a research study called **:**

Factors influencing uptake of cervical cancer screening among female employees of Mulago Hospital *as part of my academic requirements. You are being requested to take part in this research that is being conducted in mulago hospital.*

Purpose of the study

The purpose of this study is to identify the factors influencing cervical cancer screening uptake by female employees of Mulago Hospital.

Study Procedures

After you have finished reading and signing this consent form, you will be asked to fill a short questionnaire which will take you approximately 15 minutes.

Benefits

Your participation in this study will not attract any direct benefit, but the information you will provide will be useful in improving services of cervical cancer screening.

Risks or Discomfort

There are no major risks for participating in this study except the time you will spend while participating.

CLARKE INTERNATIONAL UNIVERSITY
27 AUG 2019
APPROVED / VALID UNTIL
RESEARCH ETHICS COMMITTEE
P.O. Box 7787, Kampala - Uganda

Will I be paid for participating in this study?

No, but you will be given a token of a writing pen in compensation for your time.

Privacy and Confidentiality

The information gathered in this study will basically be used for academic purposes and it will be kept confidential in a lockable place with limited access. Your names and any identifying information will not be included in the research report or any publication.

Rights for participation.

Your participation in this research is free and voluntary, and you can choose to participate or not. There will be no penalty if you stop taking part in this research.

Who do you ask in case of any concerns, questions or complaints?

If you have any questions, concerns or complaints about this research, contact the researcher Esther Nankya on 0783428287.

If you have questions about your rights as a participant in this research, general questions, or have complaints, concerns or issues you want to discuss with someone outside the research, call the CIUREC Chairperson Dr. Samuel Kabwigu on (0779610100) & the executive secretary of UNCST on (0414 -705500) respectively.

Assessment of understanding

Please check which box best describes your assessment of understanding of the above informed consent document:

□ I have read the above informed consent document and understand the information provided to me regarding participation in the research and benefits and risks. I voluntarily accep to take part in the study.

□ I have read the above informed consent document, but still have questions about the study; therefore I do not give my consent to take part in the study.

Signature of Person Taking Part in Study Date

Signature of Person Obtaining Informed Consent / Research Authorization Date

Printed Name of Person Obtaining Informed Consent

APPENDIX II: QUESTIONNAIRES

Serial no……. Date administered…….

Designation……Institution…...…….

A. SOCIO-DEMOGRAPHIC CHARACTERISTICS

1.Age (years)

a) 25-34

b) 35-44

c) 45-49

2. Marital status

a) Single

b) Married

c) Divorced/separated

d) Widowed

3. Tribe

a) Muganda

b) Munyankole

c) Mukiga

d) Atesot

e) Others……

4. Religion

a) Catholic

b) Anglican

c) Moslem

d) Pentecostal

e) Others ……

5. Nature of employment

a) Doctor

b) Nurse/midwife

c) Paramedical staff

d) Administrative staff

e) Support staff

6. Highest academic qualification

a) Certificate

b) Diploma

c) Bachelor

d) Master

e) PHD

B. INDIVIDUAL FACTORS

7. Awareness about cervical cancer

a) Have you ever heard about cervical cancer?

i. Yes ☐

ii. No ☐

b) If yes, where did you hear it from?

i. Friends ☐

ii. Health worker ☐

iii. Mass media ☐

c) Have you ever heard about cervical cancer screening?

i. Yes ☐

ii. No ☐

d) If yes where did you hear it from?

i. Friends ☐

ii. Health worker ☐

iii. Mass media ☐

e) Are you aware of some of the benefits of cervical cancer screening?

i. Yes ☐

ii. No ☐

8. Cervical cancer prevention knowledge

a) What is cervical cancer?

…….

b) What are the risk factors to cervical cancer?

…….

c) How can one prevent cervical cancer?

…….

d) What is cervical cancer screening?

…….

e) What are the benefits of cervical cancer screening?

…….

f) After what interval should a woman screen for cervical cancer?

…….

g) What can disqualify a woman from screening for cervical cancer?

…….

h) How is cervical pre-cancerous lesion treated?

…….

9. Attitudes towards cervical cancer screening

a) Do you think you are at risk of cervical cancer?

i. Yes ☐

ii. No ☐

b) Do you fear the screening procedure?

i. Yes ☐

ii. No ☐

c) Are you afraid of the discomfort during and after cancer screening procedure?

i. Yes ☐

ii. No ☐

d) Do you have any fear of being diagnosed with cancer?

i. Yes ☐

ii. No ☐

e) Would you educate and refer your clients and other women for cancer screening?

i. Yes ☐

ii. No ☐

10. Cervical cancer screening practices

a) Have you ever screened for cervical cancer?

i. Yes ☐

ii. No ☐

b) If yes, how many times have you ever screened for cervical cancer?

i. once ☐

ii. Twice ☐

iii. three times ☐

☐

iv. More than three times

c) Where did you do the screening from?

i. Uganda Cancer Institute ☐
ii. Mulago NRRH ☐
iii. Private hospital/clinic ☐
iv. Government health center/hospital ☐
v. Outreach/health camp ☐
vi. Others ……

d) Do you intend to screen for cervical cancer screening in the near future?

i. Yes ☐
ii. No ☐

e) When do you intend to screen?

i. Within three months' time ☐
ii. within 6 months' time ☐
iii. After one year ☐
iv. After two years ☐

f) If you have never screened for cervical cancer, what are the reasons for not doing it?

…….

…….

11. Health facility factors

a) When you went for cervical cancer screening, did you access information about cervical cancer and cervical cancer screening?

i. Yes ☐
ii. No ☐

b) Were the staffs available?

i. Yes ☐
ii. No ☐

c) How would you describe the attitude of the staff who served you?

i. Positive ☐
ii. Negative ☐

d) How long did it take you to be screened for cervical cancer?

i. Less than 30 minutes ☐
ii. Between 30 mins-1 hour ☐
iii. between 1-2 hours ☐

iv. More than 2 hours ☐

e) Did the room/space where you were screened form provided privacy?

i. Yes ☐

ii. No ☐

f) Did the nurse/ doctor lack something that thy asked you to buy or told to come back or sent you to another health facility?

i. Yes ☐

ii. No ☐

g) Did you pay for cervical cancer screening services?

i. Yes ☐

ii. No ☐

h) If yes, how much money did you pay?

i. 10,000-40,000/= ☐

ii. 50,000-90,000/= ☐

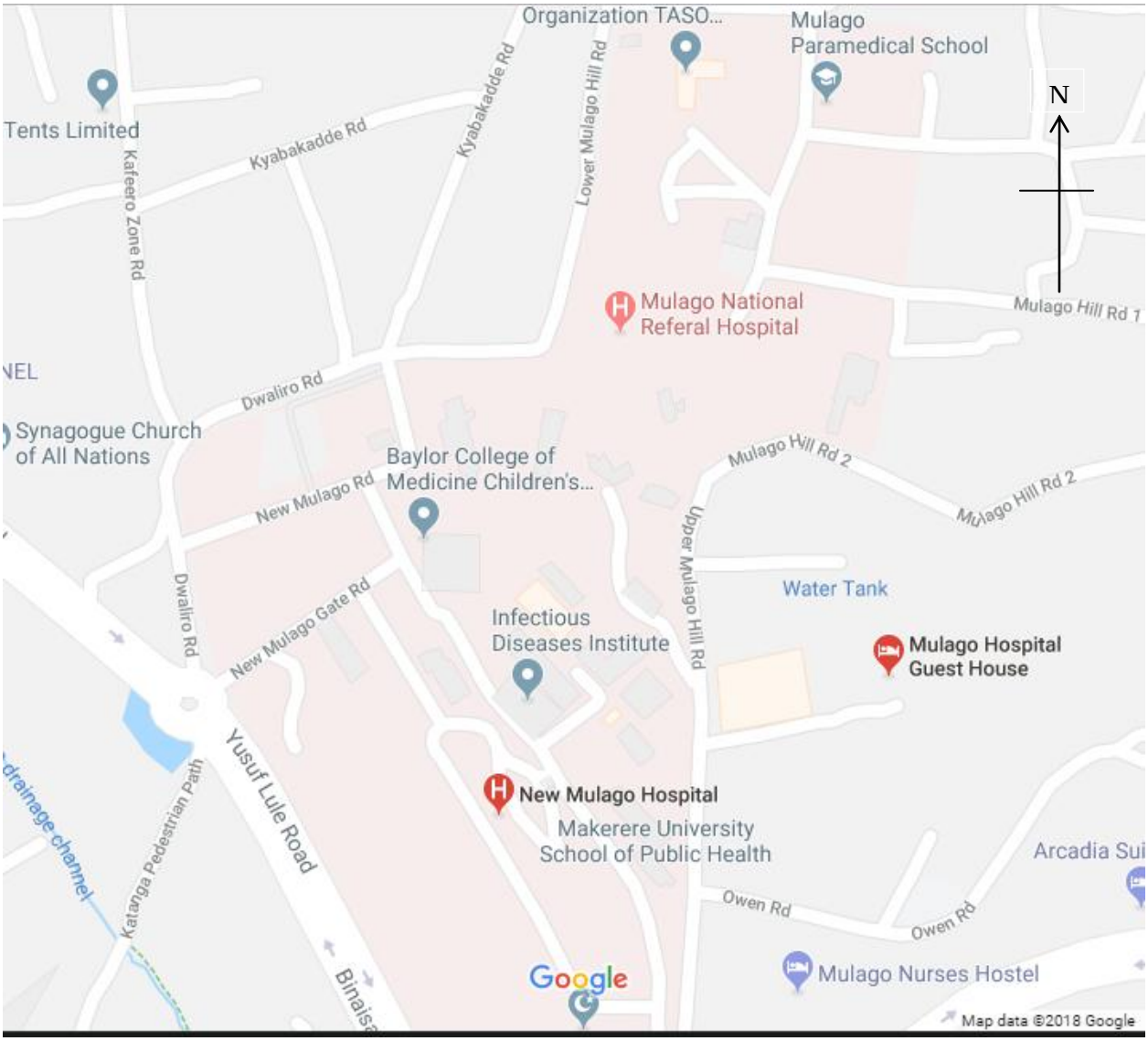
iii. 100,000 and above ☐

i) What was the mode of payment?

i. Formal ☐

ii. Informal ☐

APPENDIX III: MAP SHOWING MULAGO HOSPITAL



KEY

Mulago Hospital

APPENDIX IV: INTRODUCTION LETTER

IHSU INTERNATIONAL HEALTH SCIENCES UNIVERSITY
sanitas per scientiam

making a difference in health care

Office of the Dean, School of Nursing

Kampala, 11th June 2018

HE EXECUTIVE DIRECTOR
MULAGO HOSPITAL

Dear Sir/Madam,

RE: ASSISTANCE FOR RESEARCH

Greetings from International Health Sciences University.

This is to introduce to you **Nankya Esther** Reg. No. **2015-BNS-TU-025** who is a student of our University. As part of the requirements for the award of a Bachelors degree in Nursing of our University, the student is required to carry out research.

The topic of research is: **Uptake of cervical cancer screening among Female employees of Mulago Hospital.**

This therefore is to kindly request you to render the student assistance as may be necessary for the research.

I, and indeed the entire University are grateful in advance for all assistance that will be accorded to our student.

Sincerely Yours,

IHSU INTERNATIONAL HEALTH SCIENCES UNIVERSITY
11 JUN 2018
SCHOOL OF NURSING
P. O. Box 7782, Kampala - Uganda

Ms. Agwang Agnes
Dean, School of Nursing

The International Health Sciences University
P.O. Box 7782 Kampala – Uganda
(+256) 0312 307400 email: aagwang@ihsu.ac.ug
web: www.ihsu.ac.ug

APPENDIX V: APPROVAL LETTERS

CLARKE INTERNATIONAL UNIVERSITY
LEAD • INNOVATE • TRANSFORM
RESEARCH ETHICS COMMITTEE

(+256) 0312 307400
rec@ciu.ac.ug
www.rec.ciu.ac.ug

27th August, 2018

UG-REC-015

IHSU-REC/0093

CLARKE INTERNATIONAL UNIVERSITY
27 AUG 2018
APPROVED / VALID UNTIL
RESEARCH ETHICS COMMITTEE
P. O. Box 7782, Kampala - Uganda

Ms. Nankya Esther
Principal Investigator
Clarke International University
P.O Box 7782
Kampala, Uganda

Category of review
[x] Initial review
[ ] Continuing review
[ ] Amendment
[ ] Reactivation
[ ] SAEs

RE: "FACTORS INFLUENCING UPTAKE OF CERVICAL CANCER SCREENING AMONG FEMALE EMPLOYEES OF MULAGO HOSPITAL".

Reference is made to the above mentioned protocol which was submitted to Clarke International University Research Ethics Committee (CIUREC) for initial review and approval.

You have addressed all the issues earlier raised, and the committee is satisfied with the responses submitted in version 2.0 dated 23rd August, 2018.

I am glad to inform you that your study has been approved for a period of one year from 27th August, 2018 to 27th August, 2019.

The documents approved include the following;

Document	Language	Version	Submission Date
Protocol	English	Version 2.0	23rd August, 2018
Consent forms			
Informed Consent	English	Version 2.0	23rd August, 2018
Informed Consent	Luganda	Version 1.0	23rd August, 2018
Data collection tools			
Semi-structured questionnaires	English	Version 2.0	23rd August, 2018

Please note that any problem of a serious nature as a result of this study to the participants should be reported to CIUREC and Uganda National Council of Science and Technology (UNCST) immediately.

Also note that annual report and request for renewal where applicable should be submitted at least one month before the expiry date of approval. In addition, you are also required to submit copies of the stamped approved documents to the Uganda National Council for Science and Technology (UNCST) before the study can commence.

We would like to congratulate you and wish you a successful conduct of the study.

Yours Sincerely,

27 Aug 2018

Dr. Samuel Kabwigu
CIUREC Chairperson

Date

APPENDIX VI: ADMINISTRATIVE CLEARENCE

TELEPHONE: +256-41554008/1
FAX: +256-414-5325591
E-mail: admin@mulago.or.ug
Website: www.mulago.or.ug

MULAGO NATIONAL REFERRAL HOSPITAL
P.O. Box 7051
KAMPALA, UGANDA

IN ANY CORRESPONDENCE ON THIS SUBJECT PLEASE QUOTES NO…

THE REPUBLIC OF UGANDA

Dr. Nakwagala
Please handle
21-9-18

14th September, 2018.

The Executive Director
Mulago National Referral Hospital

19-9-18 RECEIVED

Dear Sir,

RE: RECOMMENDATION FOR ADMINISTRATIVE CLEARANCE.

The Mulago Hospital Research & Ethics Committee has reviewed the protocol entitled **MHREC 1497: "Factors Influencing Uptake of Cervical Cancer Screening among Female Employees of Mulago Hospital"** by Ms. Esther Nankya as a student Principal Investigator.

The study got an initial approval from Clarke International University Research and Ethics Committee for a period of one (1) year from 27th August, 2018 to 27th August, 2019.

The study has met the following obligations;

1. Paid the MREC review fees of 50,000/=
2. Agreed to comply with all institutional policies and regulations of Mulago national referral hospital
3. Agreed to provide end of study report and acknowledge Mulago hospital in all publications

The study is therefore recommended for your provision of administrative clearance by Mulago national referral hospital.

Yours sincerely;

14/9/2018

DR. NAKWAGALA FREDERICK NELSON
CHAIRMAN- MULAGO HOSPITAL RESEARCH & ETHICS COMMITTEE.

Copy to;

1. **Ms. Esther Nankya**
2. **Assistant Commissioner Nursing/ Health Services**

ESTHER NANKYA
ADMINISTRATIVE CLEARANCE PROVIDED BY MULAGO NATIONAL REFERRAL HOSPITAL

Vision: "To be the leading centre of Health Care Services"