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KNOWLEDGE AND ATTITUDES REGARDING CERVICAL CANCER SCREENING
AMONG WOMEN LIVING WITH HIV/AIDS IN MALAWI:
A CROSS-SECTIONAL STUDY

A Dissertation Presented

by

JASINTHA MTENGEZO

Submitted to the Office of Graduate Studies,
University of Massachusetts Boston,
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2019

Nursing Program

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ABSTRACT

KNOWLEDGE AND ATTITUDES REGARDING CERVICAL CANCER SCREENING AMONG WOMEN LIVING WITH HIV/AIDS IN MALAWI: A CROSS-SECTIONAL STUDY

May 2019

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Cervical cancer is the third most frequent cancer among women worldwide and about 265,672 women die from the disease annually. Abnormal cervical cells caused by human papillomavirus are more common in HIV-positive women than in HIV-negative women due to their compromised immune system. Malawi, in Sub-Saharan Africa, is one of the countries with the highest rates of cervical cancer and HIV in the world. The incidence of cervical cancer and deaths can be reduced by 80% if women go for screening. There are limited studies about cervical cancer screening behavior, level of knowledge and attitudes regarding cervical cancer and screening among Malawian HIV positive women. The purposes of this Situation-Specific guided study were to determine the prevalence of cervical cancer screening, level of knowledge and attitudes regarding cervical cancer and screening; and to examine factors associated with screening behavior among Malawian HIV-positive women. A cross-sectional survey was conducted with Malawian women living with HIV infection aged 18-50 from HIV support organizations in one district in Malawi. Two stage proportionate stratified cluster random sampling method was used to select 291 respondents.

A face-to-face interviewer-administered survey was conducted after obtaining women's informed consent. Data were analyzed using SPSS. Univariate descriptive statistics were used to describe respondents' data. Bivariate and multivariate logistic regression models were used to identify independent variables associated with cervical cancer screening. The adjusted Odds Ratios (OR) and their corresponding 95% CI were used to measure the strength of associations between knowledge and attitudes, and cervical cancer screening. A two-tailed p-value of $\leq .05$ was considered statistically significant.

The prevalence of cervical cancer screening rate was 27.8% among 291 Malawi women living with HIV infection. The findings showed that women had a high knowledge level ($M = 25.63$, $SD = 6.35$) and positive attitude ($M = 5.05$, $SD = 1.43$) towards screening. The factors independently associated with cervical cancer screening in HIV positive women were occupation, OR = 5.12 (95% CI: 1.07, 24.43), knowledge OR = 1.10 (95% CI: 1.02, 1.19), attitude, OR = 1.36 (95% CI: 1.04, 1.76), and access to screening services OR = 1.21 (95% CI: 1.01, 1.44). The cervical cancer screening rate among HIV positive women in Malawi is still low. There is need for developing health education messages culturally tailored to women living with HIV infection in Malawi to promote cervical cancer screening uptake.

ACKNOWLEDGEMENTS

I would like to express my gratitude to my dissertation Chairperson, Dr Haeok Lee and the Committee members, Dr Ling Shi, Dr Mary Cooley, and Dr MarySue Makin, for working tirelessly in mentoring me. I also thank all my fellow PhD program students and professors for their constructive suggestions throughout this dissertation process. My appreciations also go to the research assistants for your perseverance during data collection, the participants' willingness to be interviewed, and the social navigators for showing me the way to the support groups. Furthermore, I thank Daeyang University staff for their support; American Cancer Society, Global health, and seed Global health, and Miracle for Africa Chairman for funding this study.

Lastly, my sincerely gratitude should go to my family members including my mothers: Mrs Flora Gondwe, Dr Evelyn Acheson and Late Professor Susie Kim for the encouragement and support.

All editors, you have done great job!

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CHAPTER 1

INTRODUCTION

This study assessed the cervical cancer screening rate, level of knowledge and attitudes regarding cervical cancer and screening; and examined factors associated with cervical cancer screening among Malawian HIV-positive women to prevent and control cervical cancer among this at-risk population. The study is guided by the Situation-Specific framework in the context of HIV positive women in Malawi developed from the findings of a pilot qualitative study conducted by the researcher (Mtengezo & Lee, 2018). This chapter provides the background of the problem, problem statement, significance of the study, purpose of the study, research questions, aims of the study, preliminary study findings, and conceptual framework used in the thesis.

Background

Cervical cancer is the third most frequent cancer among women worldwide and every year 527,624 women are diagnosed with cervical cancer, and 265,672 of them die from the disease (Ferlay et al., 2012). Eighty-five percent of cervical cancer cases and 87 % of the cervical cancer deaths occur in less developed countries (WHO/ICO, 2010). Malawi as a developing country and is one of the countries with the highest incidence rates of cervical cancer and mortality in the world (Ferlay et al., 2012). Evidence has revealed that from 2007 to 2010, cervical cancer was the most common type of cancer accounting for 45.4% of all new cases of cancers among women in Malawi (Msymbodza et al., 2012). The cause of most cervical cancers is human papillomavirus (HPV) infection and the disease is more likely to occur in women over age 40 years (Malawi Ministry of Health [MOH], 2017). The HPV slowly causes cellular changes called pre-cancerous lesions or cervical intraepithelial neoplasia (CIN) in the surface tissue of the cervix before the development of cancer (Ferlay et al., 2012). The CIN lesions are graded depending on severity: CIN I, CIN II, and III. The

CIN I have low-grade squamous intraepithelial lesions which often clear up without treatment. CIN II and III have high-grade squamous intraepithelial lesions which continue to grow and eventually develop into cancer (Ferlay et al., 2012). However, women with HIV-infection experience more rapid progression to cervical cancer and have a higher risk of developing the disease than do HIV-negative women, due to a compromised immune system (Ferlay et al., 2012; UNAIDS, 2013; WHO, 2010). The National Center for infectious diseases division of HIV/AIDS, classified cervical cancer as an AIDS-defining illness as it is directly related with the deterioration of the immune system (Cichocki, 2017). After a woman has developed cervical cancer, there are limited treatment options. The WHO recommends:

- 1) Primary prevention by giving HPV vaccination for young adolescent women. 2)

Secondary prevention of early detection by screening and treatment of precancerous cervical lesions. 3) Tertiary prevention by treating cervical cancer to reduce morbidity and mortality (Ferlay et al., 2012).

Evidence has indicated that vaccinations are over 95% effective in preventing HPV infection and minimizing the cervical cancer incidence (Arbyn, Xu, Simoens, & Martin-Hirsch, 2018). The Malawi Government started an HPV vaccination pilot project in 2013 in two districts (Zomba and Rumphi) in the country and but has not yet been rolled out due to insufficient funding (MOH, 2017). This vaccination program targeted 9-13 year old youths prior to sexual debut (MOH, 2015). Cervical cancer screening was found to be associated with overall mortality reduction rate of 83% if every woman attended screening frequently (Landy, Pesola, Castanon, & Sasieni, 2016). Therefore, screening is important for all women but it is particular important for women infected with HIV.

Malawi is a landlocked country in Sub-Saharan Africa (Refer to Attachment A) with a population of approximately 17.9 million (MDHS, 2017). According to a 2010 WHO report, about 86% of the countries' total population lives in the rural areas; 65% are living in poverty

with 27% in extreme poverty (WHO, 2010). The country has a low life expectancy of 58 years for men and 60 years for women (WHO, 2010). Some of the contributing factors to low life expectancy include communicable diseases including HIV/AIDS. Malawi's HIV prevalence rate is among the highest in the world (8.8%), with infected women aged 15-49 estimated at 10.8% as compared to 6.4% among men (MDHS, 2017). Further, the WHO report has also indicated that HIV prevalence is highest in women at age 40-44 (19.8%), higher in women living in urban areas (22.7%) than women living in rural areas (10.5%). The use of antiretroviral therapy has extended survival for women living with HIV/AIDS but HIV-infected individuals are prone to opportunistic infections, cervical abnormalities, and other sexually transmitted infections (UNAIDS, 2013). Delayed detection of HPV in HIV-infected women is linked to invasive, inoperable cervical cancer with higher mortality from cervical cancer than from HIV/AIDS (Firnhaber et al., 2016; Kafuruki, Rambau, Massinde, & Masalu, 2013; Reddy et al., 2015). The WHO report indicates that every year, 3,684 women are diagnosed with cervical cancer in Malawi and over 2,300 die from the disease (Ferlay et al., 2012, Masamba, 2015). The main risk factors for high cervical cancer incidence and mortality in Malawi include high HIV (10.0%) and HPV (33.6%) rates, insufficient prevention and treatment, delayed detection, and inadequate availability of healthcare services (Masamba, 2015; MDHS, 2017; MOH, 2017). The other risk factors include early onset of sexual intercourse, multiple sexual partners, increased parity, and co-morbidity of sexually transmitted diseases (Gadduci, Barsotti, Cosio, Domenici, & Riccardo, 2011; MOH, 2017). Further, the Malawi Ministry of Health report has indicated that the low literacy rate contributes to early marriage and early sexual practice, which is a contributing factor for cervical cancer (MOH, 2017). The literacy rate is estimated at 75% for women and 83% for men (MDHS, 2017). The United Nations Educational Scientific and Cultural Organizations' (UNESCO) 2015 report indicated that globally, 100 million children do not finish primary

education. Education attainment is directly related to health-related behaviors and attitudes. Individuals with high educational attainment can understand their health needs, read and follow health care instructions, advocate for their health care and the health care of their families. They can also communicate effectively with healthcare providers. In Malawi, studies have reported that cultural practices may also contribute to school drop-out including initiation ceremonies causing school absenteeism or the practice of early marriages (Behrman, 2014). Therefore, cervical cancer and HIV/AIDS are considered priority diseases in the health care delivery system of Malawi.

In Malawi, health care services are delivered by public and private sectors. The public sector provides services free of charge while the private not-for-profit health facilities provide services for free for some services such as antiretroviral therapy (ART), HIV care, under five childhood vaccinations and charge user fees for other services (MOH, 2017). The services are delivered at three levels that include primary, secondary, and tertiary levels, with these services linked through a comprehensive referral system (Refer to Table 1).

Table 1

Levels of health care services in Malawi

	Primary Level	Secondary Level	Tertiary Level
Total Facilities	453 health centers, dispensaries, health posts	63 (28 District Hospitals and 35 CHAM hospitals)	4 Central Hospitals
Role	-Provide primary health care services.	-Provide specialized services to patients referred from the primary health care level, through outpatient and inpatient services and community health services.	-Provide highly specialized services.
Personnel	-Medical assistants, nurses and midwives	-Obs/Gynae specialists, Medical Doctors, clinical officers, nurses and midwives	-Specialists, Medical Doctors, clinical officers, nurses and midwives
VIA Services	-Encourage women to go for VIA -Perform VIA -Refer to District Hospital	-Perform VIA -Perform Cryotherapy and LLETZ (takes biopsy). - Gynecologists perform Hysterectomy. -Refer cancer suspects to Central Hospital	-Perform VIA and Cryotherapy - Offers cancer treatment- radiotherapy and chemotherapy (Gynecologists)

The primary level consists of community initiatives, health posts, dispensaries, maternity facilities, health centers, community and rural hospitals. The primary level provides promotive and preventive care for some curative services such as provision of ART for HIV/AIDs, malaria, tuberculosis, and neglected diseases treatment. The services are provided by community-based cadres such as Health Surveillance Assistants (HSAs), nurse technicians, and medical assistants. The secondary levels are referral facilities from primary level facilities. They include all district and mission hospitals where both inpatient and outpatient services are provided by nurses, clinical officers, and medical officers. The tertiary level consists of central hospitals that provide referral health services for their respective regions for secondary level hospitals. They serve as training health facilities and they provide a wide range of preventive, diagnostic, and therapeutic services.

Cervical cancer prevention and control strategies are done at all three levels of health care services. There are 503 health facilities in Malawi (373 Government and 129 private or Non-Governmental). In 2015, there were only 129 functional cervical cancer-screening sites across the country and 32 (25%) had functional cryotherapy (MOH, 2017). Additionally, there were 391 trained cervical cancer screening service providers of whom only 272 (69.6%) were providing screening services.

Screening is a secondary prevention level of cervical cancer. It has the potential to detect abnormal conditions that can be treated before cancer develops (WHO, 2010). There are several types of screening tests for cervical cancer globally including liquid-based cytology (Pap smear), HPV DNA testing, and visual inspection with acetic acid (VIA) (WHO, 2010). The VIA was the initial screening test, and it was replaced by cervical cytology because of its low specificity (Bhattacharyya, Nath, & Deka, 2015; WHO, 2010). Specificity is the proportion of all those without the disease (cancer) that the VIA correctly identifies as negatives. Low specificity results in resources being spent on unnecessary

treatment of women who are free of precancerous lesions in a single visit approach. It is also less accurate among post-menopausal women as the squamo-columnar junction cannot be seen (Bhattacharyya et al., 2015). As such, the CDC (US) recommends that women aged 21–65 be screened for cervical cancer and precancerous lesions by Pap smear testing every three years due to its high sensitivity and specificity. The developed countries approach cervical cancer prevention by screening for CIN and early invasive cervical cancers using the Pap smear (CDC [US], 2016). However, there are infrastructure problems and insufficient human and financial resources to implement the cervical cytology prevention approach in developing countries (Ogunwale et al., 2016). Thus, over 80% of cervical cancer in sub-Saharan African countries is diagnosed late (Ferlay et al., 2012). Studies indicated that VIA was useful and a feasible alternative screening test for precancerous and cancerous lesions (Hasanzadeth, Esmaeili, Tabae, & Samadi, 2011; Kitchener & Symonds, 1999; McIntoch, 1999). Women need access to screening services to address the burden of cervical cancer in resource limited countries, therefore, the CDC recommends cervical cancer screening using VIA in developing countries (WHO, 2010). The VIA has low and wide range of specificity (64-95%) compared to Pap smear (93-98%) (Refer to Table 2).

Table 2

Differences between VIA and Pap Smear

Variable	VIA	Pap Smear	Reference
Sensitivity	65-89%	52-80%	(Bhattacharyya et al., 2015; CDC, 2010; Hasanzadeth et al., 2011; Kitchener & Symonds, 1999. Lince-Deroche, Phiri, Michelow, Smith, & Firnhaber, 2015; McIntoch, Blumenthal, & Blouse, 2001; McIntoch, 1999).
Specificity	64-95%	93-98%	
Cost	\$3.16-17.05/case	\$8.17-187.52/case	
Providers	Nurses, clinicians, medical officers and Obstetricians	Cytotechnologists	
Places	Can be done in remote places	In hospitals	
Age in years	30-50	21-65	
Safety	Yes	Yes	
Practical	Yes	No	
Affordable	Yes	No	
Effective	Yes	Yes	
Available	Yes	No	

The wide range of specificity (64-95%) between studies (Bhattacharyya et al., 2015; Lince-Deroche, Phiri, Michelow, Smith, & Firnhaber, 2015; McIntoch, 1999) may be due to the high incidence of suspected acetowhite epithelium, which might be inflammation, immature metaplasia or latent HPV infection. This may also indicate the lack of skills and knowledge of those performing the VIA and interpreting the results. There is need to train nurses and clinicians at grassroots level to maximize the sensitivity and specificity of VIA. The recent studies have demonstrated that both VIA and Pap smear tests are useful in detecting CIN which is true precancerous lesions (Bhattacharyya et al., 2015; Hasanzadeth et al., 2011; WHO, 2010). In addition, the VIA is most cost-effective at \$3.16- \$17.05 per true CIN2+ case detected compared to Pap smear at \$8.17-\$187.52 depending on the country (Bhattacharyya et al., 2015; Lince-Deroche et al., 2015). Therefore, the VIA approach is recommended because it is less costly and much more practical to implement in resource-limited settings (CDC, 2010; McIntoch, Blumenthal, & Blouse, 2001).

The VIA can be done by all trained health care providers including nurses and can be done even in remote places within the community as it is minimally reliant on infrastructure (Sankaranarayanan & Wesley, 2001). The VIA test is simple and easy to perform, test results are available immediately, requires only one visit, can be integrated into primary health care services, and is a suitable alternative to Pap smear to diagnose and prevent cervical cancer lesion in resource limited countries (Sankaranarayanan & Wesley, 2001; McIntoch et al., 2001). Pap smear screening is costly, needs infrastructure and trained manpower to make and interpret the slides. Malawi has very few pathologists and oncology nurses and social workers to offer the Pap smear approach, therefore, the VIA is the best approach.

Problem Statement

Evidence has shown that HIV-positive women are at higher risk of having pre-cancerous lesions and progress faster to develop cervical cancer than HIV-negative women

(Kamanga et al., 2013; Msyamboza, Phiri, Sichali, Kwenda, & Kachali, 2016; Sinayobye et al., 2014; Ursu et al., 2015) (Refer to Table 3).

Table 3

Prevalence of Pre-cancerous Lesions

Author	Place of Study	CIN + in HIV-Positive Women	CIN + in HIV-Negative Women
Kamanga et al., (2013); Msyamboza et al., (2016) Sub-Saharan Africa	Malawi	14.4 - 33%	7 -7.3%
Hawes et al., (2003); Moodley et al., (2006) Sinayobye et al., 2014 Developed Countries	Senegal, South Africa, Kenya, Rwanda	34% - 50%	1.4% -13%
Whitham et al., (2017); Ursu et al., (2015)	New York Romania (Europe)	8.3- 45%	1.8- 35.2%

Women with HIV infection are about 2 to 5 times more likely to have pre-cancerous lesions than HIV-negative women because: 1) HIV-infected women are more likely to have persistent HPV infections. 2) Persistent HPV infection is a requisite in the progression of pre-cancerous lesions to invasive cervical cancer (Ferlay, et al., 2012). This emphasizes that cervical cancer screening is important for all women, but it is particularly a public health priority among HIV-infected women worldwide.

Significance of the Study

Evidence has shown that Malawi has a high burden of cervical cancer and HIV rates (Ferlay et al., 2012; MOH, 2017). The incidence of cervical cancer and deaths can be reduced by 80% if coverage, quality, and follow-up of screening are high (Ferlay et al., 2012). Vaccinations are also effective in preventing HPV infection but the program is not yet rolled out in Malawi due to funding, therefore, screening is the only efficient way of early detection and treatment of the pre-invasive cancer before it develops to disease. Malawi adopted the VIA approach to screen for cervical cancer in 2004. Despite the availability of screening services, the WHO report indicates that screening coverage for all women aged 18 and above

in Malawi was as low as 2.6% (WHO, 2010). Data from the WHO report is based on record review and this could have missing information making the screening rate statistic unreliable.

However, a recent study has indicated that the cumulative screening rate for all women in Malawi by 2015 was 26.5% and in HIV-positive women it was 15.9% (Msyamboza et al., 2016). The Malawi cervical cancer screening guidelines recommend that HIV-positive women should have annual cervical screening at their baseline evaluation, thereafter, annually for those with normal results (MOH, 2005). Despite these recommendations aimed at addressing HIV-positive women's increased risk of developing cervical cancer, the screening rate is still low even though HIV positive women visit ART clinics regularly. The possible reasons for the low screening rate may be due to the availability of screening services that may not be integrated with ART; service providers are not trained to do screening; clinics do not have equipment and supplies needed and other reasons which need to be studied. The 2015 statistic is based on record review from the National Cancer Control program and secondary data analysis is viewed as too subjective as the information recorded from the reports may be incomplete as documents get misfiled. Additionally, in Malawi health booklets are kept by individuals and sometimes people lose them, thus affecting validity or truthfulness of the findings (Polit & Beck, 2011). There is no empirical evidence to quantify HIV-positive women's screening rate, levels of knowledge and attitudes regarding cervical cancer and screening; and factors associated with cervical cancer screening among HIV-positive women in Malawi, hence, the significance of this study. The results of this study will inform cancer screening programs to develop targeted health education messages which will lead to behavioral modifications and prevention of cervical cancer among HIV-positive women. Additionally, early detection of cervical cancer can lead to a positive prognosis that can result in reduced health costs and alleviate the

suffering of the individual HIV-positive women, their partners, families, and the population at large.

Purpose of the Study

The study has two purposes: First, to determine the prevalence of cervical cancer screening, the level of knowledge and attitude regarding cervical cancer and screening; second, to determine factors associated with cervical cancer screening behavior among Malawian HIV positive women.

Research Questions

The study answers the following the research questions:

1. What is the status of cervical cancer screening behavior, knowledge level and attitudes regarding cervical cancer and screening among Malawian women with HIV infection?
2. Is there a relationship between socio-demographic characteristics, knowledge, attitude, social support networks, and access to health care and cervical cancer screening behavior among Malawian women living with HIV infection?

Specific Aims

The specific aims to answer the above research questions include:

1. To describe cervical cancer screening behavior and level of knowledge and attitude among Malawian women with HIV infection
2. To explore factors (socio-demographic characteristics, knowledge, attitudes, social support networks, and access to health care) associated with cervical cancer screening behavior among Malawian women living with HIV infection.
3. To examine whether knowledge and attitudes are independently associated with cervical cancer screening after controlling for other determinants of cervical cancer screening.

Conceptual Model

The conceptual models and theories are sets of abstract concepts that are meant to be generalized across populations (Fawcett & Garity, 2009). However, such generalizable models and theories are not sufficiently specific to serve as evidence for the development of practice guidelines (Meleis, 2012). Im and Meleis (1999) proposed that Situation-Specific theory serves as evidence required for direct development of practice guidelines and prescriptions for interventions for populations of interest. Therefore, the situation specific theory was developed based on a preliminary qualitative pilot study by the researcher.

Preliminary Study Results

The qualitative pilot study was conducted to inform the current quantitative study as there was no empirical evidence regarding knowledge and attitude about screening among Malawian HIV infected women. The purpose of the pilot study was to explore barriers and facilitators regarding cervical cancer screening among Malawian HIV-positive women. The study was funded by the University of Massachusetts Boston, Office of Global Programs. Data were collected through in-depth interviews with HIV-positive women aged 18 and above. Thirteen participants were purposely selected from a hospital HIV clinic. For the demographic characteristics of the participants in the pilot study, refer to Table 4.

Table 4

Preliminary Results: Demographic Characteristics

Variable	n	%
Cervical cancer Screening		
Yes	2	15.4
No	11	84.6
Marital status		
Married	6	46.2
Other	7	53.8
Source of information		
Fellow women	6	46.1
Multiple sources	3	23.1
Radio	2	15.4
HIV Clinic	2	15.4

	Mean (SD)	Range
Age in years	34.15 (8.87)	22-52
No. of children	3.3 (2.59)	0-8
No. of years since HIV diagnosis	5.23 (2.98)	1-11

Interviews were audiotaped, and field notes were taken. Data were analyzed using thematic analysis (Braun & Clarke, 2006). The data were coded by the researcher and the mentor independently to ensure conformability. The codes were compared and consensus was reached for major themes from the study. The pilot study identified four factors influencing cervical cancer screening behavior (Refer to Table 5).

Table 5

Pilot Study: Factors Influencing Screening

Major Themes	Subthemes	Example
knowledge regarding cervical cancer and screening	risk factors, signs and symptoms, and prevention of cervical cancer	<p>“The procedure of cervical cancer is painful” (Respondent 5).</p> <p>“I have no information about it and how to prevent it.” (Respondent 5).</p> <p>“All women are equally at risk of having cervical cancer not just HIV positive women.” (Respondent 7).</p>
Attitudes	Social cultural factors	<p>“... some husbands cannot stay without sex for one week” (Respondents 11).</p> <p>“It can give us double stress and burden as we already have HIV that has no cure, the same with cancer. It is better to stay without knowing that I have cancer as I am already HIV positive” (Respondents 2,3).</p>
Social influence	Family members, health care providers, and friends	<p>“My daughter in-law told me that the procedure is not painful and encouraged me to go for testing” (Respondent 1).</p> <p>“... I have never heard from doctors talking about cervical cancer...” (Respondent 5).</p> <p>“The doctors told my friend not to have sex for one week after the procedure. (Respondents 11).</p>
access to health care services	Distance, cost, waiting time, and gender of the service provider.	<p>“... although the screening services are free, we pay for transport. It is better if doctors examine us as we are starting ARV...to save transport money and time” (Respondent 9).</p> <p>“It took me the whole morning... and I returned back home without being screened” (Respondent 9).</p> <p>“I returned without screening as there was a male provide”,</p>

In Table 5, the study results indicated that some HIV-positive women had limited knowledge regarding cervical cancer and screening services. In addition, women feared the positive result as there is no treatment for cancer and it can be a double burden: that is having

HIV and cervical cancer. This shows that women do not know that cervical cancer is a preventable disease and can be treated if diagnosed at an early stage. The study results indicated that there was need to examine the level of knowledge and attitude at an individual level regarding cervical cancer and screening among HIV positive women in Malawi. The results also indicated that women get information about cervical cancer and screening from their social networks like health care providers, friends, and family members which influence their decision to undergo screening. This suggests the importance of further exploration of social networks of women living with HIV-infection to develop a targeted intervention to increase screening behavior to prevent cervical cancer. Further, the report indicated that fragmentation of the HIV and cervical cancer services was a major barrier to cervical cancer screening. Some women were not comfortable being examined by a male service provider when they were not in labor. This indicates that the gender of the healthcare provider performing the cervical cancer screening appeared to be a barrier to access screening services for some of the participants. Refusing to be examined by men reflects cultural unacceptability of reproductive health services like cervical cancer screening to be provided by male service providers. Therefore, access to screening services needed to be explored further.

In conclusion, the pilot study findings clarified variables of interest and assisted in formulating the Situation-Specific theory in the context of HIV positive women in Malawi, literature review, and the design of the study to quantify the variables related to cervical screening behavior.

Situation-Specific Theory. The Situation-Specific Theory (Refer to Figure 1) concepts and methodological approaches consider the uniqueness of Malawian HIV positive women in examining the screening rate and factors influencing cervical cancer screening.

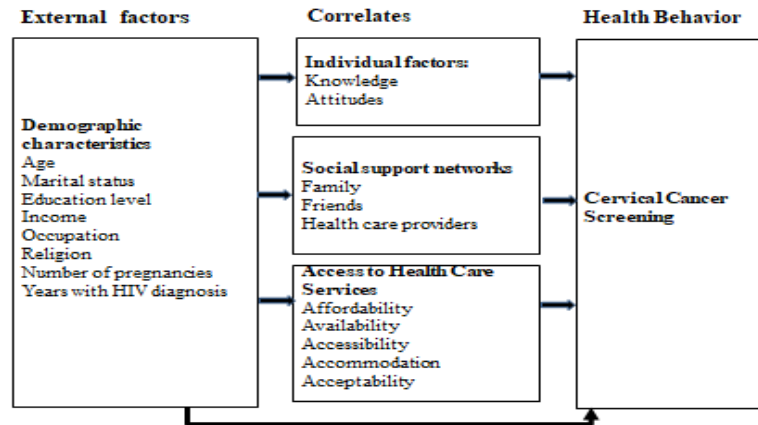


Figure 1. Situation-Specific Framework: Cervical Cancer Screening among HIV Positive Women.

The concepts of the theory are cervical cancer screening, individual factors, social support networks, and access to health care. The conceptual framework shows a multidimensional nature of cervical cancer screening behavior. In the situation-specific theory, the cervical cancer screening decision is conceptualized as more than just an individually rational decision but also includes social influences and access to health care. The demographic characteristics are unchangeable external factors that directly and indirectly influence behavior towards cervical cancer screening.

Cervical cancer screening. This is the outcome variable of the study. Screening involves checking the cervix for signs of cancer when there are no symptoms (Ferlay et al., 2012). According to the framework, screening is measured by the woman's receipt of vaginal examination by a health care provider (doctor, clinician or nurse) using a speculum to view the cervix, clean it, and then apply acetic acid or take a smear from the cervix to detect early signs of cancer. In this study, the woman's self-report of receiving screening was verified by the review of women's health passport record of cervical cancer screening as the preliminary study findings revealed that many women confuse digital vaginal examination with screening. This gave reliable data regarding screening behavior as self-report on screening status was verified by record review.

Individual factors. This refers to the knowledge and attitudes that women living with HIV infection have that influence cervical cancer screening behavior. Knowledge is a necessary component of health behavior change, but on its own, it is not sufficient to bring about cervical cancer screening behavior change without attitude change. Knowledge is defined as information that individuals have that influence what they do in relation to a topic under study (WHO, 2015). In this study, knowledge is defined as the awareness about cervical cancer risk factors, signs and symptoms and screening to prevent cervical cancer.

Attitudes refer to abstract learned reaction or response in a certain way to certain situations (WHO, 2015). Women have different attitudes regarding cervical cancer and cervical cancer screening as influenced by their beliefs, perceptions, emotions, and misconceptions. In this study, attitudes refers to social cultural factors that women living with HIV infection hold such as beliefs, feelings, and fears that influence cervical cancer screening behavior.

Social support network factors. The common definition of a social support network encompasses all social networks and social support that the individual receives from three different sources that include family, friends, and significant others (Malde et al., 2015; Zimet et al., 1988). Support networks are important to women's well-being for decision making about their health behavior. In this study, social support network refers to social influence and social support that women living with HIV get from family members, friends, and health care providers.

Family. A family is made up of parents, partners, children, uncles, aunts, cousins and grandparents that provide support in time of need. They are related to one another by blood. Culturally, Malawians believe in extended families for financial, emotional, and social support.

Friends. Friends are important to women's decision making about their health behavior. Friends recommend and bring moral and financial support regarding screening. Friends are a source of information for cervical cancer and influence screening behavior. It includes friends, church members, neighbors, and HIV support group members if they recommend

Health care providers. The social support that women living with HIV receive from health care providers such as nurses, clinicians, and non-professional staff influences their decision regarding cervical cancer screening behavior. Health care workers serve as a source of information for cervical cancer and screening services as well as providing emotional social support and cervical cancer screening services to HIV-positive women which is valuable in fighting stigma and cervical cancer in the country.

Access to health care factors. Access refers to factors that facilitates or hinders women to receive screening services that include affordability, availability, accessibility, accommodation, and acceptability (WHO, 2002). In the framework, access refers to the distance to screening sites, transport, waiting time, and gender and age of the service provider in relation to the definition of access by WHO.

- **Affordability.** It refers to the ability to pay for transport to go for cervical cancer screening services when the woman wants to be screened, The health care services in Malawi is free,
- **Availability.** Refers to the geographic distance to travel to health care facility for screening services
- **Accessibility.** Refers to waiting time and previous experience with health care providers in health facilities and screening sites

- Accommodation. Refers to the perception of adequacy of health care provider's operation in terms of skills, supplies or drugs and individual women perceptions regarding cervical cancer disease and commitment for preventive services.
- Acceptability. Refers to women's comfort with health care provider's characteristics and privacy at the screening sites.

The Situation-Specific theory concepts guided integrated literature review in the context of HIV positive women in Malawi as described in Chapter 2.

CHAPTER 2

LITERATURE REVIEW

This chapter provides an overview of the review of existing literature relevant to the concepts of the Situation Specific Theory for Malawian women living with HIV infection (Mtengezo & Lee, 2018). An integrative literature review was conducted following the concepts identified from qualitative pilot study to assess the status of cervical cancer screening behavior, knowledge level, attitudes and factors influencing cervical cancer screening among HIV-infected women. The aim of the literature search was to review what others have done before to build upon these works on cervical cancer screening among HIV-infected women.

Medline, Cumulative Index to Nursing and Allied Health Literature Complete, PsycINFO, SocINDEX, and Google Scholar were searched. Search terms included “cervical cancer screening,” “VIA,” “screening,” “Pap Smear.” “HIV-positive women,” “knowledge,” “attitude,” “practices,” “developing countries,” “developed countries,” “Africa,” “Sub-Saharan Africa,” and “Malawi.” Due to the scarcity of peer reviewed articles in Malawi, other gray literature from Government reports were included. Findings were categorized within the context of the concepts of the Situation Specific Theory feasible within Malawian context.

The search yielded twenty-six articles as depicted in the search strategy flow diagram (Refer to Attachment B). After setting limits, twenty relevant studies were summarized in an evidence-based table (Refer to Attachment C). Of the twenty studies, eight were conducted in Malawi but not specifically on HIV-positive women. Four of the eight studies conducted in Malawi were qualitative studies, two were document review studies, one was a quantitative study, and another one was a mixed methods study. Twelve studies were conducted on HIV-positive women (Six in Sub-Saharan Africa and six in developed countries). Nine of the twelve studies were conducted in Sub-Saharan Africa and developed countries, nine were

quantitative studies, two were mixed methods studies, and one was a qualitative study. The results of the search show limited evidence of well-designed studies that have been done with HIV-positive women regarding their knowledge and attitude both in developing and developed countries and none were found from Malawi.

All the concepts of the Situation Specific framework were used to guide the classification of the concepts extracted from literature. The link of the concepts, middle-range theory and the empirical (CTE) indicators are shown in the CTE structure (Attachment D). The findings of the literature review are summarized within the Situation-Specific framework concepts of Malawian HIV-positive women which include cervical cancer screening, knowledge, attitudes, social networks, social support, and access to health care services.

Cervical Cancer Screening

Malawi adopted a single visit approach to cervical cancer screening “screen and treat” using VIA and cryotherapy (Refer to Table 6) in 2004 (Malawi, MOH, 2015).

Table 6

VIA Test and Cryotherapy

VIA TEST	Step 1:	Provide counselling on VIA test and obtain consent.
	Step 2:	Inspect and palpate the abdomen and external genitalia.
	Step 3:	Perform a speculum exam to view the cervix clearly.
	Step 4:	Apply a 3-5% acetic acid solution (vinegar) to the cervix.
	Step 5:	Observe for cervical change(s) after at least 1 minute.
	Step 6:	Discuss the results with the woman. If the results are positive and eligible for cryotherapy, counsel and offer cryotherapy.
CRYOTHERAPY	Step 7:	Provide counsel on cryotherapy and obtain consent.
	Step 8:	Perform a speculum exam to view the cervix again (repeat VIA if necessary)
	Step 9:	Perform the double-freeze cryotherapy technique.
	Step 10:	Provide post-treatment and follow-up instructions to the woman.

The process of VIA involves vaginal speculum examination, followed by visual inspection of the cervix for one minute after cleaning with a 3-5% acetic acid solution which can be ordinary table vinegar or iodine (MOH, 2015). The test shows changes in the

epithelial cervix cells as white blotches if abnormal precancerous cells are present. Then the provider either treats immediately with cryotherapy by freezing the lesions with liquid nitrogen to destroy them or refers the patient for further treatment (MOH, 2015). Women with grade 3 lesions and more serious lesions require further treatment to include surgery. Cervical cancer screening using VIA and cryotherapy in “screen and treat” approach is feasible in Malawi and other low resource countries (Refer to Table 6) for the steps. According to Malawi, Ministry of Health guidelines, the VIA targets 30-45-year-old women (Malawi, MOH, 2015). This is because the VIA depends on visualization of the squamo-columnar junction (Sankaranarayanan & Wesley, 2001; McIntoch et al., 2001). Further, it is indicated that after menopause, the squamo-columnar junction usually recedes into the endocervical canal and cannot be seen. In a few countries, including Malawi, a downshift in age for invasive cervical cancer and age for screening with VIA has been observed due to HIV co-infection among 15-49 year old women (Ferlay et al., 2012). Therefore, screening has been done with VIA and positive rate and cancer suspects have been detected in women aged 29 or less (Msyamboza et al., 2016). The VIA is practical and harmless, and effective in reducing the cervical cancer burden (CDC, 2010).

Cervical cancer screening recommendations for women living with HIV are different from screening guidelines for HIV-negative women (Refer to Figure 2).

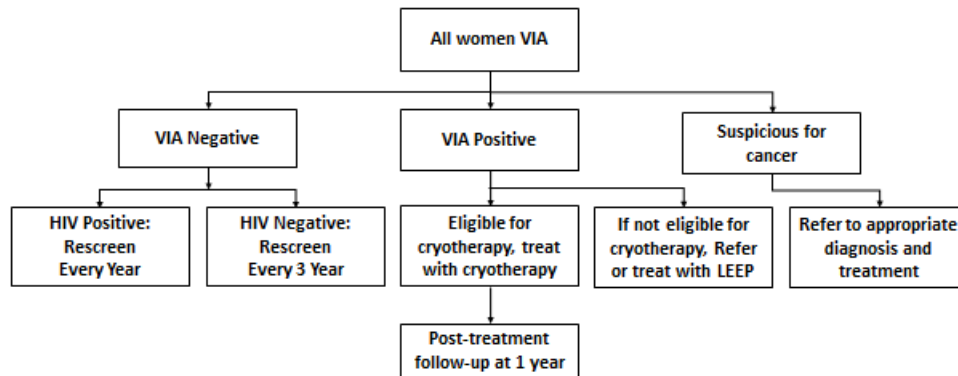


Figure 2. The VIA and Cryotherapy Protocol in Malawi

The HIV-positive women require more frequent screening as they have increased risk of developing cervical cancer than HIV-negative women. In Malawi, the MOH recommends rescreening HIV-infected women annually and HIV-negative women every three years after the initial test (MOH, 2015). Precancerous conditions normally progress slowly into cervical cancer, but with HIV-infection, it progresses faster. Therefore, frequent screening in HIV-positive women has the potential to identify abnormal conditions before such progression. A single screening can reduce cervical cancer mortality among HIV-positive women (Atashili et al., 2011; Maseko, Chirwa, & Muula, 2015). Regular screening has been shown to decrease the probability of death from cervical cancer between 80 to 90% (Arbyn et al., 2018; Mandelblatt et al., 2002; Sasien, Adams, & Cuzick, 2003).

Several studies were found that evaluated the cervical cancer screening rate among HIV-positive women in developing and developed countries (DalMaso et al., 2010; Ezechi, Gab-Okafor, Ostergrem & Odbery, 2013; Maree & Moitse, 2014; Matangaidze, Ramalivhana, Mbambo-Kekana, Ndaimani, & Mhlanga, 2016; Msyamboza et al, 2016; Rosser, Njoroge, & Huchko, 2015; Sichanh et al., 2014). It is evident from these studies that

there is variation in the prevalence of cervical cancer screening rate among HIV positive women in developed and developing countries (Refer to Table 7).

Table 7

Prevalence of screening rate among HIV+ women

Author	Country	Screening Rate
Msyamboza et al., 2016	Malawi	15.9%
Low-resource countries		
Ezechi et al., 2013; Maree & Moitse, 2014; Matangaidze, et al., 2016; Rosser et al., 2015; Sichanh, et al., 2014	Nigeria, South Africa, Zimbabwe, Kenya, and Lao PDR	3.9 – 84.0 %
Developed countries		
Dal Maso, et al., 2010; Wigfall et al., 2013	Italy, USA	83.0 - 90.9%

In resource-limited countries, including Malawi, few HIV-positive women, as low as 3.9% in Nigeria, undergo cervical cancer screening although they are at increased risk of developing cervical cancer (Sichanh et al., 2014). However, evidence has also shown that if there are targeted interventions for HIV-positive women, the screening rate increases (Rosser et al., 2015). For example, in Kenya, the Family AIDS Care and Education Services and HIV program piloted the cervical cancer screening and prevention program at one HIV clinic. The program provided free screening services to all women residing in the study area. This program recruited HIV-positive women to assess cervical cancer knowledge, personal risks, and screening behavior. The program evaluation found that 84% of HIV- positive women underwent cervical cancer screening (Rosser et al., 2015). Some studies conducted in the US and Italy also indicated a high screening rate for women living with HIV infection. For example, the study in Italy evaluated the history of Pap smear in HIV- positive women in relation to the socio-demographic and organizational factors associated with adherence to cervical cancer screening (DalMaso et al., 2010). The study found that 90.9% of HIV-positive women had an initial Pap smear but only 66% underwent all the recommended Pap smear follow-up tests.

Evidence from literature revealed that screening was measured by a woman's self-report of receipt of cervical cancer screening by either VIA or Pap smear approach (DalMaso et al., 2010; Ezechi et al., 2013; Maree & Moitse, 2014; Matangaidze et al., 2016; Msyamboza et al., 2015; Rosser et al., 2015; Sichanh et al., 2014). The women were asked a single question: if they had ever been screened. Self-report is a method of collecting information about an individual's health status and utilization of health care services. Evidence has shown that self-reports may be used when medical records are unavailable particularly for shorter recall periods (Short et al., 2009). Self-reports tend to give higher rates than medical record review. The factors affecting accuracy of self-report information may include education and health status (Short et al., 2009). Healthier women with higher education are more likely to report accurate information than less healthy women with low education. Women living with HIV infection may be either sick or healthy but screening is critical for all HIV-positive women. Therefore, factors influencing cervical cancer screening were also reviewed in the literature. The results from the literature have been classified based on the situation-specific concepts: individual factors, social support networks, and access to health care (Mtengezo & Lee, 2018).

Individual Factors

In the pilot study, individual factors are operationalized as the understanding that HIV-positive women have about cervical cancer and screening and how it influences their screening behavior (Mtengezo & Lee, 2018). Several qualitative studies were conducted in Malawi about cervical cancer screening, but were not specifically with women living with HIV infection (Chadza et al., 2012; Maseko et al., 2015; Fort, Makin, Siegler, Ault, & Rochat, 2011). Most of these studies explored individual factors contributing to delay in seeking cervical cancer services in Malawi. The major theme found was that women had limited knowledge regarding cervical cancer and screening. Further, the literature indicated

that women had heard about cervical cancer but did not know what the disease was all about (Ports, Reddy, & Rameshbabu, 2013). A mixed methods study was conducted to assess client satisfaction after undergoing screening and this study found that satisfaction was predicted by having previous knowledge of the VIA test with 98% of these women reporting knowledge of the disease seriousness as their motivation for getting screened to know their status (Maseko, Chirwa, & Mvula, 2014). However, the majority (80%) had limited knowledge about how the disease was caused, and 71.8% had no idea of how the VIA screening test was done. Further, the study revealed that young women thought that they might not have children after undergoing VIA as the procedure burns the womb (Ports et al., 2013). Another document review study was conducted to identify barriers to utilization of cervical cancer screening in low and middle-income countries including Peru, Mexico, South Africa, Kenya and Malawi (Maseko et al., 2015). The study found that lack of awareness and knowledge about risks and prevention of cervical cancer were related to age and marital status of participants. Married women had a higher recognition of cervical cancer risk factors than those who had never been married. Also, women who were older and had higher income or heard of cervical cancer were more likely to utilize prevention services than young women with little income. Since there are no studies conducted in Malawi to understand HIV-positive women's knowledge related to cervical cancer screening, a review of published studies extended to other developing and developed countries.

The published studies conducted in South Africa, Zimbabwe, Kenya, Nigeria, US, and Lao PDR in Asia on HIV-infected women's cervical cancer-screening knowledge indicated conflicting results. Some studies indicated that women had inadequate knowledge about cervical cancer screening although they all were at risk for cervical cancer (Matangaidze et al., 2016; Wake et al., 2009; Sichnh et al., 2014). Women reported that they did not undergo screening because of lack of knowledge about the examination (Matangaidze et al., 2016;

Wake, Rebe, & Burch, 2009). The results of these studies suggest that knowledge is associated with screening and is an important factor for behavior change; for example, women who had heard of cervical cancer and screening, also had a higher screening rate (Rosser, et al., 2015; Wigfall, et al., 2015). Interestingly, some studies, found that women had knowledge about cervical cancer (78.7%) and screening (62.9%), but for being screened, the rate was still as low as 22.3% (Maree & Moitse, 2014). If women have knowledge about cancer and screening, why is the screening rate low? Do they have the correct information? Other studies indicated that some women had heard of cervical cancer and screening but had inadequate knowledge of screening usefulness (Sichanch, 2014; Wake, et al., 2009). In addition, most studies conducted in Sub-Saharan Africa, did not use instruments that were culturally sensitive within their setting as they used instruments that were validated in developed countries like the USA for all women and not HIV-positive women. Some components of knowledge between the link of HPV and HIV were missing. The finding could mean that knowledge in previous studies was not measured accurately leading to conflicting results or that knowledge is not the only factor that influences their screening behaviors. For women to make informed decisions about cervical cancer screening, they need to have the correct knowledge about cervical cancer and screening. Limited knowledge contributes to delay in seeking cervical cancer screening and treatment services. No study in Malawi was found that measured the level of knowledge regarding cervical cancer screening in HIV-positive women. The study that was conducted regarding knowledge was the MDHS (2017) report that shows that knowledge about diseases such as HIV/AIDS increases with higher education level attainment. Educated people are more likely to access health care services compared to those with little or no education. Education and knowledge about diseases is therefore an important determinant of health to consider in behavioral studies. Therefore, knowledge regarding cervical cancer and screening in HIV- positive women needs

to be further explored given their increased risk of developing cervical cancer. Knowledge is a necessary component of health behavior change, but on its own, it is not sufficient to bring about cervical cancer screening behavior change without an attitude change at an individual level.

Women have different attitudes regarding cervical cancer screening. Various studies have been conducted to evaluate HIV-positive women's attitudes regarding cervical cancer and screening in different countries using different instruments (Ezechi et al., 2013; Maree & Moitse, 2014; Matangaidze et al., 2016; Bynum et al., 2013). In Malawi, only a few qualitative studies were found in the literature on attitudes regarding cervical cancer screening (Chidyaonga-Maseko, Chirwa, & Muula, 2015; Fort et al., 2011; Munthali, Ngwira, & Taulo, 2015). In qualitative studies on perceptions of cervical cancer screening among women in Malawi, it was found that women had misconceptions about the VIA procedure which prevented some women from going for the service (Chidyaonga-Maseko et al., 2015; Munthali et al., 2015; Ports et al., 2013). Women had misperceptions that the VIA procedure causes cancer as health workers use acid during the process which burns the cervix. Some studies revealed that women felt that it was not appropriate to discuss reproductive health issues with young women (Chidyaonga-Maseko et al., 2015). Some women when they are healthy think they do not need any preventive interventions like exposure to the VIA process and visit the hospital only when they are sick (Munthali et al., 2015). Consequently, they delay in seeking care services including cervical cancer screening. In cross-sectional studies conducted in South Africa and Kenya to determine the knowledge level of women regarding cervical cancer and screening, it was found that most did not undergo screening as they feared the procedure because they had heard that it was painful (Maree & Moitse, 2014; Rosser et al., 2015; Sichnh et al., 2014). These study results indicate that many women have incorrect information about screening which may have led to

increased risk of developing cervical cancer because low levels of knowledge and negative attitudes contribute to low screening behavior. However, studies conducted in Nigeria, Zimbabwe, US and South Africa indicated that 77.4 -84.9% of women had intentions of undergoing screening in the future (Ezechi et al., 2013; Matangaidze, et al., 2016; Wake et al., 2009). Based on women's intentions to undergo screening in the future, these studies conclude that most women have positive attitudes regarding cervical cancer screening, as they perceive cancer as a dangerous disease. Intentions do not mean that women will undergo screening. No study has been conducted to measure the beliefs, feelings, and fears of HIV-positive women regarding cervical cancer and screening in Malawi. There is need to establish whether attitude at an individual level influences screening behavior among Malawian HIV-positive women.

Social Support Networks

Social support networks have various definitions in the literature. Social support consists of social relationships that can provide material, emotional, informational and instrumental resources (Kadushin, 2011; Malde et al., 2015; Mtengezo & Lee, 2018; Zimet, Dahlem, Zimet, & Farley, 1988). Various studies investigated the relationship between social support and depression in pregnant or postpartum mothers and they have shown that social support networks influence various behavior changes (Lubben et al., 2006; Stewart, Umar, Tomenson, & Creed, 2014; Nakigudde, Musisi, Ehnvall, Airaksinen, & Agren, 2009). This literature review found limited studies conducted on the relationship between social influence and screening behavior among HIV-positive women in developing and developed countries (Ezechi et al., 2013; Maree & Moitse, 2014; Wigfall et al., 2015). The social influence was also related to social cultural factors that influence cervical cancer screening (Williams, Moneyham, Kempt, Chamot, & Scarinci, 2015). In a pilot study, it was found that social networks include spouse, parent, child, in-laws, relatives, friend, church members, neighbors,

health care providers, and HIV support group members. Social support network has multidimensional constructs and is influenced by family members, friends, and health care providers (Mtengezo & Lee, 2018).

Family. From the literature, no study was found that examined family as a social influence for cervical cancer screening behavior. In other behavior studies, like HIV/AIDS, family and social support networks play an important role in stigma after HIV diagnosis and in the utilization of preventive health care services (Malawi Network of People Living with HIV and AIDS [MANET+], 2012). Both cervical cancer and HIV/AIDs are sexually transmitted diseases and both are linked to having multiple sexual partners. Therefore, there is stigma within the family and this remains the largest barrier to individual and public action to preventive services. This may suggest that when HIV-positive women go for screening services, they are indirectly disclosing that they have multiple sexual partners and may be stigmatized by family members. This may suggest the importance of studying the role of family members in preventive services.

Other studies have also shown that people living with HIV/AIDS (PLHA), have actual or imagined fear or worry of negative societal attitudes and possible discrimination was arising from having HIV an infection (Kamen et al., 2015; MANET+, 2012; Neuman & Obermeyer, 2013). Fear or self-stigma included both the concern of exposure to stigmatization and the potential internalization of the unfavorable beliefs and feelings related to the stigmatized HIV condition (Rueda et al., 2012). The PLHA know how their social networks including families stigmatize them, and they react by accepting society's negative judgment of their identity as an HIV-positive person and that they will die. The amount of stigma PLHA already have experienced from the societal networks, read about or heard of, affects their decisions and future actions in preventive services. There are variations in reactions as some PLHA self-blame for the HIV positive status while others feel they got the

HIV infection because of their partners' infidelity and blame their partners (Neuman & Obermeyer, 2013). The PLHA also have negative decisions about HIV care, treatment, support and preventive services. Decisions that HIV-positive women make include not taking medication, and missing hospital appointments (Bedell, Van-Lettow, & Landes, 2014). When women miss their medication, they compromise their immune system and may risk higher rates of human papilloma infection, and some other types of cancers (WHO, 2010). Providing preventive health services is critical in HIV-positive women to prevent cancer. The preventive services may include breast, colorectal and cervical screening, and sexually transmitted infections testing, and counseling on sexual behaviors (WHO, 2010). Understanding information flow within a network can serve as a useful tool in predicting the most influential social networks that can be targeted for information, education, and communicating cervical cancer preventive messages. The pilot qualitative study revealed that HIV-positive women seek information regarding cervical cancer from families, friends, and health care providers.

Friends. A study was conducted in the US to examine associations between women living with HIV/AIDS, cervical cancer prevention knowledge and abnormal Pap test history (Wigfall et al., 2015). The authors found that women who had members of their social network who had an abnormal Pap test history knew about cervical cancer screening and follow-up care for a woman who is HIV-positive and the screening rate for these women was 83% (Wigfall et al., 2015). The results of the study may suggest that friends offer advice, direction, and information that influence their social networks to adapt behavior change interventions. On the other hand, the results could mean that friends rely on each other and share joys, sorrows or problems and influence each other.

Health care providers. Various studies have shown that health care providers are important when it comes to decision making about health behavior (Maree & Moitse, 2014;

Ezechi et al., 2013). In a study conducted in South Africa to determine what women treated with HIV/AIDS knew about cervical cancer and screening found nurses and doctors as the most likely sources of information (Maree & Moitse, 2014). The study conducted in Nigeria to assess the willingness and acceptability of cervical cancer screening among HIV-positive women found that religious denial (14.0%) was the most common reason given for refusal to take the test (Ezechi et al., 2013). The studies may indicate that health care providers are sources of information to influence cervical cancer screening behavior.

Access to Health Care Services

The success of any prevention program is linked with the quality and accessibility of health services. In literature, the dimensions of access include barriers and facilitators relating to cervical cancer screening such as affordability, availability, accessibility, accommodation, and acceptability (Maseko et al., 2015; Maseko et al., 2014; Munthali et al., 2015; WHO, 2002).

Accessibility. In literature, accessibility refers to barriers and facilitators regarding access to screening services but not specifically on HIV-positive women (Maseko et al., 2015; Maseko et al., 2014; Munthali et al., 2015). The results of the studies in the literature indicated that the accessibility of health care services is linked to previous experience with resources, service providers, and waiting time (Maseko et al., 2015; Maseko et al., 2014; Munthali et al., 2015). The study results have indicated that women can access preventive health care services if the waiting time to receive the service is short time and if they are treated with respect by the service providers. There must be more screening sites and trained health care providers to provide the screening services for the women not to wait for a long time. A recent study conducted on cervical cancer screening behavior and challenges in Malawi found that the screening sites increased from 75 to 130 from 2011 to 2015 and are free and available in most district public health facilities but women still wait for a long time

to be screened such that some to go back home without being screened (Msyamboza et al., 2016). Even though the screening sites have been increased, they are still too few as the estimated total number of health facilities in Malawi is over 500. When creating demand by advocating for screening services, the health facilities must be able to supply the demand by training more service providers and opening more screening sites would reduce waiting time.

Accommodation. Accommodation refers to the perception of adequacy of provider's operation in terms of skills and supplies or drugs (WHO, 2002). In a study conducted on health workers' perceptions about health system challenges in implementing cervical cancer screening services in Malawi, health workers reported that lack of supplies like vinegar and space made it inconvenient for women to go for screening (Maseko et al., 2015; Munthali et al., 2015). Further, it was reported that in some health facilities, there was inadequate space, and they alternate services or provide the service only once a week or women wait until other people finish other procedures to start providing cervical cancer services. Few members of staff were trained and committed to the provision of cervical cancer screening and early treatment services (Maseko et al., 2014; Munthali et al., 2015). In another study, it was reported that women made several hospital visits to seek care despite their limited resources; unfortunately, drugs were sometimes prescribed without proper assessments (Chadza et al., 2012).

Acceptability. Acceptability refers to privacy and comfortability with the health care provider (WHO, 2002). A qualitative study conducted in Malawi, found that using male service providers hindered the use of screening services because women did not want male providers to see their private parts except when they were in labor (Munthali et al., 2015). Some husbands and certain cultures do not want women's private parts exposed to a male service provider when not in labor. The use of male service provision in preventive health

services is multidimensional concept and may present a barrier that needs to be explored among HIV positive women.

Availability. Availability refers to distance to screening sites (WHO, 2002). Long distance to the health facilities is also a major barrier for women to access cervical cancer screening services. In three qualitative studies the participants stated that the hospital where they provided screening services were too far (Chadza et al., 2012; Lee, Makin, & Mtengezo, 2015; Ports et al., 2013). Ports and colleagues (2013) reported that the average time to walk to the nearest clinic was 45 minutes. Maseko and colleagues (2014) found that participants covered a distance between one and five kilometers to reach the screening centers. Maseko and colleagues (2015) found that only 33.3% (7/21) of the health facilities provided both screening and cervical cancer treatment services. Cervical cancer services were offered at primary, secondary and tertiary level. At tertiary level, the access of health care is often misunderstood and confusing in the country especially in the districts that offer all three levels of care like Lilongwe. There is a policy that women must visit the health center for primary care and the health care providers must refer an individual to a district hospital for secondary care and the district must refer to a central hospital for tertiary care. Even if a woman lives close to district hospital or central hospital, she cannot access health care there directly. Even though the district is in an urban area, some health clinics are far from the district and central hospital. Therefore, women may visit the clinics when the disease is at an advanced stage (Chadza et al., 2012; Lee et al., 2015; Ports et al., 2013).

Affordability. Affordability refers to the ability to pay for cervical cancer screening services (WHO, 2002). In Malawi, public health services are free. Maseko and colleagues (2015) reported that there are no user fees to access cervical cancer screening and treatment in public health facilities; however, women are required to purchase health passports if they do not have one, which may be a barrier to receiving cervical cancer screening. Christian

Health Association of Malawi (CHAM) facilities charge a consultation fee. The CHAM health services are available in urban and rural areas and provide 85% of health care in the rural areas. These CHAM health facilities are close to where the women live, but because they charge the consultation fee, few women access care at CHAM facilities. Even if the consultation fee is minimal, women travel a long distance to access free services in a public hospital even though the use of public transportation might be more than the consultation fee even though in an urban area. When women do not have money to pay for the medical services at private hospitals or transport to the free government hospitals, they just stay at home and visit the health facility when cancer is in the advanced stage. Studies conducted in Kenya and Nigeria found that women pay for cervical cancer screening services and the costs varied from country to country (Ezech et al., 2013; Rosser et al., 2015). However, even in some developing countries like Malawi, where there are no user fees, and HIV-positive women access the ART clinics for their treatment monthly or every three months, the screening rate for HIV-positive women is very low (15.9%). The findings indicate that there are policy and systematic challenges to cervical cancer screening like resources, gender of provider, availability of service providers and time taken to access screening services. Most studies have focused on physical and economic access to health care. However, a more evidence-based definition of access to care is missing that links the success of any preventive disease efforts directly with the quality and accessibility of the services. Therefore, it is important to assess HIV-positive women's dimensions of health care access and how they may influence cervical cancer screening behavior while considering their socio-cultural factors.

Summary of Literature Review

The literature review findings demonstrated that the prevalence of cervical cancer screening rate among HIV positive women mostly were by women's self-report of the receipt of screening. In this study, the woman's self-report of receiving screening was verified by record review. This gave reliable baseline data regarding screening rate among HIV positive women in Lilongwe, Malawi. Limited studies in both developed and developing countries have shown that women with low levels of knowledge and negative attitude regarding screening are unlikely to access screening services. There are also limited empirical studies in the literature regarding the correlates of cervical cancer screening among women living with HIV infection for hypothesis testing. There was also no instrument to measure the situation specific concepts in the context of Malawian women living with HIV infection. If there are no standardized instrument to measure specific variables of interest, evidence has indicated that qualitative studies inform the development of a quantitative tailored instrument (Lee et al., 2015). Therefore, the literature review findings and preliminary qualitative study results assisted in developing a culturally sensitive instrument to inform a cross-sectional correlational study design for this study. The detailed methodology of the study and instrument development is outlined in research methodology, chapter 3.

CHAPTER 3

RESEARCH DESIGN AND METHODS

This chapter describes the research methodology used for this study. It highlights the study design, study population, setting, sampling method, data collection procedures, and data statistical analysis.

Design

The study used a cross-sectional health survey design to examine the prevalence of cervical cancer screening, level of knowledge and attitudes regarding cervical cancer and to determine factors (individual factors, social support networks, and access to health care) related to cervical cancer screening behavior.

Study Setting

The study was conducted in both rural and urban HIV support groups in Lilongwe, Malawi. Lilongwe is a district in the central region of Malawi. The district covers an area of 6,159 square kilometers and has a population of 1,346,360. The district is the capital city of Malawi and is considered an urban district. Despite being an urban district, the district has diverse levels of people with different socio-economic status in urban and rural settings. The district covers all three levels of the health care delivery system within the city including the primary, district, and tertiary levels giving a good representation of the target population across the district. In addition, the HIV prevalence is two times higher in urban areas than in rural areas, 17.4% versus 8.9% (MDHS, 2017). The district HIV prevalence rate is 9.2% and has many HIV support group dealing with people living with HIV/AIDS (UNAIDS, 2014). Most HIV support groups were established to support people living with HIV/AIDS to live a quality productive life. They are membership organizations and the members are in all districts of Malawi. For example, the National Association of People Living with HIV/AIDS in Malawi (NAPHAM) was established in 1993 by a small group of PLHIV who observed that

their needs were not being met. The organization fights stigma and discrimination, advocates for supportive environments for PLHIV, and facilitates localized support groups for those who are infected and affected by HIV and AIDS. Another organization is the Coalition of Women Living with HIV/AIDS (COWLHA) and it unites different groups of women as a civil society force in dealing with issues on gender and women's rights in the context of HIV and AIDS that impact the lives of women living with HIV and AIDS in Malawi.

Study Population

The study targeted Malawian HIV-positive women in support groups in Lilongwe District. The inclusion criteria was: HIV positive women in HIV support groups aged 18 and above with a cervix, active members of HIV support organizations, willing to participate in the study, and able to speak Chichewa or English. The inclusion criteria included women aged 18 and above as Malawi's HIV prevalence is highest among women aged 15-49 years (12.9%). The HPV infection occurs shortly after the onset of sexual debut. Evidence has indicated that 35% of the women are infected within 2 years of initiating sexual activity (Collins et al., 2002; Kjaer et al., 2001). In addition, the screening data has revealed that VIA positives and cancer suspects were detected in 2.3% in women aged 29 or less, and 1.2% in women over 45 years (Msyamboza et al., 2016). This is a large population in a high prevalence rate country for cervical cancer and HIV. The exclusion criteria included women who had a total hysterectomy, women with known allergy to acetic acid, and women who had cervical cancer screening before HIV diagnosis.

Sampling Method

Sampling frame: The sampling frame was the HIV Support group registry at the Lilongwe District Aids Coordinating Office that was used to identify all HIV support groups in Lilongwe District. There are six HIV membership support organizations in Lilongwe that support Malawian women living with HIV/AIDs. There are eighty-four support groups, and

the membership varies between 20-100 in each support group. In total, there are over 4,200 HIV-positive women and men in Lilongwe District and among these members, 3,360 (80%) are women aged 18 and above.

Sample size: The outcome variable was cervical cancer screening which was measured by the receipt of cervical cancer screening after HIV diagnosis. The sample size calculation was estimated by using G-power and sample size calculator based on the prevalence of the outcome variable of interest (Rosner, 2011). In Malawi, the cervical cancer screening coverage for HIV positive women is 15.9% (Msyamboza et al, 2016). Using 15.9% as the maximum expected prevalence of cervical cancer screening rate among HIV-positive women, a margin of error equal to 0.05 in 95% confidence interval, a minimum sample size of 206 participants was needed to be selected from a population of 3,360 HIV positive women in support groups in Lilongwe District.

$$\text{Formula : } n = \frac{Z^2_{\alpha/2} * P * (1 - P)}{D^2} = \frac{1.962^2 * 0.159 * (1 - 0.159)}{0.05^2} = 206$$

- The margin of error: 0.05 (5%) = Chance to tolerate wrong conclusion
- The CI: 95%
- Population (3,360) : use infinite 100,000 since the actual size is not known- drop and join
- Prevalence of screening rate in HIV Positive women: 15.9% (previous studies)
- Z= Standard normal variate = 1.96 at 5% type 1 error
- D = Absolute error of precision

Considering that 70% would agree to participate in the study and 10% missing data, 291 women meeting the criteria in the selected HIV support groups were invited to participate in the study.

Sampling: Two staged proportionate stratified cluster random sampling method was used to select subjects proportionally to the population size of HIV positive women in urban and rural geographical areas and by agegroup (Refer to Figure 3).

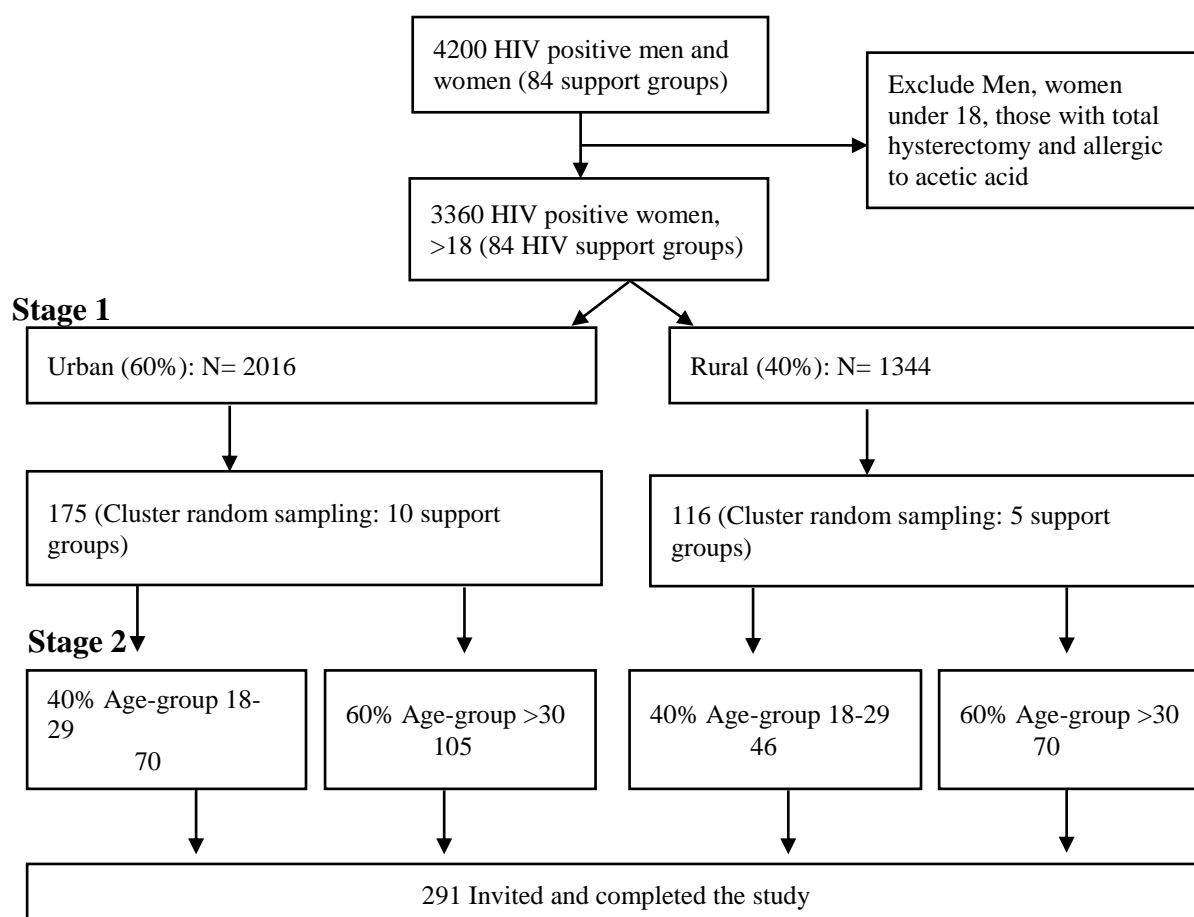


Figure 3. Two Stage Proportionate Stratified Cluster Random Sampling

In proportionate stratified sampling, the examined population is divided into distinct subgroups, called strata and a predefined percentage of participants are selected in each stratum (Levin & Kanza, 2014). The population of interest was HIV positive women attending HIV support groups in Lilongwe District which was approximately 3,360 women. The population was stratified by geographic location: Urban and Rural of Lilongwe District (Refer to Figure 4).

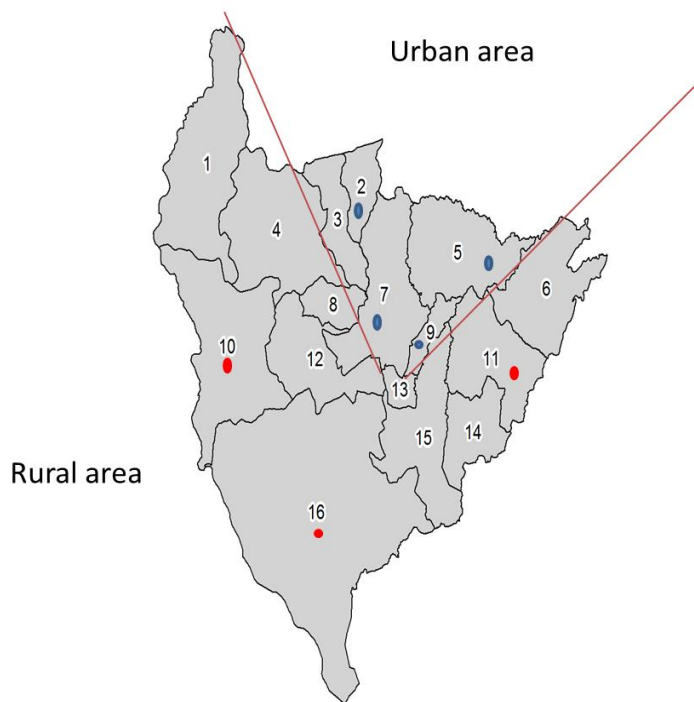


Figure 4. Urban and Rural Area of Lilongwe District.

and by age-group. The age group was divided into two groups: 18-29 and 30 and above in each stratum. The HIV positive women were identified through a register obtained from Lilongwe District Health Office in the capital of Malawi. The sample size was calculated by using a percentage of the proportionate of each stratum. For example 60% of the participants were of the age-group between 39-50 and 40% age group 18-29 to ensure that the number of selected subjects for the sample from each age-group was proportionate. The same was done for geographical allocation. The sample size (291) was multiplied by 60% ($291 \times 0.6 = 175$) for Urban and by 40% ($291 \times 0.4 = 116$) for Rural. Simple random sampling was used to select 10 support groups as clusters in 4 Traditional Authorities in urban area and 5 support groups in 3 traditional authorities in rural area. Simple random sampling was done by writing all the names of the HIV support groups on a small paper and putting them in a ballot box; the proportionate of the support groups were selected by picking papers randomly from the ballot box. All women meeting the criteria, in the randomly selected support groups were invited to participate in the study until the sample size was reached. Stratified random sampling reduces

potential for human bias in the selection of subjects to be included in the sample and provides the sample that is highly representative of the population being studied.

Measurement

The questionnaire for this study was purpose-designed based on the specific needs of this study within the Malawian context. The instrument development process followed the six stages as stipulated by Lee and colleagues (2015) which include: conducting literature review; conducting qualitative study; selecting items; translating; conducting cognitive interviews; and conducting the full-scale survey (Lee et al., 2015).

The questionnaire was developed basing on literature review (Mtengezo & Lee, 2018; UCL, 2011; WHO, 2002; WHO, 2008; Zimet et al., 1988) with modifications in line with research questions and qualitative study findings to fit the local context of Malawian women living with HIV infection. The qualitative study was conducted by the researcher to learn how women living with HIV in Malawi conceptualize and describe cervical cancer screening to have a culturally relevant tool by using the language that women living with HIV understand. Items for the survey were selected based on the situation specific conceptual framework concepts and middle range theories from the literature review. The terms used in the survey were based on the language women use in Malawi. For example, the term “screening” to local Malawians is called “examination” so women were asked if they had been “examined for cervical cancer”. In addition, cervical cancer in the local language is called ‘Khansa la khomo lachiberekero’. After development, the instrument was given to committee members and cervical cancer clinical experts to conform to content and face validity of the developed instrument.

Translation of the instrument. In Malawi, about 75% of women and 83% of men are literate (MDHS, 2017). In addition, 12% of women aged 15-49 have no education and 6 in 10 women have only attended primary education and are not fluent in English. Therefore,

the developed English instrument was translated into the local language, Chichewa, so that the questionnaire was easily understood by the women. The WHO recommends an approach that makes use of forward and back translations, input from experts, and pretesting with target populations to ensure that the translated instrument valid and reliable (WHO, n.d). During forward translation, two independent translators who were bilingual experts and familiar with the study content, and everyday language, culture, and health of Malawians translated the developed instrument into Chichewa then it was back translated into English. The two versions were compared for conceptual equivalence and synthesized. However, during the translation process, the translators could make their own assumptions as to what was and was not important, and they might have missed something that was important. Therefore, the tool was tested by conducting cognitive interviews to refine the study questionnaire.

Pre-testing the instrument. Cognitive interviews were done by conducting focus group interviews with five HIV positive women. Cognitive interviewing is a popular method for obtaining construct validity on the survey questions to check for factual information, wording, clarity, ambiguity in the translated questionnaire, and to ensure that the respondents interpreted the items in the manner intended (Lee et al., 2015; Willis & Artino, 2013). During interviews, women were asked to think-aloud what certain terms meant and were requested to rephrase the questions in their own words. Participants were asked about the terms that were not clear and if there were alternative terms that they preferred. The responses were used to assess understanding and cultural appropriateness of the questionnaire for adaptation. The survey tool was adjusted accordingly, and the researcher made corrections to the instrument. The changes in the questionnaire were on the attitude scale, when 1 item “afraid of discomfort” was merged with “afraid of pain” as women expressed that according to their understanding, pain and discomfort meant the same. Therefore, the final version for the

attitude scale had six items and not seven. Also, on the access scale, 2 questions were deleted. One question on affordability “no money for service fee” as women indicated that the services are free in Malawi and the question was not applicable. The other question that was deleted was on acceptability “I do not want people that I know to see me”. Women indicated that being HIV positive and on drugs means they already visit the clinic. The results from the pre-test also helped to check the internal and external validity of the questionnaire. Therefore, the final instrument had 83 items and covered the following 6 major domains of the study (Refer to Table 8): Demographic characteristics with 8 items, cervical cancer screening behavior with 5 items, knowledge with 31 items, attitudes with 6 items, social support networks with 11 items, and access to health care with 12 items. Internal consistency of the instrument was assessed using cronbach alpha.

Table 8

Study Concepts, Variables and Measures

Concepts	Variables	Measures		
		Definition	Scale	Instrument
Demographic characteristics	Education	1 = never attended or primary level 2 = secondary/ university level	Ordinal	Developed
	Religion	1= Christian 2= Others	Nominal	
	Occupation	1 = not working 2 = working	Nominal	
	Income	1 = <\$100 2 = < \$100	Ordinal	
	Age	Age in years	Interval	
	Marital Status	0= single 1= married	Nominal	
	Time of HIV Diagnosis Number of pregnancies	Year of diagnosis Number	Interval Interval	
Cervical cancer screening	Cervical cancer screening	0= never had screening 1= ever had screening	Nominal	World Health Survey (WHS) (WHO, 2002)
	Screening method	1= VIA 2= Pap smear	Nominal	
	Time when screened	1= Before HIV diagnosis 0= After HIV diagnosis	Nominal	

	Screening frequency	1= every year 0= not every year	Nominal	
	Time of last screened	Year of last screened	Interval	
Individual factors	Knowledge 31 items			Cervical Cancer Awareness Measure (Cervical CAM) (UCL, 2011). Cronbach's alpha – 0.70
	Risk factors (13 items) Signs and symptoms (11 items) Prevention (3 items) Awareness (4)- Translated	The sum of 4 subscales	Nominal	
	Attitude 5 items Fear: -procedure -pain, -discomfort, -bleeding, -diagnosis	The sum of 5 items	Nominal	- (KAP Survey) (WHO, 2008) Cronbach's alpha – 0.79 - 0.84 validated in Zimbabwe
Social support network	11 items with 3 subscales Family: Tries to help, emotional support, talk about my problem, and willing to help Friends: Try to help, count on friends, share my problem, and talk about my problem Significant others: special person around me, share my problems, real source of comfort and cares about me	The sum of 3 subscales	Nominal	Multidimensional Scale of Perceived Social Support (MSPSS) Scale (Zimet et al., 1988). Cronbach's alpha .83 to .93
Access to health care services	12 items (8 translated) with 5 subscales Affordability: cost and transport, able to get the services Availability: service providers and facilities Accessibility: Travel time and travel mode Accommodation: Provider skills, equipment, and engagements Acceptability: Providers gender and privacy Acceptability	The sum of 5 subscales	Nominal	World Health Survey (WHS) (WHO, 2002). -Cronbach's alpha -not indicated but it is used in studies in Malawi.

Table 8 describes the major study concepts, variables and measures of the instrument. The primary outcome of the study was cervical cancer screening after HIV diagnosis. The independent variables are socio-demographic, knowledge, attitude, social support network, and access to health care support. The operational definitions of variables are as follows:

Socio-demographics. The socio-demographic characteristics of the respondents were obtained to have a sociodemographic background of the study sample. Additionally, the demographic characteristics variables have been empirically reported to influence behavior in health issues. There were 8 questions on socio-demographic details of HIV-positive women which include age, marital status, education level, occupation, income, religion, number of pregnancies, and when they were diagnosed with HIV. For marital status, the respondents reported their marital status and included single, married, divorced or widowed. In age category, the respondents report their age in years at their last birthdate. In education level, the respondents reported their highest education attainment. For occupation, the respondents reported their occupation in terms of current employment status. For income, the women reported their monthly income status. For duration of having HIV disease, the respondents reported the year they were diagnosed HIV positive. The respondents also reported the number of pregnancies they had ever had.

Cervical Cancer Screening. The primary outcome of the study was cervical cancer screening which was obtained from two sources: self-report and medical record check of the receipt of vaginal examination from a cervical cancer health care provider after HIV diagnosis. The participants were asked if they had ever had a vaginal examination using a speculum to examine the cervix or if a pap smear was taken. In this study, self-report was verified by the review of women's health passport record of cervical cancer screening as some women are not able to differentiate digital vaginal examination and screening. Triangulating self-report and record review gives reliable baseline data regarding screening rate among women living with HIV infection in Malawi. If the women had ever been screened, there were follow-up questions: If the screening method was either by VIA or Pap smear or both. Then the woman was asked if the screening was done before HIV diagnosis or after HIV diagnosis.

Individual Factors. The individual factors were assessed in terms of participant's knowledge and attitude regarding cervical cancer and screening.

Knowledge. The knowledge about cervical cancer and screening was measured using Cervical Cancer Awareness Measure (Cervical CAM) Toolkit Version 2.1 (UCL, 2011) The Cervical CAM has 9 subscales and it is possible to separate the questions into distinct subscales that can be used on their own or in conjunction with additional questions from the researchers. To retain reliability or validity of the measure, it is advisable that all the items of each subscale that is adapted must be retained (UCL, 2011). The Cervical CAM is a validated instrument that was developed by the UCL Health Behavior Research Centre, in collaboration with the Department of Health Cancer Team and The Eve Appeal. It forms part of the Cervical Cancer Awareness and Symptoms Initiative (CCASI). It is based on a generic CAM developed by Cancer Research UK, University College London, King's College London and Oxford University in 2007-2008. The CAM was developed in UK and the revised by UCLS so that researchers could systematically assess the impact of interventions designed to target gaps in public awareness of cancer either in whole populations or specific sub-groups. Psychometric evaluation indicated that the instrument has satisfactory internal consistency with Cronbach's alpha above 0.7 for all components (McCrae, Kurtz, Yamagata, & Terracciano, 2011). Test-retest reliability was good with all correlations above 0.7 (Kline, 1993), Construct validity was done by cervical cancer experts, university administration staff, and students.

The adapted knowledge instrument had 31 questions and consisted of 4 sub-scales which included risk factors (13 items), signs and symptoms of cervical cancer (11 items), prevention of cervical cancer (4 items) and awareness of cervical cancer, screening and HIV (4 items). Out of the 31 adapted knowledge items, 27 items were already translated into Chichewa, the local language (Hami, Ehlers, & Van de Wal, 2012). The awareness sub-item

consisted of 4 questions which were not translated including frequency of cervical cancer examination in HIV-positive women; if the cancer can be cured and not HIV; and association between HIV and cervical cancer. The knowledge about signs and symptoms of cervical cancer include 11 questions about: vaginal bleeding, vaginal mass, weight loss, back pain, and loss of appetite. The questions on risk factors include 13 questions on hormonal family planning use, HIV/AIDS, washing/putting traditional medicine inside the vagina, family history, smoking, early age of starting sex, and multiple sexual partners. The questions on prevention of diseases included 3 questions about male circumcision, screening, and proper and regular condom use.

Attitudes: The attitude about cervical cancer screening was measured by using Knowledge, Attitude, and Practices Survey (KAP survey) developed by WHO (2008). The KAP survey was developed as a sample guide questionnaire for conducting KAP surveys to produce desired behavioral change and increased use of health services. The tool can be adapted to a specific cultural context, different populations and behavioral change studies. The tool has mostly been used in TB programs worldwide, including Malawi and in raising awareness of the association between HIV and other communicable diseases WHO (2008). The instrument was adapted in cervical cancer screening studies and validated in Kenya, Malawi and Zimbabwe and the Cronbach's alpha ranged from 0.79-0.84 for all components (Hami et al, 2012; Rositch et al, 2012; Matangaidze et al., 2016). In this study, the attitudes about cervical cancer and screening were measured by adapting 5 attitude questions that were included in the questionnaire. The questions were: if they fear screening procedure, feel shy to expose private parts, afraid of pain or discomfort, afraid of bleeding, and afraid of diagnosis. The adapted 5 items had already been translated into local language cervical cancer studies in Malawi (Hami et al, 2012). These items were answered with responses of "Yes," "No," or "Don't know."

Social Support Network. The studies done in developed countries like the U.S have widely used a social network index (SNI) to understand social network and health behavior studies (DalMaso et al., 2010; Wigfal et al., 2015). The SNI instrument assigns scores to the participants based on the number or frequency of contacts and types of ties between the respondent and members within the network (Cohen & Syme, 1985). The instrument does not provide information regarding the characteristics of the members within the network. This study adapted the Multidimensional Scale of Perceived Social Support (MSPSS) that was developed by Zimet et al., 1988 in the USA. The MSPSS is a 12 item, self- administered scale that assesses the perceived social support and includes emotional and instrumental support to help make decisions. The internal consistency of the total scale and subscales is consistently above .85 across studies with diverse samples. The scale has been used in culturally and linguistically diverse samples including low-income populations, both in the U.S. and Sub-Saharan Africa including Malawi (Bruwer, Emsley, Kidd, Lonchner, & Seedat, 2007; Malde et al., 2015; Nakigudde et al., 2009; Stewart et al., 2014). In Malawi, the generic scale that was developed from the USA was validated among women attending an antenatal clinic in Malawi. The total scale for Chichewa version had good internal consistency and the Cronbach's alpha was 0.88 and was deemed to be a reliable scale to measure social support networks within the Malawi setting (Stewart et al., 2014). The scale is already translated and is available in local Chichewa language, but it was reviewed based on findings of the pilot study to add the social networks that women living with HIV consider important for cervical cancer screening. The instrument measures only positive dimensions of social support networks in influencing behavior change. The instrument had 3 sub-scales which included 1) Family with 4 items; 2) Friends with 4 items; and 3) health care providers with 3 items. The scale uses a 7-point Likert scale: (1) very strongly disagree to (7) very strongly agree. The

scoring of the MSPSS varies based on culture. For this study, the participants answered “Yes” or “No” or “Don’t know” to the question.

Access to Health Care Services. The access to cervical cancer screening services was measured by World Health Survey instrument (WHO, 2002). The tool was developed by WHO to compile comprehensive baseline health information of the population for 70 countries in the world including Malawi. The instrument was intended to be used in different cultures and settings. There was no evidence that the tool was validated in Malawi, but the instrument had been used in most health care access studies in Malawi and Sub-Saharan Africa (Akinyemiju, McDonald, & Lantz, 2015). The adapted access to health care services has 5 subscales with 12 items. The 5 sub-scales include affordability with 1 item; availability with 2 items; accessibility with 2 items; accommodation with 4 items; and acceptability with 3 items. The 8 items were translated into Chichewa and pretested. These items are answered with responses of “Yes,” “No,” or “Don’t know.”

Consent Procedure

The initial consenting was done in person by the researcher and the trained research assistants (RAs). Five RAs were recruited and two days of training (Refer to Attachment E) was offered to educate the RAs on research methods, to support eligible research participants to make informed decisions about participation in the study, and to practice interviewing participants. The training was conducted by the researcher and supervised by the research supervisor to ensure the quality of training. Participants were given a written informed consent (Refer to Attachment F) to sign for participation after determining that they met the inclusion criteria in their preferred language. The researcher and RAs provided a verbal explanation of the study that described the study purposes, processes, confidentiality of information, benefits and risks, and the right to withdraw from the study. The participants were asked to repeat the information to ensure that they understand the study’s purpose.

Participants signed an informed consent statement after all their questions about the study were answered to their satisfaction. For participants who could not write, a thumb stamp served as a signature. The signed consents were kept in a locked cupboard separate from other records at the study site.

Risks and Benefits. The primary risk associated with this study was no more than minimal, but some questions might have caused discomfort, embarrassment or psychological harm. There were no direct medical benefits to participating in this study, but the results from the study will help to develop an evidence-based intervention to promote cervical cancer screening programs among HIV-positive women to prevent cervical cancer so that HIV-positive women may live a more productive life. Participants were offered indirect benefit of the value of MK4, 000 equivalents to \$5 US dollars in the form of a gift card in recognition of their commitment of time and their submission to the discomfort caused by some questions. The United States Commission's Belmont Report (1978) indicated that indirect benefits of financial incentives for the participants are indirect as they do not stem from the research interventions themselves, but the subjects may view them as very important and may be acknowledged but should not be assigned heavy weight (USA, Belmont Report, 1978).

Data Collection

A 30 to 45 minute face-to-face interviewer-administered questionnaire (Refer to Attachment G) was conducted in local Chichewa language or English based on participants' preference time and dates. Recruitment announcements (Refer to Attachment H) and appointments regarding the research purposes, confidentiality of information, the right to withdraw from the study, contacts and where the interview would take place were made during HIV support group meeting days by the expert client or support group coordinator. Volunteers who showed up for participation in the study during the scheduled days were recruited consecutively. The survey was administered by the researcher and RAs after

obtaining women's signature on the informed consent form. The interviewer read the questions and responses to the questions exactly as they were worded in the questionnaire to the participants to make sure that the participants understood the question and were given time to give a response to the question before proceeding to the next question. The interviewer marked the response to the question on behalf of the respondent. The women could not answer the questions on their own as most of them could not read and write. The advantage of face-to-face interviewer administered questionnaire was that the interviewer could help the participant understand the question, therefore, more accurate information and quality data were collected (Polit & Beck, 2011). The disadvantages of face-to-face interviews include interviewer bias, it is time consuming, and participants might feel uneasy about the confidentiality of their responses (Polit & Beck, 2011). In order to overcome these challenges, five RAs were trained and assisted in data collection, data was collected at the support group planned meeting day, participation was voluntary, results were reported using code numbers and in aggregate form. The data collection process continued until the sample size was reached.

Ethical Considerations

Ethical clearance to conduct a study was sought from Lilongwe Rural and Lilongwe Urban district offices, University of Massachusetts Boston, and National Health Sciences Research Committee (NHSRC) in Malawi (Refer to Attachment I). Permission to access the register of the list of all HIV positive support groups was obtained first from the Lilongwe Rural and Lilongwe Urban district offices (Refer to Attachment J). Then permission was obtained from University of Massachusetts Boston and lastly from the National Health Sciences Research Committee (NHSRC) in Malawi. In Malawi, the National IRB approves protocols after the protocol has been approved by the student's training institution and or research site. All eligible women were informed that their decision to participate in this study was not to

affect their access to healthcare services. To ensure confidentiality, each participant was assigned a code number, which was stored in a locked desk. There was no link between names, codes, and responses.

Data Analysis

The data were analyzed using Statistical Package for Social Science (SPSS Version 21; IBM, Armonk, NY) software. To maintain high quality data, the collected data was cleaned and checked for completeness. Frequencies were computed on all variables and checked for distribution, missing values, and errors (Enders, 2010).

Data was analyzed according to concepts of the framework including participant's demographic characteristics, cervical cancer screening rate, level of knowledge, attitudes, social support networks, and access to cervical cancer screening.

Demographic characteristics. There were 8 questions on socio-demographic details of HIV-positive women which include age, marital status, education level, occupation, income, religion, number of pregnancies, and when they were diagnosed with HIV. During the analysis, the marital status was categorized as 1) married and 2) single (this category included not married, divorced, and others). Age was treated as a continuous variable and as a categorical variable. There were two categories including 18-29 and above 30 years. Education level was categorized as an ordinal variable with category option of: 1) never attended or primary level, 2) secondary level and university level. Occupation was categorized as 1 implying not working and 2 implying working. Women's monthly income status was treated as a categorical variable 1) <\$100 and 2) >\$100. The number of years since HIV diagnosis was treated as a continuous variable. The number of pregnancies that the women had ever had was treated as a continuous variable. Religion was categorized as 1) Christian and 2) Other which included Moslems, Gulewamkulu, and those not going to church.

Cervical Cancer Screening. Cervical cancer screening was the primary outcome of the study and was dichotomous response indicating whether the respondents had ever had cervical cancer screening or not. It was coded 1 to indicate ever had screened after HIV diagnosis and 0 never had screening.

Individual Factors. The individual factors had two sub-scales: knowledge and attitude. The overall score for knowledge regarding cervical cancer and cervical cancer screening was calculated. Each correct response scored one point and wrong response or “I do not know” response scored zero. The individual correct scores varied between 0-31. The composite score of knowledge was used to measure knowledge level. The cumulative mean score of knowledge of participants about cervical cancer and screening was estimated using mean score as a cut-off point. The total correct scores less than the mean score meant that the women had low levels of knowledge regarding cervical cancer and screening. Scores above the mean score meant that the women had high levels of knowledge regarding cervical cancer and screening.

Attitudes: An overall score of attitude about cervical cancer and screening were calculated as the sum of positive responses. If the individual response was positive towards cervical cancer screening, one point was given. If the response was negative or “I do not know,” zero point were given. The individual correct scores varied between 0-6. The descriptive and inferential statistics were calculated, and the mean score was reported. The scores less than the mean score meant that the women had a negative attitude regarding cervical cancer screening and scores above the mean score, meant that the women have a favorable attitude regarding cervical cancer screening.

Social Support Network. The overall score for social support staff regarding cervical cancer screening was calculated. Each response indicating the availability of social support regarding cervical cancer screening scored one point and those with no social support

response or “I do not know” response scored zero. The individual scores were summed for the total score. The individual scores varied between 0-11. The descriptive and inferential statistics were calculated, and the mean scale score was reported. The higher the score above the mean indicated higher levels of perceived social support from networks (Calvete & Cannor-Smith, 2006).

Access to Health Care Services. The overall score for access to health care services regarding cervical cancer screening was calculated. Each response indicating having access to cervical cancer screening scored one point and those with no access to screening or “I do not know” response scored zero. The individual correct scores varied between 0-12. The descriptive and inferential statistics were calculated, and the mean score was reported. The higher the score above the mean indicated easy access to health care services and the scores below the mean indicated difficulties accessing health care services (WHO, 2002).

Reliability analysis was performed to measure the overall consistency of the items of the instrument. Figure 5 is the statistical model for data analysis for specific aims 1 to 3.

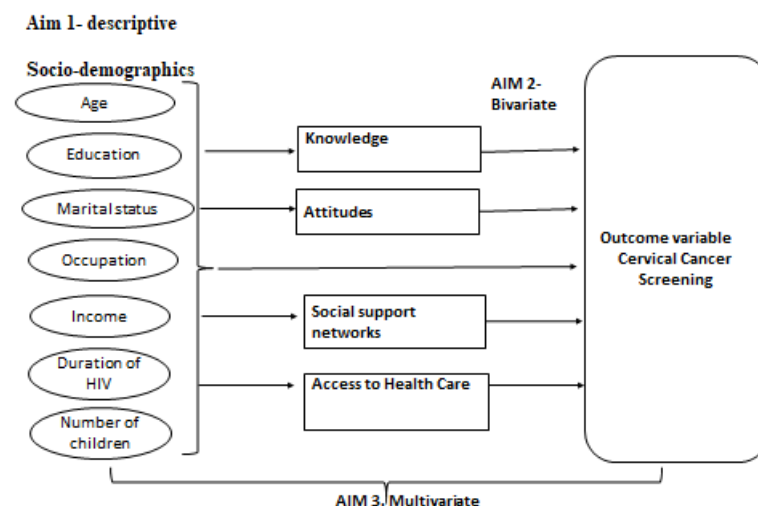


Figure 5. Statistical Model of Cervical Cancer Screening among HIV Positive Women

Specific Aim 1. Descriptive statistics were computed to describe the status of cervical cancer screening behavior and level of knowledge and attitude among Malawian women

living with HIV infection on all variables. The sum of each scale, means with standard divisions or percentages were computed as appropriate to each measure. Using paired t-test or Chi-square when appropriate, we explored the extent to the screened and non-screened women differed from each other in their awareness, knowledge, attitudes, social support networks, and access to cervical cancer screening. The significance level was set at $p < 0.05$. groups.

Specific Aim 2. Bivariate logistic regression analysis were conducted to explore the relationship between each determinant (age, education, marital status, employment, income, knowledge, attitudes, social support network, and access to health care) with cervical cancer screening. The adjusted Odds Ratios (OR) and their corresponding 95 percent CI were used to measure the strength of associations between independent variables and outcome variable (cervical cancer screening). A two-tailed p-value of $\leq .05$ was considered statistically significant.

Specific Aim 3. To examine whether knowledge and attitudes are independently associated with cervical cancer screening after controlling for other determinants of cervical cancer screening (occupation, income, social support network, and access to health care services). Multivariable logistic regression analyses were conducted by entering into the model the independent variables that were statistically significant in bivariate analysis. The adjusted Odds Ratios (OR) and their corresponding 95 percent CI were used to measure the strength of associations between knowledge and attitudes, and cervical cancer screening after adjusting for other covariates.

CHAPTER 4

RESULTS

This chapter presents information of the study participants' basic demographic characteristics, screening behavior, knowledge and attitude regarding screening, social support networks, and access to screening services following the study specific aims.

Specific Aim 1. The specific aim 1 was to describe the status of cervical cancer screening behavior and level of knowledge and attitude among Malawian women living with HIV infection.

Socio-demographic Characteristics of the Respondents

The study approached 291 participants and all women agreed to be interviewed giving a response rate of 100%. A 100% response rate might be due to conducting interviews during their meeting days within their community, gift cards, and face-to-face interviews with the respondents. The participants' socio-demographic characteristics are summarized in Table 9.

Table 9

Basic Characteristics of the of Respondents

Variable	N=291	(%)
Geographical location		
Rural	116	39.9
Urban	175	60.1
Occupation		
Working	10	3.4
Not Working	281	96.6
Religion		
Christian	267	91.8
Others	24	8.2
Marital Status		
Single (Never married)	33	11.3
Married	137	47.1
Divorced/widowed	121	41.6
Education Level		
Never attended school	61	21
Primary Level	170	58.4
Secondary level	55	18.9
College	5	1.7

Monthly Family Income		
< \$100	258	88.7
>\$100	33	11.3
Age in years		
18-29 years	117	40.2
30-60 years	174	59.8
	Range	Mean (SD)
Age	18-60	34.81 ± 9.85
Pregnancies	0-15	4.5 ± 2.58
Time since HIV diagnosis (years)	1 to 19	7.16 ± 4.2

The results in Table 9 indicate that the age of the respondents ranged from 18 – 60 years ($M = 34.81$, $SD = 9.85$). Out of the total 291 respondents, 117 (40.2%) were aged 18-29 years and 174 (59.8%) were aged 30-60 years. The number of years since diagnosed with HIV infection ranged from 1 to 19 years ($M = 7.16$, $SD = 4.2$). The number of pregnancies reported ranged from 0-15 ($M = 4.50$, $SD = 2.58$). Out of the 291 women, 137 (47.1%) were married, 121 (41.6%) were either divorced or widowed, and the remaining 33 (11.3%) were single, which is they had never been married before. The majority: 281 (96.6%) of the respondents were not working; 267 (91.8%) were Christians; 175 (60.1%) were from urban; and 255 (88.5%) their monthly family income was <\$100. The education level varied: 61 (21%) never attended; 170 (58.4%) had primary education; 55 (18.9%) had secondary education; and 5 (1.7%) went to college. The majority of the respondents were from urban areas, aged between 30-60 years, single, not working, low monthly family income, and of low education level.

Cervical Cancer Screening Behavior

Cervical cancer screening behavior was assessed by screening status, screening method, and when the screening was done (before HIV diagnosis or after HIV diagnosis) as in Figure 6.

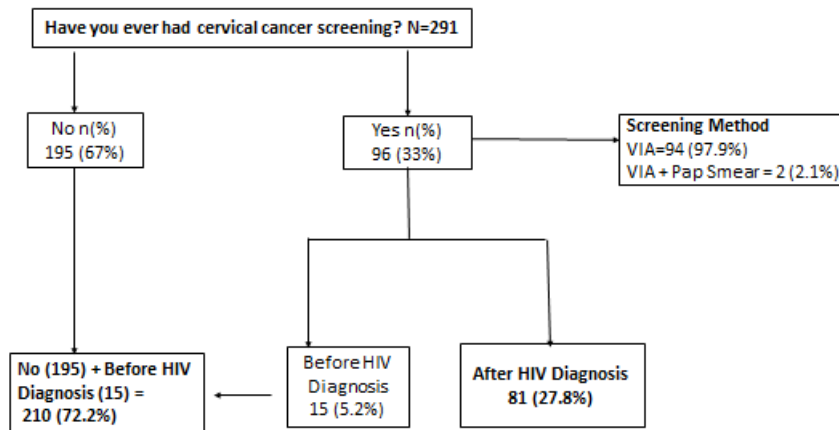


Figure 6. Cervical Cancer Screening Behavior

The results in Figure 6 shows that 96 (33%) of the respondents had cervical screening while 195 (67%) of the respondents did not have screening. Further the results indicated that only 81 (27.8%) had cervical cancer screening after HIV diagnosis. Therefore, the prevalence of cervical cancer screening in women living with HIV infection in Lilongwe was 27.8%, with confidence interval (22.7%, 32.9%). Out of the 96 respondents who received cervical cancer screening, 94 (97.9%) had VIA as a screening method and 2 (2.1%) had both VIA and Pap smear as screening methods.

Knowledge about Cervical Cancer and Screening

Knowledge regarding cervical cancer screening included risk factors of developing cervical cancer, signs and symptoms of cervical cancer, prevention of cervical cancer, and awareness of cervical cancer as indicated in Table 10.

Table 10

Knowledge about Cervical Cancer and Screening

A. Risk factors of developing cervical cancer = N (%)			
Do you think the following factors may increase the woman's chance of developing cervical cancer?	Overall 291 (%)	Screened 81(%)	Not screened 210 (%)
Smoking	146(50.2)	42 (51.9)	104 (49.5)
Having many sexual partners	259(89)	79(97.5)	180 (85.7)
Having a sexual partner with many previous sexual partners	259(89)	80 (98.8)	179 (85.2)
Having a sexual partner who is not circumcised	258(88.7)	78 (96.3)	180 (85.7)
Having sex at an early age	242(83.2)	75 (92.6)	167 (79.5)
Having a weakened immune system (because of HIV/AIDS)	267(91.8)	80 (98.8)	187 (89)
Infection with HPV (Human Papilloma Virus)	252(86.6)	79 (97.5)	173 (82.4)
Having sexually transmitted infection	264(90.7)	80 (98.8)	184 (87.6)
Having a family member diagnosed with cancer	152(52.2)	50 (61.7)	102 (48.6)
Inserting traditional medicine into the vagina	260(89.3)	79 (97.5)	181 (86.2)
Taking family planning pills for a long time	165(56.7)	51 (63)	114 (54.3)
Having many children	249(85.6)	71 (87.7)	178 (84.8)
Not going for regular screening	209(71.2)	64 (79)	145 (69)
	Mean \pmSD (range)	Mean \pmSD (range)	Mean \pmSD (range)
Knowledge regarding risk factors	10.25 \pm 3.12 (0-13)	11.21 \pm 1.66 (5-13)	9.88 \pm 3.46 (0-13)
Cronbach's Alpha (13 items)	0.87		
B. Signs and Symptoms of Cervical Cancer = N (%)			
Do you think the following are signs and symptoms of cervical cancer?	Overall 291 (%)	Screened 81(%)	Not screened 210 (%)
Vaginal bleeding between periods	258(88.7)	80 (98.8)	178 (84.8)
Menstrual periods that are heavier or longer than usual	261(89.7)	78 (96.3)	183 (87.1)
Vaginal bleeding after the menopause	260(89.3)	76 (93.8)	184 (87.6)
Vaginal bleeding during or after sex	257(88.3)	78 (96.3)	179 (85.2)
Excessive vaginal discharge that smells unpleasant	269(92.4)	81 (100)	188 (89.5)
Vaginal itching or irritation	250(85.9)	73 (90.1)	177 (84.3)
Pain or discomfort during sexual intercourse	262(90)	80 (98.8)	182 (86.7)
Lower back pain	235(80.8)	71 (87.7)	164 (78.1)
Pelvic pain	248(85.2)	77 (95.1)	171 (81.4)
Frequent urination	187(64.3)	59 (72.8)	128 (61)
Unexplained weight loss	176(60.5)	53 (65.4)	123 (58.6)
	Mean \pmSD (range)	Mean \pmSD (range)	Mean \pmSD (range)
Knowledge regarding signs and symptoms	9.15 \pm 2.82 (0-11)	9.95 \pm 1.60 (4-11)	8.84 \pm 3.12 (0-11)
Cronbach's Alpha (11 items)	0.9		

C: Prevention of Cervical Cancer = N (%)			
Can the following actions prevent cervical cancer?	Overall 291 (%)	Screened 81(%)	Not screened 210 (%)
Male circumcision	265(91.1)	80 (98.8)	185 (88.1)
Cervical cancer screening (examining the cervix)	254(87.3)	78 (96.3)	176 (83.8)
Proper and regular condom use	257(88.3)	77 (95.1)	180 (85.7)
HPV Vaccination	240(82.5)	68 (84)	172 (81.9)
Knowledge regarding prevention of cervical cancer	Mean \pmSD (range) 3.49 \pm 1.05 (0-4)	Mean \pmSD (range) 3.74 \pm 0.61 (1-4)	Mean \pmSD (range) 3.40 \pm 1.16 (0-4)
D: Awareness about Cervical Cancer, screening and HIV = N (%)			
	Overall 291 (%)	Screened 81(%)	Not screened 210 (%)
A woman who is HIV positive should undergo cervical cancer screening at least once per year.	271(93.1)	77 (95.1)	194 (92.4)
A woman who is HIV positive is at higher risk of developing cervical cancer than a woman who is HIV negative.	278(95.5)	80 (98.8)	198 (94.3)
Cervical cancer develops slowly and can be cured if detected early	247(84.9)	75 (92.6)	172 (81.9)
Awareness regarding cervical cancer and screening	Mean \pmSD (range) 2.74 \pm 0.64 (0-3)	Mean \pmSD (range) 2.86 \pm 0.44 (1-3)	Mean \pmSD (range) 2.69 \pm 0.70 (0-3)
Overall Knowledge	Mean \pmSD (range)	Mean \pmSD (range)	Mean \pmSD (range)
Knowledge regarding cervical cancer and screening	25.63 \pm 6.35 (0-31)	27.77 \pm 3.03 (18-31)	24.80 \pm 7.07 (0-31)
Cronbach's Alpha (31 items)	0.93		

The results in Table 10 show that the overall knowledge score ranged from 0-31 of correct answers ($M = 25.63$, $SD = 6.35$) with minimum total score of 0 and maximum score of 31. The overall results show that the respondents were knowledgeable about cervical cancer and screening. However, knowledge of the respondents was higher in respondents who were screened ($M = 27.77$, $SD = 3.03$) with a range of 18-31 scores of correct responses than the respondents who were not screened ($M = 24.80$, $SD = 7.07$) with a range of 0-31 scores of correct responses.

The overall results show that most women knew the risk factors for developing cervical cancer ($M = 10.25$, $SD = 3.12$). The knowledge score about the risk factors of cervical cancer was higher in respondents who were screened ($M = 11.21$, $SD = 1.66$) with a range of 5-13 of correct responses than the respondents who were not screened ($M = 9.88$, $SD = 3.46$) with a range of 0-13 of correct responses. The majority of the respondents, 264 (91.8%), indicated that having a weakened immune system because of HIV/AIDS and having sexually transmitted infection, 264 (90.7%), have increased risk for developing cervical cancer. On the other hand, almost half of the respondents identified that smoking, 146 (50.2%), having a family member diagnosed with cancer, 152 (52.2%), and taking family planning pills for a long time, 165 (56.7%), increases the woman's risk of developing cervical cancer.

The overall respondent's knowledge about the signs and symptoms of cervical cancer ranged from 0-11 scores ($M = 9.15$, $SD = 2.82$). This shows that, overall, the respondents were knowledgeable about the signs and symptoms of cervical cancer. However, the knowledge about the signs and symptoms about cervical cancer was higher in women who were screened ($M = 9.95$, $SD = 1.60$) with a range of 4-11 scores than those who were not screened ($M = 8.84$, $SD = 3.12$) with a range of 0-11 scores. A majority, 269 (92.4%) of the respondents indicated that excessive vaginal discharge that smells unpleasant and pain or discomforts during sexual intercourse, 262 (90%), were the main signs and symptoms of cervical cancer. In addition, 261 (89.7%), of the respondents indicated that menstrual periods that are heavier or longer than usual and vaginal bleeding after menopause, 260 (89.3%), were also signs and symptoms of cervical cancer. On the other hand, only 176 (60.5%), of the participants were able to identify that unexplained weight loss was a possible sign of cancer.

The overall respondent's knowledge of possible prevention strategies for cervical cancer ranged from 0-4 scores ($M = 3.49$, $SD = 1.05$). The overall results indicate that the

women were knowledgeable about the prevention strategies of cervical cancer. However, the mean knowledge score was higher in women who were screened ($M = 3.74$, $SD = 0.61$) with a range of 1-4 scores than those who were not screened ($M = 3.40$, $SD = 1.16$) with a range of 0-4 scores. A majority, 265 (91.1%), of the respondents identified male circumcision correctly as a prevention strategy of cervical cancer, followed by proper and regular condom use 257 (88.3%), cervical cancer screening 254 (87.3%), and HPV vaccination 240 (82.5%).

The overall participant's awareness score about cervical cancer, screening, and HIV ranged from 0-3 ($M = 2.74$, $SD = 0.64$). The overall results indicate that the respondents were aware of the link between cervical cancer and HIV. However, the awareness about cervical cancer, screening, and HIV was higher for respondents who were screened ($M = 2.86$, $SD = 0.44$) with a range of 1-3 scores than the respondents who were not screened ($M = 2.69$, $SD = 0.70$) with a range of 0-3 scores. A majority, 278 (95.5%) correctly indicated that a woman who is HIV positive is at a higher risk of developing cervical cancer than a woman who is HIV negative. Further, a majority, 271 (93.1%), identified that a woman who is HIV positive should undergo screening at least once per year. Lastly, a majority, 247 (84.9%) identified that cervical cancer develops slowly and can be cured if detected early.

The internal consistency of the instrument was measured by Cronbach's alpha. The Cronbach's alpha for knowledge of participants on cervical cancer, screening, and HIV were: for risk factors for 13 items, Cronbach's alpha was 0.87; signs and symptoms for 11 items Cronbach's alpha was 0.90. The internal consistency for sub-items of knowledge about awareness and prevention about cervical cancer was not measured as they had items of less than 5. The overall Cronbach's alpha for the instrument for knowledge with 31 items was 0.93. This means that all items for knowledge regarding cervical cancer and screening had good internal consistency.

Attitude Regarding Cervical Cancer Screening

The attitude regarding cervical cancer screening is summarized in Table 11.

Table 11

Attitude Regarding Cervical Cancer Screening

		N (%)		
What is your opinion on these questions		Overall 291 (100)	Screened 81(00)	Not screened 210 (100)
1	Do you fear cervical Cancer screening procedure?	54(18.6)	8 (9.9)	46 (21.9)
2	Do you feel shy to expose your private parts during the procedure to young or male service providers?	49(16.8)	11 (13.6)	38 (18.1)
3	Are you afraid of pain/discomfort during cervical cancer screening procedure?	54 (18.6)	5 (6.2)	49 (23.3)
4	Are you afraid of bleeding during and after cervical cancer screening procedure?	54 (18.6)	6 (7.4)	48 (22.9)
5	Are you afraid of being diagnosed with cervical cancer after undergoing the screening?	45 (15.5)	11 (13.6)	34 (16.2)
		Mean ±SD (range)	Mean ±SD (range)	Mean ±SD (range)
Attitude regarding cervical cancer screening		4.12±1.33 (0-5)	4.49±1.04 (0-5)	3.98±1.41 (0-5)
Cronbach's Alpha (5 items)		0.74		

The findings in Table 11 indicate that the overall respondent's attitude score about cervical cancer screening ranged from 0-5 ($M = 4.12$, $SD = 1.33$). This shows that, overall, the respondents had a positive attitude regarding screening. However, the respondent's attitude regarding screening, was higher in women who were screened ($M = 4.49$, $SD = 1.04$) with a range of 0-5 scores of correct responses than those who were not screened ($M = 3.98$, $SD = 1.41$). The overall results indicate that few, 54 (18.6%) feared cervical cancer procedure, were afraid of pain/discomfort during screening procedure, and were afraid of bleeding during or after the procedure. However, comparing the respondents who were screened to those who were not screened, those who were not screened, 46 (21.9%), feared cervical cancer screening procedure compared to respondents who were screened, 8 (9.9%).

Overall, the majority of the respondents did not fear the procedure, were not shy to expose the private parts, were not afraid of the diagnosis, and were willing to be screened.

The internal consistency of the instrument for attitude scale with 5 items had a Cronbach's alpha of 0.74. This means that all the items for attitude regarding screening had acceptable reliability measures. The possible reason for low Cronbach's alpha might be due to less number of items.

Comfortability during screening. Women were further asked whom they would be comfortable to perform screening on them between male and female service providers. The women's responses are illustrated in Figure 7.

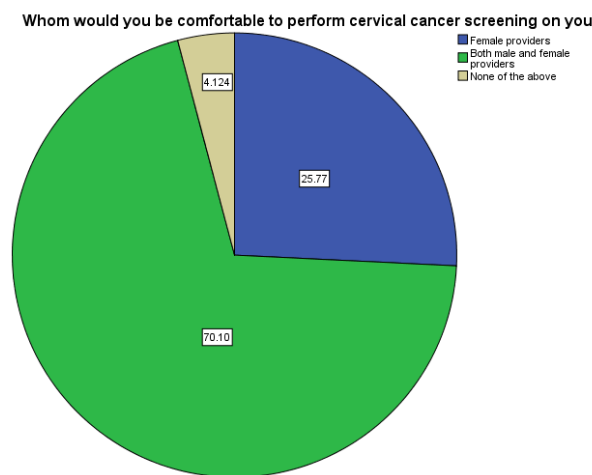


Figure 7. Whom women would be comfortable with

The results in Figure 7 indicate that the majority, 204 (70.1%) of the respondents would be comfortable to be screened by both male and female providers, 75 (25.8%) by female service providers, 12 (4.1%) were not comfortable with either of them (male or female providers).

Social Support Networks

Table 12 describes respondent's social support networks regarding cervical cancer and screening.

Table 12

Social Support Networks

Item	Yes = N (%)		
	Overall 291 (%)	Screened 81(%)	Not screened 210 (%)
Health care providers			
1 Is the health care provider always available when you need cervical cancer screening services?	166 (57)	63 (77.8)	103 (49)
2 Can you share your concerns about cervical cancer screening with a health care provider?	214 (73.5)	65 (80.2)	149 (71)
3 Have health care providers ever counseled (talked to) you about cervical cancer screening?	224 (77)	72 (88.9)	152 (72.4)
Family members			
4 Does your family try to help you with financial support to go for cervical cancer screening?	66 (22.7)	33 (40.7)	33 (15.7)
5 Do you get the emotional help and support you need from your family regarding HIV and cervical cancer screening?	157 (54)	58 (71.6)	99 (47.1)
6 Can you discuss about cervical cancer screening with your family?	236 (81.1)	71 (87.7)	165 (78.6)
7 Have your family members ever encouraged you to go for cervical cancer screening?	213 (73.2)	69 (85.2)	144 (68.6)
Friends			
8 Have your friends ever recommended to you cervical cancer screening?	221 (75.9)	67 (82.7)	154 (73.3)
9 Can your friends provide social support when found (diagnosed) with cervical cancer?	235 (80.8)	69 (85.2)	166 (79)
10 Do you have friends with whom you can share your results of screening (examination)?	268 (92.1)	77 (95.1)	191 (91)
11 Can you encourage your friend to go for cervical screening?	277 (95.2)	79 (97.5)	198 (94.3)
	Mean ±SD (range)	Mean ±SD (range)	Mean ±SD (range)
Social Support Networks	7.82±2.67 (0-11)	8.93±2.21 (0-11)	7.40±2.71 (0-11)
Cronbach's Alpha (11 items)	0.81		

The results in Table 12 indicate that the overall respondent's social support networks score about cervical cancer screening ranged from 0-11 ($M = 7.82$, $SD = 2.67$). This shows that, overall, the respondents had social support networks that influence screening behavior. However, the respondent's social support networks score regarding screening, was higher in women who were screened ($M = 8.93$, $SD = 2.21$) with a range of 0-11 scores than those who

were not screened ($M = 7.40$, $SD = 2.71$). For the women who were screened, a majority, 66 (77.8%) indicated that the health care providers were always available when they needed screening services whilst those not screened, almost half of the respondents, 103 (49%) indicated that the health care providers were not always available when they needed screening services. The overall results indicate that only one-fifth, 66 (22.7%), of the participants indicated that family members tried to help them with financial support, and 157 (54%) of the women got emotional support from family members. The results indicate that family members may not be able to provide all the financial and emotional support that might be needed.

The internal consistency of the instrument for social support network scale with 11 items had a Cronbach's alpha of 0.81. This means that all the items for social support network regarding screening had good reliability measures.

Access to Cervical Cancer Screening Services

Table 13 describes respondent's access to cervical cancer screening services.

Table 13

Women's Access to Cervical Cancer Screening

What are the reasons that best explain why you did not get the examination for cervical cancer?				
		N (%)		
Affordability		Overall 291 (%)	Screened 81(%)	Not screened 210 (%)
1	No money for transport	116 (39.9)	17 (21)	99 (47)
Availability				
2	Did not know where to go for screening	59 (20.3)	9 (11.1)	50 (23.8)
3	Screening sites are far (distance)	79 (27.1)	11 (13.6)	68 (32.4)
Accessibility				
4	Previously, I was badly treated	19 (6.5)	3 (3.7)	16 (7.6)
5	Long waiting time	67 (23)	18 (22.2)	49 (23.3)
Accommodation				
6	The health care providers are inadequate	21 (7.2)	5 (6.2)	16 (7.6)
7	There were no equipment and supplies	24 (8.2)	6 (7.4)	18 (8.6)
8	I thought I was not sick	78 (26.8)	12 (14.8)	66 (31.4)
9	Could not take time off my work/had other commitments/laziness	46 (15.8)	7 (8.6)	39 (18.6)

Acceptability				
10	There is no privacy at the clinic	2 (0.7)	0	2 (1)
11	Providers are males	14 (4.8)	4 (4.9)	10 (4.8)
12	I do not see the reason to go for screening as I am too old/too young	18 (6.2)	2 (2.5)	16 (7.6)
		Mean \pmSD (range)	Mean \pmSD (range)	Mean \pmSD (range)
Access to screening		10.13 \pm 1.93 (3-12)	10.84 \pm 1.98 (4-12)	9.86 \pm 1.84 (3-12)
Cronbach's Alpha (12 items)		0.67		

The overall findings in Table 13 show that only 96 (33%) of the women received screening the last time they needed it. Some women did not access cervical cancer screening services due to no money for transport 116 (39.9%) (affordability), long distance to screening facility 79 (27.1%) and some did not know where to go 59 (20.3%) (availability), thought that they were not sick 78 (26.8%) (accommodation), and long waiting time 67 (23.0%) (accessibility). Very few 18 (6.2%) stated that they did not see the reason to go for screening as they were either too old or too young and 14 (4.8%) indicated that service providers are males (acceptability).

The overall respondent's score to access to screening services ranged from 3-12 ($M = 10.13$, $SD = 1.93$). This shows that, overall, the respondents had access to screening services. However, the respondent's access to screening services score was higher in women who were screened ($M = 10.84$, $SD = 1.98$) with a range of 4-12 scores than those who were not screened ($M = 9.86$, $SD = 1.84$). The internal consistency of the instrument for access to screening services scale with 12 items had a Cronbach's alpha of 0.67. The possible reason for low Cronbach's Alpha might be due to the wording of the questions as they were negatively worded as compared to knowledge and social support network domains.

The internal consistency of the instrument for whole instrument with 4 subscales: knowledge with 31 items, attitude with 5 items, social support network with 11 items, and access to screening with 12 items had Cronbach's alpha of 0.88. This means that the overall instrument had good Cronbach's alpha.

Mode of transport and travel time. The women were asked how they travel (mode of transport) to clinics for HIV and screening services, and how long they take to reach a health facility as indicated in Table 14.

Table 14

Mode of Transport and Travel Time

How do you travel when going to the clinics (HIV and cervical cancer screening)?	n	%
Bicycle/walk	187	64.3%
Public transport	104	35.7
How long does it take to get to the clinic from where you live?	n	%
Less than 30 minutes	52	17.9%
More than 30 minutes	239	82.1

The results in Table 14 indicate that the common mode of transport was bicycle/walking 187 (64.3%) seconded by public transport 104 (35.7%). The majority, 239 (82.1%) of the respondents took more than 30 minutes to go to a health care facility and 52 (17.9%) took less than 30 minutes. The results indicate that the majority walk and takes more than 30 minutes to access health care services.

Type of a facility. For respondents who had screening, they were asked where they go for screening services as indicated in Table 15.

Table 15

Type of facility

Where did you go for cervical cancer screening?	n=96	n	%
Government Health Facility		76	79.2%
Non-Government		20	20.8%

The findings in Table 15 indicate that the majority 76 (79.2%) who were screened went to Government health facilities and few 20 (20.8%) went to Non-Governmental, either CHAM or private health facilities.

Specific Aim 2: To explore the factors associated with cervical cancer screening behavior among Malawian women with HIV infection.

Factors Associated with Cervical Cancer Screening Behavior

Table 16 presents the odds ratio associated with cervical cancer screening behavior for unadjusted and adjusted models. Model 1 presents the raw effect for unadjusted simple logistic regression and model 2 presents the adjusted multivariate logistic regression.

Table 16

Odds Ratio Associated with Screening

	OR (CI) Raw Mode 1	P-value	Adjusted OR Model 2	P-value
Location				
Rural	Reference			
Urban	1.59 (0.92, 2.72)	0.094		
Religion		0.211		
Other religion	Reference			
Christian	0.49 (0.16, 1.49)			
Age				
18-29 years	Reference			
30-60 years	1.12 (0.66, 1.89)	0.676		
Marital Status				
Single	Reference			
Married	1.06 (0.64, 1.77)	0.820		
Education Level				
Never attended/ Primary	Reference			
Secondary/College	1.39 (0.76, 2.57)	0.287		
Occupation				
Not Working	Reference			
Working	6.53 (1.65, 25.90)	0.008	5.12 (1.07, 24.43)	0.041
Monthly Income				
<\$100	Reference			0.289
>\$100	2.23 (1.01, 4.72)	0.04	1.65 (0.56, 4.12)	
Time since HIV diagnosis (Years)	1.05 (0.99, 1.12)	0.099		
Number of Pregnancies	1.07 (0.97, 1.18)	0.166		
Knowledge	1.12 (1.05, 1.20)	0.001	1.10 (1.02, 1.19)	0.012

Attitude	1.46 (1.14, 1.84)	0.002	1.36 (1.04, 1.76)	0.023
Social Support Network	1.14 (1.17, 1.53)	0.001	1.14 (0.99, 1.32)	0.075
Access	1.40 (1.17, 1.68)	0.001	1.21 (1.01, 1.44)	0.036

In Table 16, the results for the unadjusted model 1 of the logistic regression indicate that geographical location (OR=1.59; 95% CI: .92, 2.72), religion (OR=0.49; 95% CI: 0.16, 1.49), age (OR=1.12; 95% CI: 0.66, 1.89), marital status (OR=1.06, 95% CI: 0.64, 1.77), education level (OR=1.39; 95% CI: 0.76, 2.57), number of years with HIV diagnosis (OR=1.05, 95% CI: 0.99, 1.12), and number of children (OR=1.07, 95% CI: 0.97, 1.18) were not statistically significantly associated with cervical cancer screening behavior.

Women who were working were 5.5 times more likely to undergo screening than women who were not working (OR=6.53; 95% CI: 1.65, 25.90). Women who had monthly income of more than \$100 were 1.2 times more likely to undergo screening than women who had monthly income of less than \$100 (OR=2.23; 95% CI: 1.1, 4.72).

When the knowledge score increases by 1 unit, the women are 12% more likely to go for screening services (OR=1.12; 95% CI: 1.05, 1.20). With 1 point increase in attitude score, the women are 45% more likely to go for cervical cancer screening services (OR=1.45; 95% CI: 1.14, 1.84). When social support network score increases by 1 unit, the women are 34% times more likely to have cervical cancer screening (OR=1.34; 95% CI: 1.17, 1.53). With 1 unit increase in access to screening services, the women are 40% more likely to go for screening services (OR=1.40; 95% CI: 1.17, 1.68).

Therefore, in the unadjusted model, the likelihood of cervical cancer screening was associated with occupation, income, knowledge, attitude, social support network, and access to health care services. On the other hand, geographical location, religion, age, marital status,

education, number of years with HIV diagnosis, and number of children were not found to be associated with screening uptake.

Specific aim 3. To examine whether knowledge and attitudes are independently associated with cervical cancer screening after controlling for other determinants of cervical cancer screening.

In adjusted Models 2, the model examined whether knowledge and attitudes are independently associated with cervical cancer screening after controlling for other determinants of cervical cancer screening (occupation, income, social support network, and access to health care services).

Knowledge of cervical cancer and screening. In the adjusted model 2, the odds ratio of screening for knowledge was 1.10 (95% CI: 1.02, 1.19). It means that with 1 unit increase in knowledge score, the women are 10% more likely to go for screening services. Therefore, knowledge is independently associated with cervical cancer screening after adjusting for occupation, income, social support network, and access to health care services.

Attitude. In the adjusted model 2, the odds ratio of screening for attitude was 1.36 (95% CI: 1.04, 1.76). It means that with 1 unit increase in attitude score, the women are 36% more likely to go for screening services. Attitude is independently associated with cervical cancer screening after adjusting for occupation, income, social support network, and access to health care services.

Access to cervical cancer screening services. In the adjusted model 2, the odds ratio of screening for access to screening services was 1.21 (95% CI: 1.01, 1.44). It means that with 1 unit increase in access to screening services, women are 21% more likely to go for screening services. Therefore, access to screening services was independently associated with cervical cancer screening after adjusting for other covariates.

Social support networks. In the adjusted model 2, the odds ratio of screening for social support network was 1.14 (95% CI: 0.99, 1.32). Social support network is marginally significant after adjusting for respondents' occupation, knowledge, attitude, income, and access to screening services.

Therefore, in the full model 2, occupation (OR=5.12; 95% CI: 1.07, 24.43), knowledge (OR=1.1; 95% CI: 1.02, 1.19), attitude (OR=1.36; 95% CI: 1.04, 1.76), and access to screening services (OR=1.21; 95% CI: 1.01, 1.44) were independently associated with cervical cancer screening.

Improving Screening Services

Women were asked on how the screening uptake can be improved. Figure 8 indicates the women's responses.

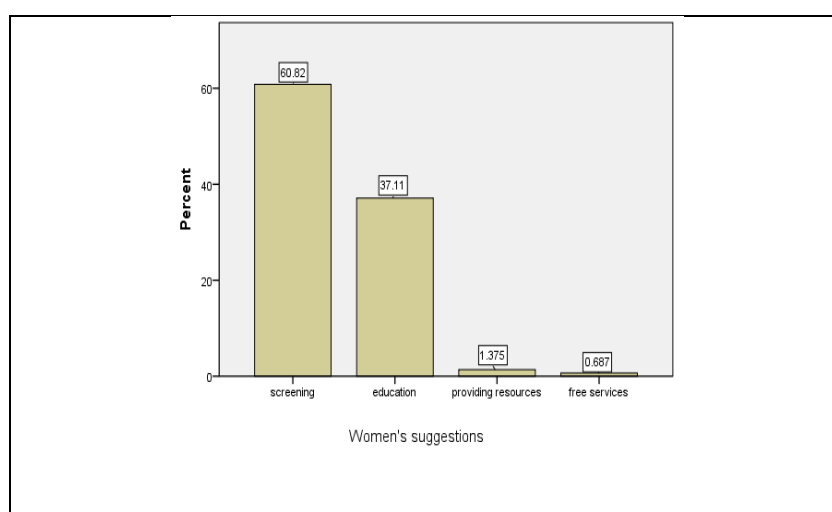


Figure 8. Suggestions on increasing screening uptake

The results in Figure 8 indicate that women suggested that to increase screening uptake, more health care providers should be trained in screening so that screening should be done in HIV support groups or in the community, 177 (60.82%); others, 108 (37.1%), indicated that health education regarding cancer and screening should be intensified in the community. Few, 4 (1.38%) indicated that government should provide cervical cancer screening resources in all CHAM facilities.

Summary of Study Findings

The findings of the study were:

1. The prevalence of cervical cancer screening in women living with HIV infection in HIV support groups in Lilongwe District in Malawi was 27.8% (95% CI:22.7%, 32.9%)
2. The overall knowledge range score of the respondents was 0-31 correct answers ($M = 25.63$, $SD = 6.35$). The overall results in the table show that the respondents were knowledgeable about cervical cancer and screening. However, the mean values and standard deviation of knowledge of the respondents was higher in respondents who were screened ($M = 27.77$, $SD = 3.03$) with a range of 18-31 scores than those who were not screened ($M = 24.80$, $SD = 7.07$).
3. The overall respondent's attitude score about cervical cancer screening ranged from 0-5 with ($M = 4.12$, $SD = 1.33$). This shows that, overall, the respondents had positive attitude regarding screening. However, the mean values and standard deviation of respondent's attitude regarding screening, was higher in women who were screened ($M = 4.49$, $SD = 1.04$) with a range of 0-5 scores than the mean knowledge of those who were not screened 3.98 ± 1.41 (0-5).
4. The overall respondent's social support networks score about cervical cancer screening ranged from 0-11 ($M = 7.82$, $SD = 2.67$). This shows that, the respondents who had social support networks that influence screening behavior. However, the respondent's social support networks score regarding screening, was higher in women who were screened ($M = 8.93$, $SD = 2.21$) with a range of 0-11 scores than the mean social support networks score of those who were not screened ($M = 7.40$, $SD = 2.71$) with a range of 0-11 .
5. The overall respondent's score for access to screening services ranged from 3-12 ($M = 10.13$, $SD = 1.93$). However, the respondent's access to screening services score was

higher in women who were screened ($M = 10.84$, $SD = 1.98$) with a range of 4-12 scores than those who were not screened ($M = 9.86$, $SD = 1.84$) with a range of 3-12 score.

6. The factors associated with cervical cancer screening include occupation OR = 6.53 (95% CI: 1.65, 25.90), income OR = 2.23 (95% CI: 1.1, 4.72), knowledge OR = 1.12 (95% CI: 1.05, 1.20), attitude OR = 1.45 (95% CI: 1.14, 1.84), social support network OR = 1.34 (95% CI: 1.17, 1.53), and access to health care services OR = 1.40 (95% CI: 1.17, 1.68).
7. Factors independently associated with cervical cancer screening services include knowledge OR = 1.1 (95% CI: 1.02, 1.19) and attitude OR = 1.36 (95% CI: 1.04, 1.76) after adjusting for occupation, income, social support networks, and access to screening services.
8. The Cronbach's alpha for whole instrument with 59 items and 4 subscales: knowledge with 31 items, attitude with 5 items, social support network with 11 items, and access to screening with 12 items was 0.88. This means that the overall instrument had good internal consistency (reliability).

CHAPTER 5

DISCUSSION

The discussion section of the study findings has been presented in relation to the concepts of the situation specific concepts which include participant's socio-demographic characteristics, cervical cancer screening, knowledge, attitude, social support network, and access to screening services. During discussion, study findings have been presented first then discussion, supported by relevant literature.

Socio-demographic Characteristics

The study sample was predominantly by women who had never attended or had primary education (79%). This is consistent with the findings of the Malawi Demographic and Health Survey 2015-17, which indicated that 86% of females have ever attended school (MDHS, 2017). Additionally, this report indicated that to a majority of the women, primary education is the highest level of schooling and only 5% have completed secondary school. This supports the finding that the majorities (96.6%) of the participants were not working and had low monthly income of less than 100 US dollars. Further, this supports the idea that working is a strong factor for screening as women get paid and can afford transport to go for screening services. Even though the screening services are free in Malawi, women who are not working with low monthly income of less than \$100 cannot afford to pay for transport to go for screening services which are only offered in few health facilities in Malawi.

Cervical Cancer Screening

The proportion of women screened after HIV diagnosis was 27.8%. In a study conducted by Msyamboza and colleagues (2016), the screening rate for HIV-positive women in Malawi was 15.9%. The screening rate increased by 11.9% for HIV-positive women. This increase might be due to the fact that women living with HIV infection are exposed to health information during their doctor appointments to get their ART drugs in addition to nation-

wide campaigns that call for all women to undergo screening. Despite HIV-positive women visiting ART clinics regularly to access drugs, the screening rate for HIV positive women is still low. This finding is in line with literature review study which was conducted in African countries where it was found that the screening rate in HIV-positive women was also low, for instance: Nigeria 9.4%, South Africa 22.3%, and Zimbabwe 9% (Ezechi et al., 2013; Maree & Moitse, 2014; Matangaidze et al., 2016). There is need for health care providers to follow up with these women during the ART appointment visits and provide them with the screening services. Additionally, the Malawi cervical cancer screening guidelines recommend that HIV-positive women should have annual cervical screening or at least once to have baseline data for evaluation for their follow-up annual screening for those with normal results (MOH, 2017). This indicates that there is noncompliance with cervical cancer screening guidelines for HIV-positive women in Malawi. If Malawi is to fight cervical cancer, the guidelines must be followed. Furthermore, the guidelines indicate that VIA targets women aged 30-45 years (Malawi, MOH, 2017). In studies, VIA positive rate and cancer suspects have been detected in women aged less than 30 years and above 45 (Msyamboza et al., 2016). This may be due to high HIV-prevalence rate among women aged 15-49 years. This calls for review of screening guidelines in the country and further research in VIA accuracy among post-menopausal women.

Additionally, 70% of the working women had been screened compared to 26.3% of those who were not working. Working in most Malawi community means a paid up job and not substance farming. The results indicated that 10 (3.4%) of the women were working. This is inconsistent with the findings in Malawi demographic health survey which has indicated that 63% of the women are working (MDHS, 2017). This may mean that 3.4% of the sample size is not the representation of the larger population of working women in Lilongwe, Malawi or the MDHS data is not correct as it is based on estimates.

Knowledge Regarding Cervical Cancer and Screening

The study findings revealed that women had t knowledge regarding cervical cancer and screening ($M = 25.63$, $SD 6.35$). This is inconsistent with previous studies conducted in Malawi on all women that reported that women had inadequate knowledge regarding cervical cancer signs and symptoms, risk factors, and preventive strategies (Maseko et al., 2015; Munthali et al., 2015; Mtengezo & Lee, 2018). This finding could reflect of the impact of health promotion messages that HIV positive women receive during their OPD appointment visits and the ongoing mass campaign about cancer and screening services on the radio and meetings by the First Lady and through the health talks at clinics by health care providers. Most radio stations and television in Malawi have public service announcements where the First Lady of Malawi campaigns for cervical cancer screening. She talks about the benefits of screening and disadvantages of not screening. And she calls for all women to go for screening. On the other hand, the impact of messages on the media needs to be evaluated. In Malawi, the urban households are more likely than rural households to own a television (45% versus 6%) and a radio (65% versus 36%) (MDHS, 2017). This may mean that those living in urban area get the information and more likely go for screening than those living in rural areas. On the other hand, even those living in urban areas, they may tune to other channels and miss the information. The impact of media announcement on cervical cancer screening uptake needs to be evaluated in both urban and rural areas.

Using logistic regression, knowledge is independently associated with screening. In the adjusted model, it showed that with 1 unit increase in knowledge score, women are 10% more likely to undergo cervical cancer screening services [OR = 1.10 (95% CI: 1.02, 1.19)] but the difference was not statistically significance between the non-screened and screened women. Both groups had high knowledge regarding cervical cancer and screening but their cervical cancer screening uptake was still very low. This may mean that knowledge is not

translating into practice or the respondents were answering questions in a manner that would be viewed favorable by the researcher. This finding concurred with the study conducted in South Africa by Maree and Meitse (2014) which found that women had knowledge regarding cervical cancer and screening, but the screening uptake was low (22.3%). The possible reason for not going for screening may be related to attitude, beliefs, and misinformation about screening procedure being painful (Mtengezo & Lee, 2018).

On the other hand, even though women had high knowledge regarding cancer and screening. On the other hand, almost half of the respondents were not aware that smoking, having a family member diagnosed with cancer, and taking family planning pills for a long time increases the woman's risk of developing cervical cancer. Previous studies in Malawi revealed that lack of knowledge and awareness about risk factors impacted screening uptake (Maseko et al, 2015; Munthali et al., 2015). Additionally, almost half of the respondents were not aware that there is treatment for cervical cancer. This finding is in line with a qualitative study done in Malawi which found that women were aware that there is no treatment for cervical cancer (Mtengezo & Lee, 2018).

On the other hand, the current found out that 84% of the women indicated that VIA is a means of receiving cervical cancer treatment if diagnosed early. This high knowledge may also indicate weakness in the closed ended questions as women could just guess responses. There is need to develop culturally targeted educational intervention programs for HIV positive women so that women become knowledgeable regarding cervical cancer signs and symptoms, risk factors, preventive strategies; and risks and benefits of screening.

Attitude Regarding Screening

The respondent's attitude score about cervical cancer screening ranged from 0-5 ($M = 4.12$, $SD = 1.33$). However, the respondent's attitude regarding screening, was higher in women who were screened ($M = 4.49$, $SD = 1.04$) with a range of 0-5 scores than those who

were not screened ($M = 3.98$, $SD = 1.41$). This finding is in line with a study conducted in Zimbabwe where it was found that 96.2% of the women indicated that they would like to undergo screening. However, this study identified several factors that could have prevented them from undergoing screening. Some women indicated that they feared the procedure 54 (18.6%). Some women felt shy to expose their private parts 49 (16.8%). Some were afraid of being diagnosed with cancer 45 (15.5%); and some were afraid of pain during the procedure 54 (18.6%). These findings are in line with studies conducted in Malawi and South Africa on barriers to screening where women believed that cervical cancer is caused by the exposure to the VIA process and that the procedure is painful (Maree & Moitse, 2014; Munthali et al., 2015, Mtengozo & Lee, 2018). However, in the current study, feeling shy to expose private parts to male service providers was not associated with screening as other studies found (Munthali et al., 2015, Mtengozo & Lee, 2018). Respondents further indicated that they would be comfortable to be screened by either male or female service providers. This reflects that women view screening as a health procedure that doctors of either sex can perform. Further, the logistic regression model showed positive association between attitude and screening. With 1 unit increase in attitude score, women are 36% more likely to undergo screening ($OR = 1.36$, 95% CI: 1.04-1.76). These results indicate that there is need for continued efforts to address women's attitude to promote screening uptake.

Social Support Networks

In simple logistic regression, the results indicate that the odds for screening were associated with social support networks ($OR = 1.16$, 95% CI: 1.01-1.34). In multivariate logistic regression, the odds of screening lost significance. Therefore, social support network is not independently associated with screening. It means that the variable exists but its influence on screening could not be directly detected in this study. Studies have indicated that friends offer information and advice relating to behavior change (Wigfall et al., 2015). The

reasons for protective effects of social support networks and income on screening needs to be further studied. The possible reasons would be that the instrument measured only positive dimensions of social support networks in influencing behavior change rather than the negative aspects of network like stigma. Only one-fifth (22.7%) of the participants indicated that family members tried to help them with financial support, and 54% of the women got emotional support from family members. The next study should consider measuring the negative dimension of social support network like exploring and understanding the meaning and lived experiences of stigma among women or individuals living with HIV/AIDS and their family members in Malawi. Understanding the negative aspect is critical for improving screening uptake and compliance.

Access to Screening Services

Only 96 (33%) of the women indicated that they received screening the first time they needed it from Government and Non-Governmental (CHAM and private) health facilities. The WHO indicated that access is related to affordability, availability, accommodation, accessibility, and acceptability (WHO, 2002). In terms of affordability, there are no user fees to access cervical cancer services in public and private-not-for-profit health facilities in Malawi, but the screening sites are far. This indicates that screening services are not integrated into HIV services. All HIV-positive women access the ART clinics for their treatment monthly or every three months in health facilities. If the services were integrated, it would lessen frequent hospital visits for preventive services as most women travel long distance to access screening services. The findings indicated that the majority, 239 (82.1%) of the respondents took more than 30 minutes to go to a health care facility. When women were asked if they travel less than or more than 30 minutes, most women reported more than an hour. This means that in the next study, the measure should be one hour as 30 minutes is considered as a short distance. This is in line with a case study report conducted in Malawi on

a woman who travelled 60 km for the whole day for post-VIA treatment at another facility (Lee et al., 2015). This means that women in rural areas cannot afford transport money. In this study, women could not afford transport money 116 (39.9%) to go for screening when they already had a hospital visit. On the other hand, there are screening sites in CHAM facilities close to them and they charge a small service fee like one dollar (Maseko et al., 2015; Munthali et al., 2015). But the women think this is payment for the services and they prefer to go to public health facilities and may pay as much as two dollars for transport (Mtengezo & Lee, 2018). This shows that screening services are not yet integrated with the ART services to prevent frequent hospital visits and to different facilities.

In terms of availability, the majority of the women (82%) reported that they travel more than 30 minutes to screening sites and they wait for a long time to be screened. These findings are in line with the study done in Malawi that showed that there were only 130 screening sites in the country (Msyamboza et al., 2015) and the women were dissatisfied with screening services in Malawi due to distance and waiting time (Maseko et al., 2014). In logistic regression, it showed that with 1 unit increase in access to screening services, women are 25% more likely to go for screening [OR = 1.25 (95% CI: 1.05, 1.48)]. This is in line with a qualitative study finding as respondents suggested that to increase access to screening services, there was need to integrate screening services with ART services so that women are screened as they start ART as part of comprehensive physical assessment and baseline data (Mtengezo & Lee, 2018). Unfortunately, the services are not integrated; therefore, women are unlikely to travel to the clinic just for screening if they are not having signs and symptoms of cancer. This may be a possible reason that women visit the clinic when they have signs and symptoms of cancer (Msyamboza et al., 2016). A possible explanation for this is that the majority of the women (96.6%) are not working and 88.7% of the women have a monthly income less than \$100. They might not be in a position to have sufficient financial resources

to go for preventive services when they are not sick. The Sustainable Development Goal (SDG) number 3 promises to “ensure healthy lives and promote well-being for all at all ages”. Specifically goal 3.4 which emphasize “reducing premature mortality from non-communicable diseases (NCDs)” and goal 3.7 which stipulates “ensuring universal access to sexual and reproductive health care services” (<https://sustainabledevelopment.un.org/sdgs>). As stipulated in a qualitative study, there is need to have targeted follow up screening dates together with ART visits (Mtengezo & Lee, 2018). Health care providers should check and remind the women on follow up screening dated at every hospital appointment visit. There is evidence in Kenya that showed that with targeted interventions for HIV-positive women, the screening rate was as high as 84% (Rosser et al., 2015). If we are to promote healthy lives of women with low income and living with HIV infection, opportunistic screening in the community and in health facilities should be encouraged to improve screening uptake. This calls for review of sexual and reproductive health and ART policies to deal with cervical cancer screening and follow-ups in all ART sites, health facilities and in the community.

In terms of accommodation, the study found that there were no equipment and the service providers were inadequate in most clinics where women visit for ART drug supply. The clinics could not accommodate women if they needed screening due to lack of trained health care providers and equipment. This is in line with a study done on health systems challenges in cervical cancer prevention program in Malawi. The study found that 52% of the facilities reported stock outs of supplies and in some facilities, women contributed money to buy acetic acid (Maseko et al, 2015). Additionally, the cervical cancer screening guidelines stipulate that the cervical cancer screening providers must be certified to conduct screening and treatment activities. There are only 272 active service providers in Malawi (MOH, 2017). The number of providers is inadequate, and not all preventive services might be provided. There is a shortage of health personnel and these same providers are also providing curative

and other services. The shortage of health workers is worse in rural areas than in urban areas and this might contribute to low screening rate (22.4%) in rural compared in urban (31.4%) areas. This calls for training all ART providers on VIA. The VIA is the recommended approach for cervical cancer screening by CDC for developing countries where there are resource constraints (CDC, 2013). On the other hand, almost all women (99%) had cervical cancer screening in either Government or CHAM facilities. In most of the Government or CHAM health facilities in Malawi, there is inadequate budgetary allocation which results in frequent stock outs of supplies for cervical screening like vinegar, speculums, cryotherapy unit, CO2 cylinders, thermos-coagulators, and infection prevention supplies (Msiyamboza et al., 2016). With all these challenges facing Malawi health care including the new cervical cancer guideline to extend the screening interval for HIV-positive women from one to three years (MOH, 2017) is counter-productive given the higher risk for cervical cancer among women living with HIV infection. Considering the HIV prevalence in the country, annual screening remains the recommended interval for women living with HIV infection. In the United States, to ensure that cervical cancer prevention remains a priority in HIV positive women, refined screening criteria such that HIV positive women undergo three consecutive annual screening. If women have normal Pap tests in three consecutive annual screening, thereafter, follow-up is recommended every three years (HIV/AIDS Treatment Guidelines, 2015).

In terms of acceptability, few women did not see the reason to go for screening because they thought that they were not sick. Others stated that they were too old and feared male service providers. This is in line with a qualitative study conducted by the researcher in Malawi on perceptions of women on screening. Women indicated that they did not see the reason for screening as they were either old or were already HIV positive, and others feared male service providers. These results indicate a need to address issues relating to

acceptability in preventive sexual and reproductive health services in elderly women and HIV-positive women on the benefits of screening and the disease process.

Reliability of the Measurement

The instrument was developed based on literature review and qualitative pilot study. The instrument covered the demographic characteristics and the five major concepts of the study: Knowledge, attitude, social support network, and access to screening services. Knowledge had 31 items with 4 subscales. The subscales included knowledge regarding risk factors of cervical cancer with 13 items and the Cronbach alpha was 0.87. Knowledge regarding signs and symptoms of cervical cancer with 11 items and the internal consistency for knowledge subscale had a Cronbach alpha of 0.90. Knowledge regarding prevention strategies of cervical cancer with 4 items and the internal consistency was not computed as it had few (4) questions. Awareness of cervical cancer, screening, and HIV/AIDS with 3 items and the internal consistency of the awareness sub-scale were not computed as it had few questions. Attitude regarding cervical cancer screening had 5 items and the internal consistency for attitude subscale had Cronbach alpha of 0.74. Social support network regarding cervical cancer screening had 11 items and the internal consistency for social support network had a Cronbach alpha of 0.81. Access to cervical cancer screening services had 12 items and the internal consistency for access to screening services had a Cronbach alpha of 0.88. The overall instrument had 59 items and the internal consistency for the overall instrument had a Cronbach alpha of 0.88. This means that the overall instrument had satisfactory internal consistency (reliability).

Summary of Discussion

This was the first empirical study to examine the prevalence of cervical cancer screening, the level of knowledge and attitude regarding cervical cancer and screening in Malawi; and to determine factors associated with screening behavior among Malawian HIV

positive women in Malawi. The prevalence of cervical cancer screening in women living with HIV infection in HIV support groups in Lilongwe District in Malawi was still low. In general, both women, those who received screening and women who were not screened had high knowledge regarding cervical cancer and screening. But women who were screened, had higher knowledge score ($M = 27.77$, $SD = 3.03$) compared to those who were not screened ($M = 24.80$, $SD = 7.07$) even though the difference was not statistically significant.

The respondents had a positive attitude regarding screening. The respondent's attitude regarding screening, was higher in women who were screened ($M = 4.49$, $SD = 1.04$) than those who were not screened ($M = 3.98$, $SD = 1.41$). This could be, the questions about VIA was asked to all women who were exposed to VIA procedure or not exposed. However, the majority were willing to be screened.

The respondents had social support networks that influence screening behavior. However, the mean values and standard deviation of respondent's social support networks score regarding screening, was higher in women who were screened ($M = 8.93$, $SD = 2.21$) with a range of 0-11 scores than those who were not screened ($M = 7.40$, $SD = 2.7$). The respondents had access to screening services. However, the respondent's access to screening services score was higher in women who were screened ($M = 10.84$, $SD = 1.98$) with a range of 4-12 scores than those who were not screened ($M = 9.86$, $SD = 1.84$). The factors independently associated with cervical cancer screening services include occupation OR = 5.12 (95% CI: 1.07, 24.43), knowledge OR = 1.1 (95% CI: 1.02, 1.19), attitude OR = 1.36 (95% CI: 1.04, 1.76), and access to screening services OR = 1.21 (95% CI: 1.01, 1.44). Respondents further suggested that efforts to promote screening uptake should focus on offering screening services in HIV support groups or within their communities, and to continue educating women on the benefits of screening. The Cronbach's alpha for whole instrument with 59 items and 4 subscales: knowledge with 31 items, attitude with 5 items, social support network

with 11 items, and access to screening with 12 items was 0.88. This means that the overall instrument was reliable to be used for women living with HIV infection in support groups.

Study Limitations

The study had methodological limitations which include: 1) The study focused on women enrolled in HIV support groups. This means that women were exposed to health information messages hence increased knowledge regarding cervical cancer and screening, Additionally, the sample may not be representative of all HIV positive women in Malawi, as a result, the findings cannot be generalised to all HIV positive women in Malawi. 2) For those women who were screened, there was limited data on what or who influenced them to undergo screening, family stigma and the role of spouses in screening was not investigated. 3) Descriptive correlational design creates a snapshot and results cannot be used to draw inferences about causal relationships between and among the variables. 4) Self-reports studies creates response bias. 5) The study instrument was developed based on literature review and qualitative study. The study adapted the demographic measures used in literature like occupation and income which is measured differently within Malawian context. In Malawi, occupation means paid job and income is measured by commodities that a person has like cattle, goats, bicycle and so on. Since the instrument was purpose designed, therefore, there is need to validate the tool in a larger sample.

Recommendations

The Malawi Ministry of Health vision is “Malawian women free from cervical cancer” and a screening coverage rate of 80% for all women aged 25-49 years...”. If this dream is to be realized, there is need to have synergetic efforts at a policy level, health facilities, nursing education and research.

Policy level. The policy level should ensure that adequate resources for cervical cancer prevention and control activities are available in all health facilities in the country.

The ART and SRH policies should be reviewed to facilitate universal and multiple access to screening services. Before introduction of ART, there should be a routine of cervical cancer screening among HIV positive women.

Health facilities. The health facilities as implementing agents for HIV and screening should integrate screening services into ART/HIV care and in HIV/AIDS programming activities. The health facilities incharge should budget for the procurement of screening supplies, and integrate the delivery of the supplies for VIA with monthly delivery of other drugs to all health facilities. There is need to promote screening services in the community by improving health posts to provide screening services. The health facilities should train more cervical cancer service providers. Community advocacy and awareness on the benefits of screening and the disease process should be increased by using existing Village Health Committee and Community Health Action Groups.

Nursing education. The training institutions should review pre-service curricula and incorporate cervical cancer screening core competencies in nursing and medical curricula.

Future research.

The study targeted only women living with HIV infection in support groups, there is need to have a comparison study for three groups: women living with HIV infection not in support groups, those in support groups, and HIV negative women. Since the instrument was purpose designed, there is need to validate the instrument and to test hypothesis (theory) in a larger sample. There is need to conduct a study on the role of social support networks (including spouses) in influencing screening behavior. Lastly, the negative dimension of social support network like family stigma regarding screening should further be explored.

Conclusion

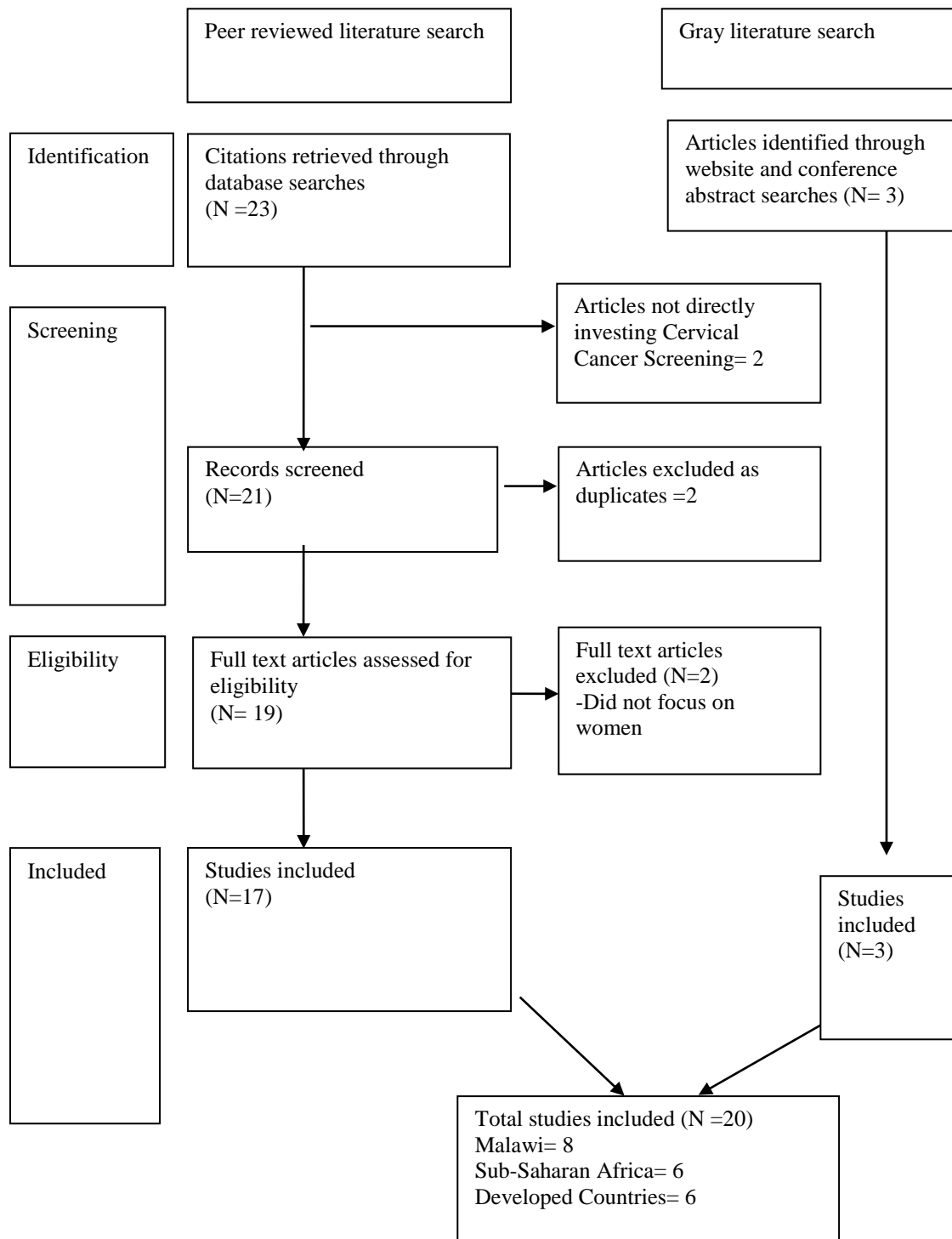
Cervical cancer is a preventable and curable disease when detected early through screening. Despite frequent visits to ART clinics, having knowledge and positive attitude regarding screening among HIV-positive women, screening rates remained low. This means that knowledge and a positive attitude regarding screening did not translate into practice. Efforts to ensure timely screening among HIV positive women may require community-based intervention such as health education messages regarding disease processes, risk factors, and benefits of screening and to promote screening uptakes in women living with HIV infection in Malawi.

ATTACHMENTS

A. MAP OF MALAWI IN AFRICA



B. FLOW DIAGRAM



C. EVIDENCE TABLE FOR CERVICAL CANCER SCREENING.

	Author	Purpose	Design and place	Screening rate and Test	Knowledge	Attitude	Social Influence	Access to health care
1	Chadza, 2012	To explore factors, those contribute to delay in seeking early diagnosis and treatment of cervical cancer among women in Malawi.	Qualitative -In-depth interviews using a semi-structured interview guide (24 women -25 - 60 years) diagnosed with cervical cancer)	VIA	Limited knowledge on: -Symptoms and signs of cancer			Limited accessibility: -Unavailability of cancer screening facilities -Financial resources for transport
2	Chidyao nga-Maseko et al., 2015	To identify barriers to utilization of cervical cancer prevention services in low and middle-income countries	Document review	VIA	Lack of awareness, and knowledge: -Risk factors - Prevention of cancer	Stigma in discussing reproductive health issues		
3	Fort et al., 2011	Investigated how women in rural Malawi make health-seeking decisions regarding cervical cancer screening	Qualitative study-in-depth interviews. Used semi-structured interview guide (20 Women in two sites of rural Malawi -10 each site, aged 20 - 50)	VIA	Facilitators : -Having symptoms of cervical cancer. Barriers: -Low knowledge levels	Barriers : -Low perceived susceptibility -Low perceived benefits from the service.		

4	Lee et al., (2015)	To highlight the difficulties at a grassroots level of obtaining appropriate treatment	Qualitative study-case study (25 years, HIV negative woman who was detected with a pre-cancerous)	VIA				lack of access to screening and treatment due to socioeconomic problems -Unavailability of services
5	Maseko et al., 2015	Exploring health system gaps responsible for the poor performance of the cervical cancer prevention program in Malawi.	Mixed methods cross-sectional quantitative and qualitative approach-survey - Checklist - Interview guide (14 districts. Service providers-41 service providers from 21 health facilities and nine district coordinators)	VIA				-Inadequate service providers who are poorly supervised; -lack of basic equipment and stock-outs of basic medical supplies -inadequate funding of the program
6	Maseko et al., 2014	To assess client satisfaction among women who had been screened for cervical cancer	Cross sectional study and quantitative approaches (120 women mean age of 33.7 (SD=10.1) who were screened for cervical cancer)	VIA	Satisfaction was predicted by having previous knowledge of the - VIA test, K			Satisfaction was predicted by: - having an appointment before the screening with adjusted odd ratio of 5.71(95% CI: 1.75. 18.63), - distance from the home to the health facility AOR = 0.11 (95% CI: 0.02, 0.65) - Waiting time AOR = 0.09 (95% CI: 0.09, 0.83).

7	Munthali et al., 2015	To assess service provider's perceptions about women's barriers to cervical cancer screening and treatment	Qualitative - in-depth interviews (13 district coordinators and 40 Service Providers service providers of cervical cancer screening)	VIA	Lack of awareness of the disease	Misconceptions about the disease that it is caused by exposure to the VIA process	Lack of involvement of husbands,	- Shortage of staff, -lack of equipment and supplies, - lack of supervision , -use of male service providers, -long distance ,
8	Msyamboga et al., (2016)	To evaluate the uptake and challenges of screening services by age, HIV sero-status and trends over a five-year period (2011–2015) in Malawi .	Program data analysis (2011–2015). 28.1 % were aged 29 or less, 56.1 %) were between 30–45, and 15.8 % were 46 years or more	- 26.5% (HIV+ and - women . - 15.9% HIV+ women .- VIA				Failure to treat VIA positive women eligible for cryotherapy due to stock out of gas, faulty/broken cryotherapy machine or no cryotherapy machine. -For cancer suspect, lack of loop electrosurgical excision procedure (LEEP) machine or inadequate gynecologists at the referral center. Cancer radiotherapy services were not available.

Evidence Table for cervical cancer screening in HIV positive women African countries

	Author	Purpose	Design and place	Screening rate and Test	Knowledge	Attitude	Social Influence	Access to health care
1	Ezechi, Gab-Okafor, Ostergrun, & Odberg Pettersson, (2013)	To assess the willingness and acceptability of cervical cancer screening	Cross-sectional study in Nigeria (1517 HIV positive women)	9.4%. Pap Smears	56.2% were aware of cervical cancer	79.8% accepted to take the test in the future		Barriers: Cost of the test Religious denial. Facilitators: Tertiary education level, aware of cervical

		among HIV positive Nigerian women						cancer, no living child, recent HIV diagnosis
2	Maree & Moitse, (2014).	To determine what women being treated for HIV and AIDS in South Africa knew about cervical cancer and cervical screening	Cross-sectional study in South Africa (315 HIV positive women)	22.3%. Pap Smears	78.7% had heard of cervical cancer, 62.9% knew about the Pap smear,	Fear the procedure.	Social network: Source of information: Health care workers	
3	Matangaidze et al., (2016)	To determine the knowledge, attitude and practices of HIV infected women on cervical cancer and cervical cancer screening in Zimbabwe.	Mixed methods -A cross sectional survey and qualitative in Zimbabwe (208 HIV positive women)	9%. VIA	21.6% knew cervical cancer disease. -55.3% knew that cervical cancer is preventable. -92.8% did not know screening tests	77.4% felt at risk of cervical cancer. -96.2% reported they would like to undergo screening in the future.		
4	Rositch et al., (2012)	To assess adult women's knowledge of human papilloma virus (HPV) and cervical cancer, and characterize their attitudes towards potential screening and prevention	Cross sectional study- Pre- and post in Kenya (409: 268 HIV positive and 141 HIV negative women median age 29 years	67% of HIV positive women . Pap Smears	18% had ever heard of HPV -69% new that Pap smears detect cervical cancer. -18% knew that routine Pap screening is the main way to prevent it	Most women reported: -high level of cultural acceptability for screening - low level of discomfort during Pap smear collection		-Over 80% of women reported that they would feel comfortable using a self-sampling device -82% would prefer at-home sample collection

		strategies						
5	Rosser et al., (2015)	To assess cervical cancer knowledge, personal risk, perception, stigma, and screening uptake among women enrolled in the HIV Study clinic in Kenya	Cross-sectional study in Kenya (106 HIV positive women)	84%. VIA	99% had heard of screening.	-70% felt at risk. - Feeling at risk and screening . was associated with duration of HIV diagnosis		48% would not get screened if they had to pay for it
6	Wake et al., (2009)	To ascertain the perception of cervical screening practices among HIV-positive women attending an ART clinic in urban South Africa	Mixed methods-prospective cross-sectional study and Qualitative study in South Africa (113 HIV positive women aged 21-64: randomly selected from the register)	59%. Pap Smears	-78% had never heard of cervical cancer. -40% had no correct knowledge about screening	-84.95 % expressed the desire to undergo screening in the future. -15% had fear and misunderstanding on screening	Reasons for not screening include they had never been asked to.	The time or place of the test meant that they were unable to attend.

Evidence Table for cervical cancer screening in HIV positive women in other developed countries.

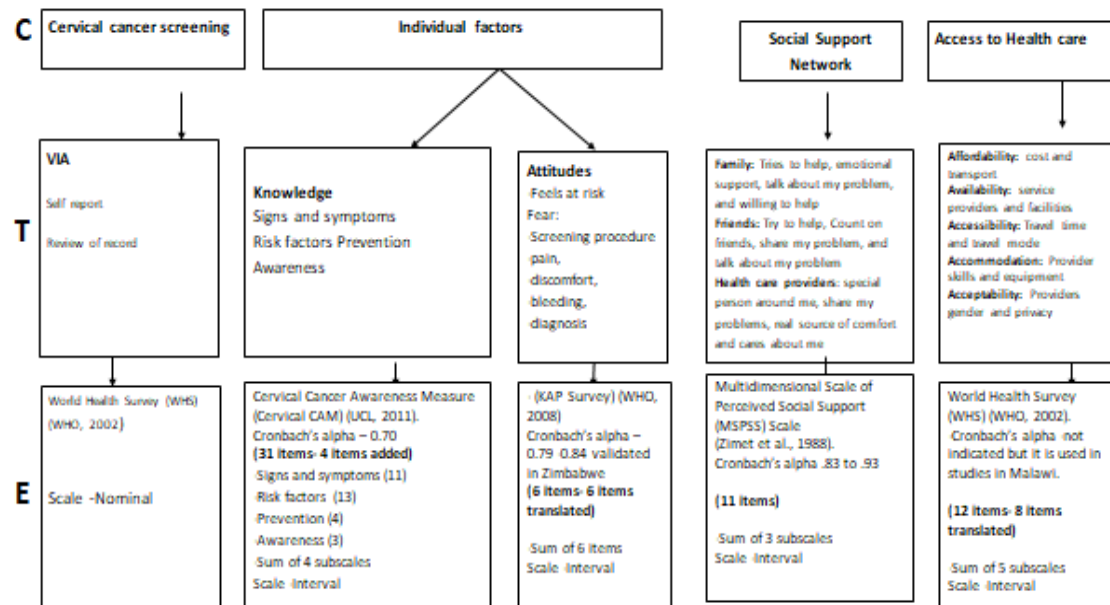
	Author	Purpose	Design and place	Screening rate and Test	Knowledge	Attitude	Social Influence	Access to health care
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1	Bynum, et al., (2013)	To assess the influence of health literacy on women living with HIV cervical cancer screening knowledge and behaviors in the southeastern USA.	Cross-sectional study (145 HIV positive women) in USA	Pap Smears	No difference in cervical cancer or HPV knowledge among those with low versus high health literacy.			
2	Dal Maso et al., (2010)	To evaluate the history of Pap-smear in HIV-positive women and to examine the socio-demographic, clinical, and organizational factors associated with adherence to cervical cancer screening in Italy.	Cross sectional study (1002 HIV positive women. Median age 41 years in Italy .	90.9%. Pap Smears	Lack of knowledge on follow-up care.	-Non-compliance to cervical cancer screening protocol due to low CD4 count	Social network -better screening participation was associated with getting advice from gynecologist	Difficulties in following the recommended protocol of combining routine follow-up of HIV infection with gynecological examination
3	Leece, Kendall, Touchie, Pottie, Angel, & Jaffey, (2010)	To determine the rate of cervical screening among HIV-positive women, and to determine whether screening rates were influenced by having a primary care	Retrospective Chart review (218 women) in Canada	58%. Pap smears and cytology				-Women with insurance coverage and with gynecological visits were more likely to receive screening

		provider.						
4	Sichanh , 2014	To determine the knowledge, awareness and attitudes about cervical cancer among Lao women attending or not an HIV treatment center	A cross-sectional case–control (320 women aged 25 to 65, living with HIV – Controls were 320 women matched for age and place of residence, not attending an HIV treatment center) in Asia	3.9%. Pap Smears	Reasons for not screening include: -the absence of symptoms -lack of information and ignorance of screening usefulness		Social network: Source of information: Health care professionals	
5	Wigfall et al., (2015)	To examine associations between WLHA's cervical cancer prevention knowledge and abnormal Pap test history in USA	Cross-sectional study (106 urban and rural WLHA from Ryan White-funded clinics and AIDS service organizations. Mean age 46.3±10.9 in the South-Eastern USA .	83%. Pap Smears	-84 % knew that WLHA should have a Pap test every year. - Women who had an abnormal Pap test knew follow-up care.		Social networks: Those who had friends with an abnormal Pap test, knew the screening period for HIV positive women yearly.	
6	Williams et al., (2015)	To examine sociocultural and structural factors associated with cervical cancer screening among HIV-	Qualitative study- in-depth interviews (20 African-American women) in USA	Pap Smears	Lack of knowledge about cervical cancer and screening,	Lack of perceived susceptibility to cervical cancer		

		infected African American in Alabama						
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D. CONCEPTUAL-THEORETICAL-EMPIRICAL STRUCTURE



E. RESEARCH ASSISTANTS TRAINING PROGRAM PLAN

Day 1		
Time	Activity	Responsible person
8.00-10.00 am	Study overview: Objectives, Confidentiality and IRB, survey consent form	Mtengezo
10.00-10.15 am	Tea Break	
10.15- 12.00 pm	Review of survey instrument by RA and content experts	Mtengezo Dr. MarySue Makin
12.00- 1.00 pm	Lunch	
1.00- 2.00 pm	Cognitive interviews by conducting FGD with 5 HIV positive women	Mtengezo
3.00- 4.00 pm	Debriefing	Mtengezo Dr. MarySue Makin
4.00- 4.15 pm	Tea Break	
4.15- 4.30 pm	Making corrections on the survey instrument	Mtengezo
Day 2		
Time	Activity	Responsible person
8.00-10.00 am	Recap	Mtengezo
10.00-10.15 am	Tea Break	
10.15- 12.30 pm	Survey administration practice and pretesting the instrument to 5 HIV positive women	RAs
12.30- 1.30 pm	Lunch	
1.30- 2.30 pm	Report observation on the survey instrument	RAs
2.30 pm	Close	
2.30- 5.00	The researcher makes corrections and prints copies of the survey instrument	Mtengezo

F. INFORMED VOLUNTARY CONSENT FORMS

English

University of Massachusetts, Boston
Department of Nursing
100 Morrissey Boulevard Boston, MA. 02125-3393

Daeyang Luke Hospital
P.O. Box 30330
Lilongwe

Please read this form and feel free to ask questions.

Study Title: Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi: A Cross-sectional Study

Principal Investigator: Jasintha Mtengezo, PhD candidate

Supervisors: Haeok Lee, RN, PhD, Professor: University of Massachusetts Boston
Mary Cooley, RN, PhD, Professor: University of Massachusetts Boston
Ling Shi, Bio-Statistician, PhD, Professor: University of Massachusetts Boston
MarySue Makin, MD, Obstetrician/Gynecologist: Daeyang Luke Hospital

Description of the Project

You are asked to take part in a research project to explore your views about cervical examination to detect cervical cancer in women who are living with HIV infection. The study will help to develop ways of promoting cervical cancer examination program for women who are living with HIV infection to prevent cervical cancer and live a quality life.

What will happen if you join the study?

If you agree to take part in this study, you will be asked to answer the health survey questions about yourself, your knowledge and attitudes regarding cervical cancer and screening, your social support networks, and access to cervical cancer screening services and verify your cervical cancer screening status. Responding to the questions will take approximately 30 to 45 minutes and will be done at your support group meeting place and using your preferred language.

Risks and Discomfort

The primary risks associated with this study are that some questions may be discomforting to you or that answering questions may make you tired. You may refuse to answer any questions or stop at any time due to discomfort, fatigue or distress.

Benefits

There are no direct medical benefits in participating in this study but the results from the study will help to develop ways of promoting cervical cancer examination programs among HIV-positive women to prevent cervical cancer so that HIV-positive women live more productive life.

Confidentiality and Anonymity:

Your part in this research is confidential. That is, the information gathered for this project will not be published or presented in a way that would allow anyone to identify you. You will be identified by a number code. A record of your data will be kept in a locked cabinet in the researcher's office and only the research team will have access to the data. The computer information will be protected by providing a code number and password only to the

research team and research assistant who will enter information into the computer. All printed materials will be stored by Ms. Mtengezo for a period of five years and then destroyed.

Voluntary Participation:

The decision to take part in this research study is voluntary. If you do decide to take part in this study, you may stop participation at any time without any fear of any kind of penalty. If you wish to stop participation, you should let the interviewer know immediately. The decision to participate or not participate in this study will not affect your health care services.

Rights:

You have the right to ask questions about this research before you sign this form and at any time during the interview and study. You can reach Ms. Mtengezo by telephone at 01-711-361. If you have any questions or concerns about your rights as a research participant, please contact:

1. The National Health Sciences Research Committee (NHSRC), Ministry of Health, P.O. Box 30377, Lilongwe 3. Telephone: +265 1-726 422/418 (Malawi). Email: mohdoccentre@gmail.com
2. The University of Massachusetts Boston, Quinn Administration Building-2-080, 100 Morrissey Boulevard, Boston, MA 02125-3393. Telephone: 617-287-5370 (U.S.A).

Study Consent Form

I have read the study information sheet. My questions have been answered. My signature on this form indicates that I understand the information and I consent to participate in this study and for the researcher to use my information in the presentations and written products as an aggregate data.

.....
_____	_____	_____
Printed Name	Signature of Participant	Date
.....
_____	_____	_____
Printed Name	Signature of Researcher	Date

Chichewa

Ndondomeko ya kafukufuku ndi Pepala lopempha chilolezo mutauzidwa ndondomeko yonse bwino bwino

University of Massachusetts Boston
Nursing
Department of Nursing
100 Morrissey Boulevard Boston, MA. 02125-3393

Daeyang College of
P.O. Box 30330
Lilongwe

Chonde werengani pepalali bwino bwino ndipo muli omasuka kufusa.

Mutu wakafukufukuyu: Kafukufuku ofuna kumva maganizo kwa amayi amene ali ndi kachilombo ka HIV pakhani yogwiritsa ntchito chithandizo choyezetsa khansa yakhomo la chibelekelo kuno ku Malawi.

Kafukufukuyi akupangidwa ndi: Jasintha Mtengezo- Amene akupanga maphunziro aukachenjede ku dziko la Amereka.

Woyang'anira: Haeok Lee, Mary Cooley, ndi Ling Shi: Aphunzitsi aku sukulu ya ukachenjede

ku dziko la Amereka.

Dokotala wamukulu amenene amathandiza azimayi kuchipatala cha

Daeyang.

MarySue Makin.

Ndondomeko ya ntchito

Mukupemphedwa kutenga nawo mbali pa kafukufuku wofuna kudziwa zomwe mukudziwapo ndi chilingaliro chogwiritsa ntchito chithandizo choyezetsa khansa yakhomo la chibelekelo. Kafukufukuyi anthandiza kupititsa patsogolo mwayi wa amayi amene ali ndi kachilombo ka HIV kuti aziyezetsa komaso kuti chisamaliro chimenene chimaperekedwa kwa amayi amene ali ndi kachilombo ka HIV chithe kuchepetsa imfa zobwera kuzera mu matenda a khansa yakhomo la chibelekelo.

Kodi chidzachitike ndi chani ngati mungatenge nawo mbali mu kafukufukuyu?

Ngati muvomere kutenga nawo mbali mu kafukufukuyu, mudzapemphedwa kuti muyankhe mafuso pa zomwe mukuziwapo za khansa yakhomo la chibelekelo komaso za chilingaliro chanu chogwiritsa ntchito chithandizo choyezetsa khansa yakhomo la chibelekelo. Izi zidzatenga pakatikakti pa mphindi makhumi atatu (30) ndi makumi anayi (45) ndipo kudzachitikira komwe mumakumana pa gulu lanu komanso mchilankhulo chomwe mungakonde.

Zodandaulitsa ndi zoopsa

Zodandaulitsa ndi zoopsa za kafukufukuyu ndi zoti, mafunso ena akhoza kukhala osasangalatsa komanso kuyankha mafunso kukhoza kutopetsa. Mukhoza kukana kuyankha mafunso kapena kusiya nthawi ina iliyonse ngati inu kapena ofunsa siali omasuka, kapena mwatopa kapena mwapanikizika.

Ndiphindu lanji limene ndigapedze pakafukufuku ameneyu

Palibe chimene ndingapeze panopa pa kafukufukuyi. Koma anthandiza kupititsa patsogolo mwayi wa amayi amene ali ndi kachilombo ka HIV kuti aziyezetsa komaso kuti chisamaliro

chimenene chimaperekedwa chithe kuchepetsa matenda a khasa komaso imfa zobwera kuzera mu matenda a khansa yakhomo la chibelekelo.

Chinsinsi cha kafukufukuyu

Mbali yanu mu kafukufukuyu ndi ya chinsinsi; izi zikusonyeza kuti, china chilichonse mutatiuze mu kafukufukuyu sichidzaulutsidwa kapena kuonetsedwa mu njira yoti anthu atha kukuzindikirani. Mbali yanu idzadziwika kudzera mu ma nambala.

Kudzipereka pa kutenga mbali

Chiganizo chotenga nawo mbali kapena ayi pa kafukufukuyu ndi chosakakamiza. Ngati mungafune kusiya kutenga nawo mbali pa kafukufukuyu, mutha kusiya nthawi ina iliyonse mopanda mantha. Ngati mwafuna kusiya kutenga nawo mbali mu kafukufukuyu, mudziwitseni amene akupatsani mafunsowa kapena amene akukufunsani mafunso. Chiganizo chotenga nawo mbali kapena ayi mu kafukufukuyu sichisokoneza chisamaliro chanu ndi achipatala.

Ufulu

Muli ndi ufulu ofusa mafuso okhudzana ndikafukufukuyu musanasayinire pepalali komaso nthawi ina iliyose mkatikati mwakafukufukuyu. Mukhoza kulankhura ndi mayi Mtengezo pa nambala ya lamyayi 01 711 361. Ngati muli ndi fuso lina lilirose kapena madandaulo okhudza ufulu wanu ngati munthu otenga nawo mbali pakafukufukuyu, chonde yankhurani ndi oyimirira:

1. National Health Sciences Research Committee (NHSRC), Ministry of Health, P.O. Box 30377, Lilongwe 3, Malawi. Pa nambalayi: +265 1-726 422/418 (Malawi). Email: mohdoccentre@gmail.com
2. University of Massachusetts Boston, 100 Morrissey Boulevard, Boston, Quinn Administration Building-2-080, MA 02125-3393. U.S.A. Pa nambalayi: 617-287-5370.

Pepala lopempha chilolezo

Ndawerenga pepalali bwino lomwe. Mafuso anga ayankhidwa. Kusayina kwanga kukusonyeza kuti ndavetsetsa zose zomwe zakambidwa mu pepalali ndipo ndikulola kutenga nawo mbali mu kafukufukuyu. Komaso pakusayinira chikalatachi ndavomera kuti zolembedwazo zikagwiritsiddwe ntchito poulutsa zotsatira zakafukufukuyu.

.....	
.....
Dzina	Kusayinira kwa oyankha mafuso	Tsiku
.....	
.....
Dzina	Kusayinira kwa ofufuza	Tsiku

G. QUESTIONNAIRES

English

Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi

Time at beginning of interview: [__][__] [__][__] AM / PM

Date.....

Hour

Minutes

Code Number: E_____ .

Name of Support Group:

Geographical Location: ☐ Urban 1

☐ Rural 2

I would like to ask you some questions to help us analyze the data. Your responses to these questions will remain confidential, and be used for research purposes only.

Part 1: Socio-demographic Information

Q1. What is your occupation?

- ☐ House wife ... 1
- ☐ Working (write your work) ... 2
- ☐ Don't know/not sure88

Q2. What is your religion?

- ☐ Christian1
- ☐ Moslem2
- ☐ Others (Indicate)3
- ☐ Don't know/not sure88

Q3. How old are you?

_____ Years

- ☐ Don't know/not sure88

Q4. What is your marital status?

- ☐ Single1
- ☐ Married.....2
- ☐ Divorced/widowed.....3
- ☐ Other66

Q5. What is your highest education level you attained?

- ☐ Never attended school.....1
- ☐ Primary level.....2
- ☐ Secondary level.....3
- ☐ University level.....4
- ☐ Don't know/not sure88

Q6. What is your monthly household income from all sources?

- ☐ Less than K75, 0001
- ☐ K75, 000- less than K 200,0002
- ☐ Over K200, 000.....3
- ☐ Don't know/not sure88

Q7. In which year were you diagnosed with HIV infection?

- ☐ _____ Years now

- ☐ Don't know/not sure88

Q8. How many pregnancies have you ever had?

- ☐ Don't know/not sure88

Part II: Cervical Cancer Screening Behavior

Q9. Have you ever had cervical cancer screening (examined for cervical cancer)?

- ☐ Yes..... 1 (Continue Q.10)
☐ No2 (go to Q.14)
☐ Don't know/not sure88

Q10. If yes, when was the screening (examination) done?

- ☐ Before HIV diagnosis.....1
☐ After HIV diagnosis2
☐ Don't know/not sure88

Q11. If yes, how often have you been going for screening (examination)?

- ☐ Every year.....1
☐ Not every year2
☐ Don't know/not sure88

Q12. When did you have your most recent screening (examination)?

- ☐ Less than year1
☐ More than year2
☐ Don't know/not sure88

Ask for a woman's permission to check for the screening uptake in health passport.

Q13. What was the cervical cancer screening method?

- ☐ VIA1
☐ Pap Smear 2
☐ Other (specify) 3

Part 111: Knowledge about Cervical Cancer and Screening

A: Risk Factors of Developing Cervical Cancer (Respond to each item)

Q.	Do you think the following factors may increase the woman's chance of developing cervical cancer?	1	2	88
14	Smoking	Yes	No	Do not know/ Not sure
15	Having many sexual partners	Yes	No	Do not know/ Not sure
16	Having a sexual partner with many previous sexual partners	Yes	No	Do not know/ Not sure
17	Having a sexual partner who is not circumcised	Yes	No	Do not know/ Not sure
18	Having sex at an early age	Yes	No	Do not know/ Not sure
19	Having a weakened immune system (because of HIV/AIDS)	Yes	No	Do not know/ Not sure
20	Infection with HPV (Human Papilloma Virus)	Yes	No	Do not know/

				Not sure
21	Having sexually transmitted infection	Yes	No	Do not know/ Not sure
22	Having a family member diagnosed with cancer	Yes	No	Do not know/ Not sure
23	Inserting traditional medicine into the vagina	Yes	No	Do not know/ Not sure
24	Taking family planning pills for a long time	Yes	No	Do not know/ Not sure
25	Having many children	Yes	No	Do not know/ Not sure
26	Not going for regular screening	Yes	No	Do not know/ Not sure

B: Signs and Symptoms of Cervical Cancer. (Respond to each item)

	Do you think the following are signs and symptoms of cervical cancer?	1	2	88
27	Vaginal bleeding between periods	Yes	No	Do not know/ Not sure
28	Menstrual periods that are heavier or longer than usual	Yes	No	Do not know/ Not sure
29	Vaginal bleeding after the menopause	Yes	No	Do not know/ Not sure
30	Vaginal bleeding during or after sex	Yes	No	Do not know/ Not sure
31	Excessive vaginal discharge that smells unpleasant	Yes	No	Do not know/ Not sure
32	Vaginal itching or irritation	Yes	No	Do not know/ Not sure
33	Pain or discomfort during sexual intercourse	Yes	No	Do not know/ Not sure
34	Lower back pain	Yes	No	Do not know/ Not sure
35	Pelvic pain	Yes	No	Do not know/ Not sure
36	Frequent urination	Yes	No	Do not know/ Not sure
37	Unexplained weight loss	Yes	No	Do not know/ Not sure

C: Prevention of Cervical Cancer (Respond to each item)

Q	Can the following actions prevent cervical cancer?	1	2	88
38	Male circumcision	Yes	No	Do not know/ Not sure
39	Cervical cancer screening (examining the cervix)	Yes	No	Do not know/ Not sure
40	Proper and regular condom use	Yes	No	Do not know/ Not sure
41	HPV Vaccination	Yes	No	Do not know/ Not sure

D: Awareness about Cervical Cancer, screening and HIV (Respond to each item)

		1	2	88
42	A woman who is HIV positive should undergo cervical cancer screening at least once per year.	Yes	No	Do not know/ Not sure
43	A woman who is HIV positive is at higher risk of developing cervical cancer than a woman who is HIV negative.	Yes	No	Do not know/ Not sure
44	Cervical cancer develops slowly and can be cured if detected early	Yes	No	Do not know/ Not sure

Q45. There is no treatment for cervical cancer?

- ☐ Yes 01
☐ No02
☐ Don't know/not sure.....88

Q46. Is there cervical cancer screening services nearby or at the same location where you are getting ARVs?

- ☐ Yes 01
☐ No02
☐ Don't know/not sure.....88

Q47. Who performs cervical cancer screening?

- ☐ Male providers 01
☐ Female providers.....02
☐ Both Male and Female providers.03
☐ Don't know/not sure.....88

Q55. How did you get the information about cervical cancer and screening? (Tick all that apply)

- ☐ Family member.....01
☐ Friends02
☐ Health care providers.....03
☐ Media (radio/TV).....04
☐ Pamphlets/Newspapers05
☐ Others (specify).....06

Attitude regarding cervical cancer screening (Respond to each item)

Q48. Whom would you be comfortable to perform cervical cancer screening on you?

- ☐ Male providers.....1
☐ Female providers.....2
☐ Both Male and Female providers3
☐ None of the above.....4

Q.	What is your opinion on these questions	1	2	88
49	If an opportunity is given to you to do the screening (examination), would you be willing to do the examination?	Yes	No	Do not know/ Not sure
50	Do you fear cervical Cancer screening procedure?	Yes	No	Do not know/ Not sure
51	Do you feel shy to expose your private parts during the procedure to young or male service providers?	Yes	No	Do not know/ Not sure
52	Are you afraid of pain/discomfort during cervical cancer screening procedure?	Yes	No	Do not know/ Not sure
53	Are you afraid of bleeding during and after cervical cancer screening procedure?	Yes	No	Do not know/ Not sure
54	Are you afraid of being diagnosed with cervical cancer after undergoing the screening?	Yes	No	Do not know/ Not sure

Part VI: Social Support Networks (Respond to each item)

	Item	1	2	88
	Health care providers			
56	Is the health care provider always available when you need cervical cancer screening services?	Yes	No	Do not know/ Not sure
57	Can you share your concerns about cervical cancer screening with a health care provider?	Yes	No	Do not know/ Not sure
58	Have health care providers ever counselled (talked to) you about cervical cancer screening?	Yes	No	Do not know/ Not sure
	Family members			
59	Does your family try to help you with financial support to go for cervical cancer screening?	Yes	No	Do not know/ Not sure
60	Do you get the emotional help and support you need from your family regarding HIV and cervical cancer screening?	Yes	No	Do not know/ Not sure
61	Can you discuss about cervical cancer screening with your family?	Yes	No	Do not know/ Not sure
62	Have your family members ever encouraged you to go for cervical cancer screening?	Yes	No	Do not know/ Not sure
	Friends			
63	Have your friends ever recommended to you cervical cancer screening?	Yes	No	Do not know/ Not sure

64	Can your friends provide social support when found (diagnosed) with cervical cancer?	Yes	No	Do not know/ Not sure
65	Do you have friends with whom you can share your results of screening (examination)?	Yes	No	Do not know/ Not sure
66	Can you encourage your friend to go for cervical screening?	Yes	No	Do not know/ Not sure

Part V: Access to cervical cancer screening

Q67. The last time you needed cervical cancer examination, did you get it?

- ☐ Yes01
☐ No.....02
☐ Do not know/Not sure88

What are the reasons that best explain why you did not get the examination for cervical cancer? (Respond to each item)

	Reasons	1	2	88
	Affordability			
68	No money for transport	Yes	No	Do not know/ Not sure
	Availability			
69	Did not know where to go	Yes	No	Do not know/ Not sure
70	Screening sites are far (long distance)	Yes	No	Do not know/ Not sure
	Accessibility			
71	Previously, I was badly treated	Yes	No	Do not know/ Not sure
72	Long waiting time	Yes	No	Do not know/ Not sure
	Accommodation			
73	The health care providers are inadequate	Yes	No	Do not know/ Not sure
74	There were no equipment and supplies	Yes	No	Do not know/ Not sure
75	I thought I was not sick	Yes	No	Do not know/ Not sure
76	Could not take time off my work/had other commitments/ laziness	Yes	No	Do not know/ Not sure

	Acceptability			
77	There is no privacy at the clinic	Yes	No	Do not know/ Not sure
78	Providers are males	Yes	No	Do not know/ Not sure
79	I do not see the reason to go for screening as I am too old/too young	Yes	No	Do not know/ Not sure

Q80. Where did you go for cervical cancer screening?

- ☐ Government Health facility1
- ☐ CHAM Health facility2
- ☐ Private Health facility3

Q81. How do you travel when going to the clinics (HIV Clinic/cervical cancer screening)?

- ☐ Public transport1
- ☐ Private/own car2
- ☐ Bicycle/walk3

Q82. How long (estimated time) does it take to get to the clinic/examination site from where you live?

- ☐ Less than 30 Minutes1
- ☐ More than 30Minutes2

Q83. Any other suggestions on how best cervical cancer screening services would be improved to increase uptake?

.....

THE END.

THANK YOU!

Chichewa

Ndondomeko Yofunsa Mafunso

Kafukufuku ofuna kumva maganizo kwa amayi amene ali ndi kachilombo ka HIV pakhani yogwiritsa ntchito chithandizo choyezetsa khansa yakhomo la chibelekelo kuno ku Malawi.

Nthawi yoyambira kuyankha mafunso: [____][____] [____][____] M'mawa/madzulo

Hour

Minutes

Nambala ya chinsinsi ya pepalali : C_____.

Dzina la gulu (support group) ndi _____.

Dera lochokera: ☐ Urban..... 1

☐ Rural..... 2

Tsopano tikufuna kukufusani mafunso amene atithandize kutanthauzira kafukufuku wathuyu. Mayankho anu adzasungidwa mwachisisi ndipo adzangogwiritsidwa ntchito pa pakafukufuku yekhayu basi.

Gawo loyamba: Mafunso otsatirawa ndi okhudzana ndi inuyo

Funso 1. Kodi mumagwira ntchito?

- ☐ Ayi sindigwira ntchito01
- ☐ Eya ndimagwira ntchito (Ntchulani) 02
- ☐ Sindikudziwa/ Ndikukayikira.....88

Funso 2. Ndinu a chipembedzo chanji?

- ☐ Chikhirisithu1
- ☐ Chisilamu2
- ☐ Yakho lina (Ntchulani)3
- ☐ Sindikudziwa/ Ndikukayikira88

Funso 3. Muli ndi zaka zingati? Zaka.....

- ☐ Sindikudziwa/ Ndikukayikira.....88

Funso 4. Kodi muli pa banja?

- ☐ Ayi sindanakwatiwepo01
- ☐ Eya ndiri pa banja02
- ☐ Banja linatha/ Ndine wamasiye.....03
- ☐ Yakho lina (Ntchulani).....04

Funso 5. Kodi sukulu munalekeza kalasi yanji?

- ☐ Sindinaphunzirepo.....01
- ☐ Pulayimale sukulu.....02
- ☐ Sekondale sukulu.....03
- ☐ Yunivesite04
- ☐ Sindikudziwa/ Ndikukayikira.....88

Funso 6. Kodi pa khomo panu, mumapeza ndalama zingati pamwezi?

- ☐ Zochepera K75, 000.....01
- ☐ Pakati pa K75 000 osapitilira K200 00002
- ☐ Kuposera K200 000.....03
- ☐ Sindikudziwa/ Ndikukayikira.....88

Funso 7. Kodi munapezeka ndi kachirombo koyambitsa Edzi mchaka chiti?

- ☐ Papita zaka
- ☐ Sindikudziwa/ Ndikukayikira.....88

Funso 8. Kodi munatengapo mimba kangati?

☐ Sindikudziwa/ Ndikukayikira.....88

Gawo Lachiwiri: Mafunso otsatirawa ndi okhudzana ndi Kuyezetsa Khansa Yakhomo la Chibelekelo

A. Zomwe mukuziwapo zokhudzana ndi Khansa Yakhomo la Chibelekelo

Funso 9. Munayamba mwayezedwapo khasa yakhomo lachibelekelo?

☐ Eya1(Pitirizani Q.10)

☐ Ayi2(Pitani Q. 14)

☐ Sindikudziwa/ Ndikukayikira88

Funso 10. Ngati mwabvomera, munayezedwa liti?

☐ Ndisanayezetse HIV1

☐ Nditayezetsa kale HIV2

☐ Sindikudziwa/ Ndikukayikira88

Funso 11. Ngati mwabvomera, munayezetsa kangati?

☐ Chaka chirichonse1

☐ Osati chaka chirichonse2

☐ Sindikudziwa/ Ndikukayikira88

Funso 12. Ngati mwabvomera, munayezedwa liti komaliza?

☐ Chaka chisanathe1

☐ Chaka chadutsa2

☐ Sindikudziwa/ Ndikukayikira88

Phephani kuti muwone pamene analemba kuti ayezetsa khasa yakhomo lachibelekelo

Funso 13. Kodi anagwiritsa njira yanji pokuyezani?

☐ VIA1

☐ Pap Smear2

☐ Njira zina (Ntchulani)3

Gawo Lachitatu: Mafunso otsatirawa ndi okhudzana ndi zomwe mukudziwapo za khansa Yakhomo la Chibelekelo

A. Kodi zinthu IZI zingayambitse khansa yakhomo lachiberekero?

Funso	Zinthu	1	2	88
14	Kusuta	Eya	Ayi	Sindikudziwa/ Ndikukayikira

15	Kugonana ndi athu ochuluka	Eya	Ayi	Sindikudziwa/ Ndikukayikira
16	Kugonana ndi mwamuna amene amagonana ndi anthu ochuluka	Eya	Ayi	Sindikudziwa/ Ndikukayikira
17	Kugogana ndi mwamuna osadulidwa	Eya	Ayi	Sindikudziwa/ Ndikukayikira
18	Kuyamba kugonana uli wachichepere	Eya	Ayi	Sindikudziwa/ Ndikukayikira
19	Kupezeka ndi kachiroambo ka HIV	Eya	Ayi	Sindikudziwa/ Ndikukayikira
20	Kupezeka ndi kachiroambo koyambitsa khansa ya khomo la chiberekero	Eya	Ayi	Sindikudziwa/ Ndikukayikira
21	Kupezeka ndi matenda opatsirana pogonana	Eya	Ayi	Sindikudziwa/ Ndikukayikira
22	Zakumtundu	Eya	Ayi	Sindikudziwa/ Ndikukayikira
23	Muchitidwe woyika makhwala achikuda kumasoku	Eya	Ayi	Sindikudziwa/ Ndikukayikira
24	Kugwirista ntchito mapiritsi ngati njira yolera	Eya	Ayi	Sindikudziwa/ Ndikukayikira
25	Kubereka kwambiri	Eya	Ayi	Sindikudziwa/ Ndikukayikira
26	Kusayezetsa khansa lakhomo lachiberekero pafupi pafupi	Eya	Ayi	Sindikudziwa/ Ndikukayikira

B. Zizindikiro za khansa yakhomo la chibelekero

Funso	Kodi zinthu zosatirazi ndi zizindikiro za khansa yakhomo la chibelekero?	1	2	88
27	Kusamba pafupi pafupi	Eya	Ayi	Sindikudziwa/ Ndikukayikira
28	Kusamba mopitilira komaso kutaya magari ambiri posamba	Eya	Ayi	Sindikudziwa/ Ndikukayikira
29	Kuyambiranso kusamba utasiya kaye	Eya	Ayi	Sindikudziwa/ Ndikukayikira
30	Kutuluka magari pogonana	Eya	Ayi	Sindikudziwa/ Ndikukayikira
31	Kutuluka chikazi chambira komaso chonukha	Eya	Ayi	Sindikudziwa/ Ndikukayikira
32	Kumva kuyabwa kumusi	Eya	Ayi	Sindikudziwa/

				Ndikukayikira
33	Kumva kupweteka pogonana	Eya	Ayi	Sindikudziwa/ Ndikukayikira
34	Kupweteka kwa nsana	Eya	Ayi	Sindikudziwa/ Ndikukayikira
35	Kumva kupweteka muchinena	Eya	Ayi	Sindikudziwa/ Ndikukayikira
36	Kukodza pafupi-pafupi	Eya	Ayi	Sindikudziwa/ Ndikukayikira
37	Kuwonda	Eya	Ayi	Sindikudziwa/ Ndikukayikira

C. Kupewa khansa yakhomo la chibelekero

Funso	Kodi zinthu zosatirazi zingathandize kupewa khansa yakhomo la chibelekero?	1	2	88
38	Mudulidwe wa bamboo	Eya	Ayi	Sindikudziwa/ Ndikukayikira
39	Kuyezetsa khansa yakhomo la chibelekero	Eya	Ayi	Sindikudziwa/ Ndikukayikira
40	Kugwiritsa ntchito kondomu moyenera pogonana	Eya	Ayi	Sindikudziwa/ Ndikukayikira
41	Kulandira katemera wa khansa yakhomo la chibelekero	Eya	Ayi	Sindikudziwa/ Ndikukayikira

D. Zomwe tikudziwapo zankhani yakhansa yakhomo la chibelekero, kuyezesa ndi HIV

Funso	Kodi zithu zosatirazi zingathandize kupewa khansa yakhomo la chibelekero?	1	2	88
42	Mai amene ali ndi kachilombo ka HIV ayenera kuyezetsa Khansa yakhomo lachiberekero chaka chirichonse	Eya	Ayi	Sindikudziwa/ Ndikukayikira
43	Amayi amene ali ndi kachilombo ka HIV ali pa chiwopsezo chachikulu chopezeka ndi khansa lakhomo lachiberekero	Eya	Ayi	Sindikudziwa/ Ndikukayikira
44	Bvuto la Khansa yakhomo lachiberekero limayamba pang'onopang'no ndipo khansa ndiyochilitsika osati HIV	Eya	Ayi	Sindikudziwa/ Ndikukayikira

Funso 45. Kulibe mankhwala a Khansa yakhomo lachiberekero?

- ☐ Eya1
- ☐ Ayi2
- ☐ Sindikudziwa/ Ndikukayikira88

Funso 46. Kodi pafupi ndi ART clinic, kumene mumalandira makhwala inuyo, Kuli malo oyedzerako Khansa yakhomo lachiberekero?

☐ Eya1

☐ Ayi2

☐ Sindikudziwa/ Ndikukayikira88

Q. 47. Kodi ndi ndani amayesa khansa yakhomo la chiberekero?

☐ Madokotala amuna1

☐ Madokotala achizimayi2

☐ Madokotala onse amuna ndi achizima.....3

☐ Sindikudziwa/Ndikukayikira88

Mafunso otsatirawa ndi okhudzana ndi mmene mumayiwonera nkhani yakuyezetsa

Khansa Yakhomo la Chiberekelo

Q. 48. Kodi mukhoza kukhala womasuka ndindani pokuyesani khansa yakhomo la chiberekero?

☐ Madokotala amuna1

☐ Madokotala achizimayi2

☐ Madokotala onse amuna ndi achizima.....3

☐ Sindikudziwa/Ndikukayikira88

Funso	Kufuna kumva maganizo anu pa nkhani izi:	1	2	88
49	Kodi mutapatsidwa mwawi wosakha kuti muyezetse khasa yakhomo la chiberekero, mungalore?	Eya	Ayi	Sindikudziwa/ Ndikukayikira
50	Kodi muli ndi mantha ndi mmene amayezera khasa yakhomo la chiberekero?	Eya	Ayi	Sindikudziwa/ Ndikukayikira
51	Kodi mungachite manyazi kukuyezani khansa yakhomo la chibelekeri ndi dokotala wachichepere kapena wamwamuna?	Eya	Ayi	Sindikudziwa/ Ndikukayikira
52	Kodi mumawopa kukayezetsa chifukwa choti zimapweteka/ kusowa mtendere poyezetsa/ ankayetsa khansa yakhomo la chiberekero?	Eya	Ayi	Sindikudziwa/ Ndikukayikira
53	Kodi mumawopa kukayezetsa chifukwa choti mayi amataya magari poyezetsa khansa yakhomo la chiberekero?	Eya	Ayi	Sindikudziwa/ Ndikukayikira

54	Kodi mumawopa kukayezetsa chifukwa choti mukhoza kupezeka ndi khansa yakhomo la chiberekero?	Eya	Ayi	Sindikudziwa/ Ndikukayikira
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Chigawo lachinayi: Chithandizo chomwe mwakhala mukulandira kuchokela kwa anthu ena

Q. 55. Kodi munamva kwa ndani za khasa yakhomo la chiberekero ndi kuyezetsa? (Mayakho angapo atha kuperekedwa)

- ☐ Azimayi anzanga01
- ☐ Kwa a chibale anga....02
- ☐ Ku Chipatala kwa madokotala03
- ☐ Radio/TV/Wayilesi04
- ☐ Ndinawerenga mu news/pepala.....05
- ☐ Njira zina (fotokozani)06

Tsopano ndikufuna ndikufunsi mafunso okhuzana ndi chithandizo chomwe mwakhala mukulandira kuchokela kwa anthu.

	Item	1	2	88
	Significant others			
56	Kodi madokotala amapezeka pamene mukufuna kuyezetsa khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
57	Kodi muli ndi dokotala amene mungathe kumuudza maganizo anu a khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
58	Kodi madokotala amene amakuthandizani anakukambiraniponi nkhanu yoyezetsa khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
	Family			
59	Kodi abale anu amakuthandizani ndi ndalama kuti mukayezetse khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
60	Kodi abale anu amakuthandizani kupeza yakho ya nkhawawa zanu zokhuzana ndikuyezetsa khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
61	Kodi mukhonza kukamba za mavuto anu akhansa la khomo lachiberekero ndi abale anu?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
62	Kodi abale anu amakulimbikitsani kuti mupange chiganizo chokayezetsa khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
	Friends			
63	Kodi anzanu amakhala okonzeka kukuthangitirani kupanga maganizo okayezetsa khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
64	Kodi anzanu akhodza kukuthandizani mutapezeka ndi khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira

65	Kodi muli ndi anzanu omwe mungawauze zosatira zanu mutayezetsa khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira
66	Kodi mukhonza kuwauza anzanu kuti akayezetse khansa la khomo lachiberekero?	Ayi	Eya	Sindikudziwa/ Ndikukayikira

Gawo Lachisanu: Mafunso otsatirawa ndi okhudzana ndi zomwe zingalepheletse mai kukayezetsa Khansa Yakhomo la Chiberekero

Q. 67. Kodi nthawi imene mumafuna kuyezetsa khasa yakhomo la chiberekero, zinatheka?

☐ Eya1

☐ Ayi2

☐ Sindikudziwa/ Ndikukayikira88

Sankhani zifukwa zomwe zinalepheretsa kuti muyezetse khasa yakhomo la chiberekero

Funso	Zifukwa	1	2	88
	Affordability			
68	Kusowa ndalama zoti ndiyendere (transport)	Eya	Ayi	Sindikudziwa/ Ndikukayikira
	Availability			
69	Sindikudziwa komwe amayezetsa khasa yakhomo la chiberekero	Eya	Ayi	Sindikudziwa/ Ndikukayikira
70	Zipatala zoyetsa khasa zili kutali	Eya	Ayi	Sindikudziwa/ Ndikukayikira
	Accessibility			
71	Achipatala sanandisamalire bwino	Eya	Ayi	Sindikudziwa/ Ndikukayikira
72	Timadikira nthawi yayitali	Eya	Ayi	Sindikudziwa/ Ndikukayikira
	Accommodation			
73	Kulibe madokotala woyeza khasa yakhomo la chiberekero	Eya	Ayi	Sindikudziwa/ Ndikukayikira
74	Kunalibe zipangizo zoyezera khasa yakhomo la chiberekero	Eya	Ayi	Sindikudziwa/ Ndikukayikira
75	Sindikudwala	Eya	Ayi	Sindikudziwa/ Ndikukayikira
76	Ndimasowa nthwawi/mpata	Eya	Ayi	Sindikudziwa/ Ndikukayikira
	Acceptability			
77	Kulibe chinsinsi ku chipatala	Eya	Ayi	Sindikudziwa/ Ndikukayikira
78	Madokotala ndi amuna	Eya	Ayi	Sindikudziwa/ Ndikukayikira
79	Sindikuwona chifukwa chokayezetsera khasa yakhomo la chiberekero chifukwa ndine wamkulu/mwana	Eya	Ayi	Sindikudziwa/ Ndikukayikira

Q. 80. Kodi munakayezetsa kuti khasa yakhomo la chiberekero?

- ☐ Kuchipatala cha boma1
- ☐ Kuchipatala cha mission2
- ☐ Kuchipatala cholipira3

Q81. Kodi mmayenda bwanji mukamapita ku clinic ya HIV kapena ya Khansa?

- ☐ Ndimakwera minibasi1
- ☐ Ndimapita pa galimoto yathu.....2
- ☐ Ndimakwera njinga/ndimayenda3

Q82. Kodi mmatenga nthawi yotalika bwanji kukafika ku clinic ya HIV kapena ya Khansa kuchokera kumene mumakhala?

- ☐ Mphindi zochepera makumi atatu.....1
- ☐ Mphindi zopitirira makumi atatu..... 2

Q83. Kodi mungakhale ndi maganizo ena othandiza kupititsa mtsogolo nkhani yoyezetsa khasa yakhomo la chiberekelo?

.....
.....

MAFUNSO ATHERA PAMENEPA.

ZIKOMO!

H. RECRUITMENT ANNOUNCEMENT

English

..... **SUPPORT GROUP**

Research Opportunity: Views about Cervical Cancer Examination

Period: August- December 2017

- If you are a woman aged 18 or more, there will be a research to hear your views about cervical cancer examination by Mrs Mtengezo who is studying her degree at the University of Massachusetts Boston.
- The study will help to develop ways of preventing cervical cancer and live a quality life.
- The interview will be done at your support group meeting place at your convenient time and language on your agreed dates.
- The interview will last approximately 30-45 minutes and transport will be provided.
- Your participation in this study is confidential and the decision whether to take part in this research study is voluntary.
- You are free to withdraw from the study at any time. The decision to participate or not in this study will not affect your healthcare services.
- If you are interested or you have any questions about the study, please contact:
 - **Mrs Jasintha Mtengezo on (+265) 0888863080 anytime of the day.**

Chichewa

CHIDZIWITSO CHA KUFUNA ANTHU KUCHITA NAWO KAFUKUFUKU

..... **SUPPORT GROUP**

KAFUKUFUKU: MAGANIZO ANU PA ZAKUYEZETSA KHANSA YAKHOMO LA CHIBEREKERO

Nthawi ya Kafukufuku: August mpaka December 2017.

- Ngati ndinu mayi wa zaka 18 kapena kupitilira, kudzachitika kafukufuku wofuna kumva maganizo anu pankhani oyezetsa khansa la khomo la chiberekero ndi mai Mtengezo amanene akuchita maphunziro awo ku Amereka.
- Kumwa maganizo anu kudzathandiza kupeza njira zolimbikitsira kuyezetsa khansa lakhomo lachiberekero pofuna kupewa khansayi ndi kukhala ndi umoyo wabwino.
- Kucheza nanu kudzachitikira kumene mumakumana ngati gulu panthawi yomwe ndi yabwino kwa inu komanso mchilankhulo chomwe mungakonde.
- Kucheza nanu kudzatenga mphindi pakatikati pa makhumi atatu (30) ndi makumi anayi ndi asanu (45) ndipo mudzabwezeretsedwa ndalama zamayendedwe.
- Kutengako gawo kwanu mukafukufukuyu kudzakhala kwa chinsinsi ndipo mudzakhala omasuka kupanga nawo kapena ayi.
- Mudzakhala omasuka kusiya kuchita nawo zokambilana nthawi ina ili yonse. Ndipo chiganizo chanu chakuchita nawo kapena kusachita nawo sikudzakhudza thandizo lanu lomwe mumapeza ku chipatala.
- Ngati mwasangalatsidwa kuchita nawo kafukufukuyu kapena muli ndi mafunso ena, kumanani ndi:
 - Mai Mtengezo poyimba foni pa nambala iyi: (+265) 888863080 nthawi ina ili yonse.

I. SEEKING PERMISSION LETTERS

Lilongwe City Council (Urban) Office

University of Massachusetts Boston
Nursing
Department of Nursing
100 Morrissey Boulevard Boston, MA. 02125-3393

Daeyang College of
P.O. Box 30330
Lilongwe
March, 2017

The Chief Executive Officer
P.O. Box 30396
Lilongwe City, Malawi

Dear Sir/Madam,

APPLICATION TO CONDUCT A STUDY

I write to seek permission to use the Register for HIV support groups in Lilongwe City to randomly select 7 HIV support groups to participate in my study should my proposal be approved by the National Health Sciences Research Committee (NHSRC).

I am a Doctoral student at the University of Massachusetts Boston and Faculty member at Daeyang College of Nursing. I am planning to conduct a study entitled: **“Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi: A Cross-sectional Study”** in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Nursing.

The study will invite a minimum of 280 HIV-positive women aged 18 and above from randomly selected HIV support groups in Lilongwe City to participate in the study. Women will answer the health survey questions about knowledge and attitudes regarding cervical cancer and screening behavior. The study specific aims include:

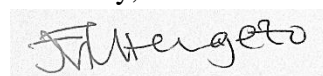
Specific Aim 1: To describe the status of cervical cancer screening behavior, knowledge and attitude among Malawian women living with HIV infection.

Specific Aim 2: To explore factors associated with cervical cancer screening behavior among Malawian women living with HIV infection.

The study involves no more than minimal risk but some questions may be discomforting to participants and that answering them may make them tired. There are no direct benefits in participating in this study but the results of the study will provide valuable insights for informing targeted educational interventions to prevent cervical cancer among this at-risk population.

Looking forward to your favorable response.

Sincerely,



**Mrs. Jasinth Mtengezo (PhD Candidate)
Chair)**

Jasinth.Mtengezo001@umb.edu
+265 888 863 080 (Malawi)



Dr. Haeok Lee (Dissertation

Haeok.Lee@umb.edu
+1 720 220 4018 (USA)

Lilongwe District Council (Rural) Office

University of Massachusetts Boston
Nursing
Department of Nursing
100 Morrissey Boulevard Boston, MA. 02125-3393

Daeyang College of
P.O. Box 30330
Lilongwe
March, 2017

The District Commissioner
Lilongwe District Council
P.O. Box 93
Lilongwe, Malawi

Dear Sir/Madam,

APPLICATION TO CONDUCT A STUDY

I write to seek permission to use the Register for HIV support groups in Lilongwe District Council Office to randomly select 5 HIV support groups to participate in my study should my proposal be approved by the National Health Sciences Research Committee (NHSRC).

I am a Doctoral student at the University of Massachusetts Boston and Faculty member at Daeyang College of Nursing. I am planning to conduct a study entitled: **“Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi: A Cross-sectional Study”** in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Nursing.

The study will invite a minimum of 200 HIV-positive women aged 18 and above from randomly selected HIV support groups in Lilongwe District to participate in the study. Women will answer the health survey questions about knowledge and attitudes regarding cervical cancer and screening behavior. The study specific aims include:

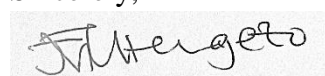
Specific Aim 1: To describe the status of cervical cancer screening behavior, knowledge and attitude among Malawian women living with HIV infection.

Specific Aim 2: To explore factors associated with cervical cancer screening behavior among Malawian women living with HIV infection.

The study involves no more than minimal risk but some questions may be discomforting to participants and that answering them may make them tired. There are no direct benefits in participating in this study but the results of the study will provide valuable insights for informing targeted educational interventions to prevent cervical cancer among this at-risk population.

Looking forward to your favorable response.

Sincerely,



**Mrs. Jasinth Mtengezo (PhD Candidate)
Chair)**

Jasinth.Mtengezo001@umb.edu
+265 888 863 080 (Malawi)

Dr. Haeok Lee (Dissertation

Haeok.Lee@umb.edu
+1 720 220 4018 (USA)

University of Massachusetts Boston

University of Massachusetts Boston
Nursing
Department of Nursing
100 Morrissey Boulevard Boston, MA. 02125-3393
Africa.

Daeyang College of
P.O. Box 30330
Lilongwe, Malawi.

June, 2017.

Dear Sir,

APPLICATION FOR ETHICAL CLEARANCE

I kindly request your clearance for me to conduct my proposed study in Malawi in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Nursing.

I am a Doctoral candidate at the University of Massachusetts Boston and Faculty member at Daeyang College of Nursing in Malawi. I am planning to conduct a study entitled:
“Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi: A Cross-sectional Study”

Please note that the National IRB in Malawi approves student protocols after the protocol has been approved by the student’s training institution. The study participants are HIV-positive women aged 18 and above. Women will answer the health survey questions about knowledge and attitudes regarding cervical cancer and screening behavior and they will also be asked to verify record of cervical cancer screening status. The specific aims of the study include:

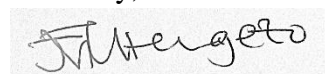
Specific Aim 1: To describe the status of cervical cancer screening behavior, knowledge and attitude among Malawian women living with HIV infection.

Specific Aim 2: To explore factors associated with cervical cancer screening behavior among Malawian women living with HIV infection.

The study involves no more than minimal risk but some questions may be discomforting to participants and that answering them may make them tired. There are no direct benefits in participating in this study but the results of the study will provide valuable insights for informing targeted educational interventions to prevent cervical cancer among this at-risk population.

Looking forward to your favorable response.

Sincerely,



Mrs. Jasinth Mtengezo (PhD Candidate)
Chair)
Jasinth.Mtengezo001@umb.edu
+265 888 863 080 (Malawi)



Dr. Haeok Lee (Dissertation
Chair)
Haeok.Lee@umb.edu
+1 720 220 4018 (USA)

National Health Sciences Research Committee (NHSRC)

University of Massachusetts Boston
Nursing
Department of Nursing
100 Morrissey Boulevard Boston, MA. 02125-3393

Daeyang College of

P.O. Box 30330

Lilongwe

July, 2017.

National Health Sciences Research Committee
Ministry of Health
P.O. Box 30377, Lilongwe 3
Malawi.

Dear Sir,

APPLICATION FOR ETHICAL CLEARANCE

I kindly request your clearance for me to conduct my proposed study in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Nursing.

I am a Doctoral student at the University of Massachusetts Boston and Faculty member at Daeyang College of Nursing. I am planning to conduct a study entitled: **“Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi: A Cross-sectional Study.”** The protocol has already been approved by my training institution, University of Massachusetts Boston as per attached documents.

This study involves HIV-positive women aged 18 and above. Women will answer the health survey questions about knowledge and attitudes regarding cervical cancer and screening behavior and they will also be asked to verify their cervical cancer screening status. The specific aims of the study include:

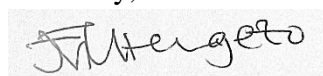
Specific Aim 1: To describe the status of cervical cancer screening behavior, knowledge and attitude among Malawian women living with HIV infection.

Specific Aim 2: To explore factors associated with cervical cancer screening behavior among Malawian women living with HIV infection.

The study involves no more than minimal risk but some questions may be discomforting to participants and that answering them may make them tired. There are no direct benefits in participating in this study but the results of the study will provide valuable insights for informing targeted educational interventions to prevent cervical cancer among this at-risk population.

Looking forward to your favorable response.

Sincerely,



**Mrs. Jasinth Mtengezo (PhD Candidate)
Chair)**

Jasinth.Mtengezo001@umb.edu
+265 888 863 080 (Malawi)



Dr. Haeok Lee (Dissertation

Haeok.Lee@umb.edu
+1 720 220 4018 (USA)

J. PERMISSION LETTERS

Lilongwe District Council (Rural) Office



LILONGWE DISTRICT COUNCIL

DISTRICT HEADQUARTERS, P.O. BOX 93, LILONGWE

All communications to be addressed to:
The District Commissioner

TEL: +(265) 1 756 110
FAX: +(265) 1 759 730

Ref. No. LL DC

3rd May, 2017

Jasinth Mtengezo
University of Massachusetts Boston
Department of Nursing
100 Morrissey Boulevard Boston, MA. 02125-3393

Dear Madam,

PERMISSION TO ACCESS THE HIV SUPPORT GROUPS REGISTER

I write to inform you that permission has been granted to use the Register for HIV support groups in Lilongwe Rural to randomly select HIV support groups to participate in your study entitled: "**Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi: A Cross-sectional Study**".

On behalf of Lilongwe District Council, I am wishing well in your studies.

Yours faithfully,



M. Kadewere
for: DISTRICT COMMISSIONER

Lilongwe City Council (Urban) Office



LILONGWE CITY COUNCIL

ALL CORRESPONDENCE TO BE ADDRESSED TO THE CHIEF EXECUTIVE OFFICER

Our Ref: LCC/ADMIN/7

P. O. BOX 30396
LILONGWE 3
MALAWI

Tel: (265) 01773144
Fax (265) 01770885

7th June, 2017

Mrs Jasinth Mtengezo (PhD Candidate)
Daeyang College of Nursing
P.O. Box 30330
LILONGWE

Dear Mrs Jasinth Mtengezo,

RE: REQUEST FOR PERMISSION TO CONDUCT AN ACADEMIC RESEARCH

We acknowledge receipt of your letter dated 29th March, 2017 requesting Lilongwe City Council for permission to carry out an academic research within Lilongwe City on **'Knowledge and Attitude Regarding cervical Cancer Screening among Women Living with HIV/AIDS'** The study is in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Nursing.

We have no objection to your request and you can proceed as planned. You are however advised to adhere to research ethics and that the findings of the Research should only be used for the intended purpose.

Yours Sincerely,

V.P.V. Mulula
Director of Health and Social Welfare Services

FOR: CHIEF EXECUTIVE OFFICER

University of Massachusetts Boston



July 28, 2017

Jasinth Mtengezo
CNHS

IRB Study Number: 2017150
Title of Protocol: Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi: A Cross-sectional Study (Agency American Cancer Society and Seed Global Health)
Type of Review: Expedited
IRB Approval Date: 7/28/2017
IRB Expiration Date: 7/28/2018

This Project has been reviewed and approved by the University of Massachusetts Boston IRB, Assurance # FWA00004634.

As Principal Investigator you are responsible for the following:

1. Submission in writing of any and all changes to this project (e.g., protocol, recruitment materials, consent form, etc.) to the IRB for review and approval prior to initiation of the change(s).
2. Submission in writing of any and all unexpected event(s) that occur during the course of this project.
3. Submission in writing of any and all unanticipated problems involving risks to subjects or others.
4. Use of only IRB approved copies of the consent form(s), questionnaire(s), letter(s), advertisement(s), etc. in your research. It is no longer necessary to have recruitment materials or consent forms stamped by the IRB.
5. Submission of a continuation prior to the IRB expiration date.
6. Submission of a final report upon completion of this project.

The IRB can terminate projects that are not in compliance with these requirements. The study is subject to continuing review on or before 7/28/2018, unless closed before that date. Please be aware of your expiration date and submit your continuing review at least 30 days before.

Contact (617-287-5374) or email (irb@umb.edu) if you have any questions or require further information.

Sincerely,

Sharon Wang, CIP, CIM
Senior IRB Administrator

National Health Research Council Malawi

Telephone: + 265 789 400
Facsimile: + 265 789 431

All Communications should be addressed to:

The Secretary for Health and Population



In reply please quote No.

MINISTRY OF HEALTH AND POPULATION

P.O. BOX 30377
LILONGWE 3
MALAWI

01 November 2017

Jasinth Mtengozo
College of Nursing and Health sciences
Lilongwe.

Dear Sir/Madam,

RE: Protocol 17/09/1876: Knowledge and Attitudes Regarding Cervical Cancer Screening among Women Living with HIV/AIDS in Malawi: A cross sectional study.

Thank you for the above titled proposal that you submitted to the National Health Sciences Research Committee (NHSRC) for review. Please be advised that the NHSRC has reviewed and approved your application to conduct the above titled study.

- **APPROVAL NUMBER** : 1876
- The above details should be used on all correspondence, consent forms and documents as appropriate.
- **APPROVAL DATE** : 01/11/2017
- **EXPIRATION DATE**
This approval expires on 31/10/2018. After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC Secretariat should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING**: All serious problems having to do with subject safety must be reported to the NHSRC within 10 working days using standard forms obtainable from the NHSRC Secretariat.
- **MODIFICATIONS**: Prior NHSRC approval using forms obtainable from the NHSRC Secretariat is required before implementing any changes to the protocol (including changes in the consent documents). You may not use any other consent documents unless those approved by the NHSRC.
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS**: Please contact the NHSRC on phone number +265 555 344 443 or by email on nhsdoccentre@gmail.com
- **OTHER**: Please be reminded to send in copies of your final research results for our records (Health Research Database).

Kind regards from the NHSRC Secretariat.

For: **CHAIRPERSON, NATIONAL HEALTH SCIENCES RESEARCH COMMITTEE**
Promoting Ethical Conduct of Research!



Executive Committee: Dr H. Chikoko (Chairperson), Dr B. Ngwira (Vice-Chairperson)
Registered with the USA Office for Human Research Protections (OHRP) as an International IRBIRB
Number IRB00012005-15WA0005976

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