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Health Care Determinants of Cervical Cancer Screening in Harare Zimbabwe

Dominic Chifamba
Walden University

Walden University

College of Health Sciences

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Dominic Chifamba

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Review Committee
Dr. Richard Palmer, Committee Chairperson, Health Services Faculty
Dr. Gudeta Fufaa, Committee Member, Health Services Faculty
Dr. Lee Caplan, University Reviewer, Health Services Faculty

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Abstract

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MHA, Franklin University, 2014

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Dissertation Submitted in Partial Fulfillment

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Abstract

Cervical cancer is the second leading cause of cancer deaths among women of all age groups in Zimbabwe, and mortality and incidence continue to increase. The purpose of this quantitative cross-sectional study was to assess the factors that influence the utilization of cervical cancer screening services by Zimbabwean women living in Harare, Zimbabwe. Because personal beliefs influence screening, this study was guided by the health belief model (HBM). A total of 394 women whose ages ranged from 18 to 65 years were recruited from a health care facility in Harare. A 40-item closed-ended questionnaire was used to assess participants' knowledge, attitudes, beliefs, and cervical screening practices. Descriptive analysis was used to characterize the sample, and logistic regression was used to explore the effects of the hypothesized predictor variables. Results indicated that the strongest predictors of screening were monthly income, marital status, and the HBM construct perceived barriers. The study may promote positive social change as findings may be used to formulate policies that may encourage women to adopt preventive screening practices, which may save lives and reduce costs associated with treating cervical cancer when diagnosed at an advanced stage.

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Dedication

This project is dedicated to the Almighty for giving me the strength and divine guidance in the relentless pursuit and completion of this academic milestone. My wife and best friend, Naomi, has been a constant source of support, encouragement, and unfailing love during this doctoral journey. I am truly thankful for having you in my life. This work is also dedicated to my parents who have always loved me unconditionally, for their unwavering support and for setting the perfect foundation in my life. Their exemplary life instilled in me the importance of hard work to accomplish my goals.

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Thanks to my sister, Spiwe, for her words of encouragement during the course of my dissertation journey. To all of my family members who encouraged me through their prayers and believed in me, I sincerely express my heartfelt gratitude to all of them.

To the women who participated in this study. Thank you for your cooperation.

Table of Contents

List of Tables

Chapter 1: Introduction to the Study

Globally, cervical cancer is one of the leading causes of death among women. It ranks as the third most common cancer in women and is the number four cause of death from cancer among women, with more than 473,000 new cases diagnosed every year and 253,500 deaths from the disease (World Health Organization [WHO], 2015). Worldwide, more than 1% of the female population will be diagnosed with and will die from malignant neoplasm of the cervix before reaching the age of 75 years (WHO, 2015). Eighty-five percent of the affected women are from developing countries, and according to the (WHO, 2015), cervical cancer is the leading cause of death among women in developing countries.

As deadly as cervical cancer is, it is one of the most preventable and curable malignancies when detected early (Centers for Disease Control and Prevention [CDC], 2014b). The Papanicolaou test, which is commonly known as the Pap or cervical smear, is a diagnostic method used in the detection of lesions that are potentially malignant or precancerous (CDC, 2014a). Discovered in the early 19th century, the Pap smear was one of the century's major medical breakthroughs. When used with other available diagnostic and clinical management tools like colposcopy and histopathology, the Pap smear is a powerful and highly effective screening tool for gynecological malignancies (CDC, 2016). The United States Preventive Services Task Force (2016) recommended routine preventive cervical cancer screening in women ages 21 to 65 years using the Pap smear. If detected early, cervical cancer is 100% curable (United States Preventive Services Task Force, 2016).

Cervical cancer incidence and mortality rates are higher in some populations and certain geographic areas of the world, such as Central and South America, South and Southeast Asia, and sub-Saharan Africa, which Zimbabwe is part of (WHO, 2013). In comparison to most countries that have successfully implemented preventive screening programs, in Zimbabwe, cervical cancer screening stands at 7.2% of all eligible women of childbearing age, 5.2% in rural areas, and 10.8% in urban areas (WHO, 2013). These very low percentages provide evidence that women in Zimbabwe continue to be vulnerable to dying prematurely from a disease that can be prevented. It is important to understand the reasons behind the underutilization of cervical cancer screening services, which was the goal of this study.

The aim of this study was to determine whether there were associations between the independent variables (family income, education level, and knowledge about cervical cancer, insurance coverage, marital status, parity, and distance from nearest health care center) and the dependent variable (utilization of cervical cancer screening services) among Zimbabwean women. Identifying the barriers associated with lack of preventive screening may help public health officials develop interventions that could improve outreach, which may increase the percentage of women screened for cervical cancer and reduce morbidity and mortality from the disease. Findings from this study may be used to save the lives of thousands of women who get diagnosed late and die from the disease every year, not only in Zimbabwe but throughout southern Africa and the rest of the developing world.

Background

Cervical cancer is a type of malignancy that arises in the cervical portion of the uterus, and in its early stages of development, the disease is asymptomatic (American Cancer Society, 2016). As part of the female reproductive system, the cervix is the lowermost part of the uterus that joins and opens into the vagina. Cervical cancer affects the cervix. It usually arises in the area called the transformation zone or squamocolumnar junction, an area where the columnar type of cells transition into the squamous type (American Cancer Society, 2016). Cervical cancer develops due to the aberrant growth of cells that can attack the surrounding tissues and organs and metastasize to other organs of the body (American Cancer Society, 2016).

Nearly all cancers arising from the cervical region of the uterus are caused by the human papillomavirus (HPV), which is sexually transmitted (CDC, 2014). Globally, more than 80% of the female population will contract the HPV virus at one stage in their lives; however, they will exhibit no symptoms or signs, and it may take more than a decade for them to develop cancer unless they are immunocompromised, most commonly by the human immunodeficiency virus (HIV; CDC, 2014b). With the availability and wide usage of antiretroviral drugs, women in Zimbabwe and many parts of sub-Saharan Africa are surviving an HIV diagnosis, which in the past was widely regarded as a death sentence, only to fall victim to the highly preventable cervical cancer (WHO, 2013). There is a need for concerted efforts to determine the reasons behind Zimbabwean women's failure to take advantage of available preventive screening methods, findings that may help curb the unnecessary deaths caused by cervical cancer. Ebu, Mupepi, Siakwa, and Sampselle

(2015) concluded that comprehensive education on cervical cancer screening and removal of access barriers are critical in reducing the risk associated with the disease and promoting women's health. Negative beliefs, such as the Pap smear collection being embarrassing and painful, and social barriers, such as religion and cultural values, were identified as significant barriers to the uptake of cervical cancer screening among women in Ghana (Ebu et al., 2015).

Researchers have identified a lack of knowledge about Pap smears as a major factor in the poor utilization of screening services in some developing countries. A study in Ghana showed 68% of respondents had not heard about the Pap smear, which suggested the importance of spreading knowledge about the test (Ndikom & Ofi, 2012). Studies carried out in Jamaica showed that major predictors of utilization of cervical cancer screening services included demographic factors, such as insurance coverage, income level, educational background, age, and marital status, in addition to parity (Ncube, Bey, Knight, Bessler, & Jolly, 2015). Most of these studies conclusions were that working women with a regular source of income or health insurance and at least high school education were likely to participate in routine cervical cancer screening. Other factors that influenced utilization included what women perceive as consequences of not having a Pap test, knowledge about the disease, cancer discussion with a health care provider, and knowing someone diagnosed with cervical cancer (Ncube et al., 2015).

Some studies have shown that less than 27% of women of childbearing age in sub-Saharan Africa, which includes Zimbabwe, have had cervical cancer screening (Mukama, Musabyimana, Musoke & Ndejjo, 2016; Teng et al., 2014; Williams et al.,

2013). In sub-Saharan Africa, the chances of developing and dying from cervical cancer, which is the second most common cancer in women living in developing countries, are 4-5 times higher than in developed countries (WHO, 2013). The availability of the Pap screening method makes cervical cancer highly preventable and treatable when diagnosed early. However, despite the incidence rates falling significantly in developed countries due to the availability of an effective screening tool, millions of women continue to be diagnosed late and die from the disease every year, particularly in developing countries like Zimbabwe where 9 out of 10 of the deaths occur (CDC, 2014a). Because HPV is sexually transmitted, being sexually active is a risk factor for developing cervical cancer (CDC, 2017).

Within the sub-Saharan region of Africa, the most common cancer among women ages 15-49 is cervical cancer, and in Zimbabwe, it is the second most common cancer among women in this age group (Africa Coalition on Maternal, Newborn, and Child Health, 2014). Currently, in Zimbabwe, it is estimated that 2,270 women are diagnosed with malignant cervical neoplasm on an annual basis, and 1,451 die from the disease (WHO, 2013). During its independence in 1980, Zimbabwe launched an ambitious cervical cancer screening program through the nationally administered National Cytology Services Laboratory, which saw 10 new cytotechnologists trained (Her Zimbabwe, 2015). However, even though this screening program was available, it never reached the expected levels; at the peak of the program between 1990 and 2000, only 60,000 women were screened annually (Her Zimbabwe, 2015). At the time when the number of women screened annually was expected to increase, the economic meltdown that gripped the

nation of Zimbabwe following the seizure of the minority White-owned farmland by the government resulted in mass exodus of skilled personnel, which resulted in more than 90% of the nation's cytotechnologists leave the country in search of better opportunities (Tevera & Crush, 2003).

Even though studies have been carried out in other regions including African countries, the generalizability of findings to continental Africa has been limited due to multiple factors (Tavafian, 2012). Africa is a continent of more than 50 countries whose cultures and beliefs are highly varied. Moreover, governments and health systems in each of these countries differ. Some have better health care networks than others, although even the best ones pale in comparison to those of developed countries. Therefore, the factors that affect the utilization of preventive cervical cancer screening services in each of these countries may differ. There is a need to investigate and understand the reasons behind the underutilization of preventive screening services among Zimbabwean women. Identifying these reasons may help in the development of recommendations that public health officials can use to improve preventive cervical cancer screening and save lives.

Problem Statement

Despite preventive cervical cancer screening services offered in Zimbabwe, a meager 7.2% of the women needing such services take advantage of them (WHO, 2013). The problem that I sought to address was the need for determining the factors that deter the utilization of preventive cervical cancer screening by Zimbabwean women. Identifying these factors may help reduce the number of deaths from cervical cancer. Globally, cervical cancer is the leading cause of death among women, particularly in

developing nations (Sreedevi, Javed, & Dinesh, 2015). However, cervical cancer is preventable if women participate in routine screening tests together with appropriate follow-up care (CDC, 2016). If detected early, cervical cancer is curable, with much higher survival rates than other cancers (CDC, 2016). Most Zimbabwean women, especially those living in rural areas, do not take advantage of preventive screening methods available for the early diagnosis of cervical cancer (Mupepi, Sampselle, & Johnson, 2011). It is important to investigate Zimbabwean women's knowledge level about cervical cancer and available screening services to determine the reasons behind the low utilization of screening services.

According to Mupepi et al. (2011), even though screening programs may be available in third world countries, most women still do not utilize them. Ntekim (2012) pointed out that sub-Saharan African countries have not recognized cervical cancer as a disease of concern because priority has been given to more obvious health-threatening infectious diseases like malaria, tuberculosis, diarrheal diseases, and HIV. Rosser, Hamisi, Njoroge, and Huchko (2015) found a critical shortage of health care personnel in Kenya, and this posed a major challenge for cervical cancer screening programs.

A very small percentage of Zimbabwean women participate in preventive cervical cancer screening despite the disease being the number two leading cause of death among women in Zimbabwe (WHO, 2013). Barone, Kleine, Luciani, Sankaranarayanan, and Sherris, Wittet, Kleine, Sellors, and Luciani, et al., (2009), concluded that the higher incidence of cervical cancer in developing countries was due to lack of effective screening methods and unexplored reasons for not utilizing available screening services.

Oche, Kaoje, Gana, and Ang (2013) pointed out that low knowledge levels about cervical cancer and available preventive services in Nigeria may be connected to the underutilization of cervical cancer screening services. These findings were consistent with the 2015 WHO study that indicated that even though cervical cancer screening programs have been introduced in some third world nations, very little success has been realized. Given the high burden of cervical cancer and the notable gaps in the awareness and utilization of preventive cervical cancer screening services among the women of Zimbabwe, it is important to investigate the knowledge levels, perceived barriers, and other factors affecting cervical cancer screening there.

Purpose of the

The purpose of this quantitative cross-sectional study was to explore cervical cancer screening practices with a special focus on factors responsible for the underutilization of cervical cancer screening services, including the knowledge gap about these services, among Zimbabwean women. Even though screening services for cervical cancer are widely available in Zimbabwe, very few women take advantage of these services, as less than 8% of those eligible participate (WHO, 2013). I explored the association between cervical cancer screening utilization (the dependent variable) and independent variables shown in the literature to be influential in the decision to screen. Independent variables included family income, educational background, marital status, parity, knowledge about cervical cancer and the Pap test, and insurance coverage. If the determinants associated with lack of preventive screening are uncovered, it may aid

public health officials in finding ways to improve their outreach and increase the percentage of women screened for cervical cancer.

Research Questions and Hypotheses

I aimed to identify the factors that influence cervical cancer screening practices in Zimbabwe. The following research questions (RQs) and hypotheses were used to guide this study:

RQ1: Is there an association between sociodemographic factors, such as age, marital status, parity, and level of education, and cervical cancer screening services utilization by women in Zimbabwe?

H_o1: There is no association between sociodemographic factors, such as age, marital status, parity, and level of education, and cervical cancer screening services utilization by women in Zimbabwe.

H_a1: There is an association between sociodemographic factors, such as age, marital status, parity, and level of education, and cervical cancer screening services utilization by women in Zimbabwe.

RQ2: Is there an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe?

H_o2: There is no association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe.

H_a2: There is an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe.

RQ3: Does access to care-enabling factors, such as family income and insurance coverage, have an effect on the utilization of cervical cancer screening services among Zimbabwean women?

H_o3: Access to care-enabling factors, such as family income and health insurance coverage, does not have an effect on the utilization of cervical cancer screening services among Zimbabwean women.

H_a3: Access to care-enabling factors, such as family income and health insurance coverage, has an effect on the utilization of cervical cancer screening services among Zimbabwean women.

RQ4: Is there an association between the constructs of the HBM (perceived barriers, perceived severity, cues to action, perceived susceptibility, and perceived benefits) and cervical cancer screening services utilization by women in Zimbabwe?

H_o4: There is no association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe.

H_a4: There is an association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe.

RQ5: Do sociodemographic and HBM variables predict cervical cancer screening services utilization by women in Zimbabwe?

H_o5: Sociodemographic and HBM variables do not predict cervical cancer screening services utilization by women in Zimbabwe.

H_a5: Sociodemographic and HBM variables predict cervical cancer screening services utilization by women in Zimbabwe.

Theoretical Framework

The conceptual framework for this study was based on the health belief model (HBM). Rosenstock and colleagues developed the HBM in the early 1950s for the exploration of reasons behind the low participation in no-cost preventive health care programs (Glanz, Rimer, & Viswanath, 2008). The HBM is based on a behavioral and psychological theory that states that the two health-related behavior components are the desire for illness avoidance (or if already ill, fighting to get well) and believing some specific health actions will help in the prevention or curing of an illness (Bryan, 2016). Therefore, a person's course of action may depend on his or her perceptions of the benefits and barriers related to health behavior (Bryan, 2016).

The model states that there are four perceptions that influence an individual's decision to take preventive action against particular conditions, including perceived susceptibility, perceived severity, perceived benefits, and perceived barriers (McFarland, 2013). According to Glanz et al., (2008), perceived susceptibility pertains to a person's belief that he or she may be at risk of contracting a given illness or disease like cancer of the cervix and perceived severity has to do with a person's belief about the seriousness of contracting a specific disease or going without treatment. On the other hand, perceived benefits are related to an individual believing that participating in preventive methods will likely lessen the probability of contracting a disease like cancer of the cervix. While perceived barriers pertain to possible obstacles that an individual believes would deter him or her from taking preventive measures. The HBM further argues that for an individual to take advantage of the preventive methods available, he or she must have the

conviction that there are more benefits than barriers (McFarland, 2013). In addition to the four perceptions, other factors like symptoms of illness (internal cues) and publicity and education materials (external cues) can trigger health behaviors. Additionally, if any of the factors are modified, the other factors can be influenced (Bryan, 2016). These include demographic factors like age, ethnicity, and education; socio-psychological factors like personality and social class; and other factors like a general understanding of the disease and previous encounter with the disease (Becker et al., 1977; Janz, Champion, & Strecher, 2002). Age, personality, and social class have been cited significant influences in decisions regarding cervical cancer screening (McFarland, 2013). McFarland (2013) used the HBM to test associations of demographic variables and the HBM constructs with Pap smear screening among urban women in Botswana. The items analyzed included age, marital status, level of education, income level, type of employment, religious beliefs, and other variables such as the number of years lived in the city by participants, all of which are constructs of the HBM (McFarland, 2013). Lack of knowledge of Pap screening and financial constraints were mentioned as the main Pap smear screening barriers (McFarland, 2013). There were insignificant differences between a yes and no response to whether a respondent had ever had a Pap test and the components of the HBM, which McFarland argued may be a result of limited knowledge about cervical cancer and the importance of a Pap smear as a diagnostic test.

The HBM was ideal for the current study because it served as a useful framework for understanding participants' perceptions and behaviors (see Glanz, Rimer, & Viswanath, 2008; Ross, Rahman, & Cataldo, 2010). The HBM was also used in exploring

the associations between constructs of the HBM and routine preventive cervical cancer screening among American women of Vietnamese origin (Ma et al., 2013). Ma et al. (2013) looked at variables such as age, education, and employment and concluded that it is important to understand the association between health beliefs and cervical cancer screening among vulnerable populations who would benefit from intervention programs to increase rates of screening. In another study that included the constructs of the HBM, Julinawati (2013) found that numerous barriers such as embarrassment, fear of pain, inadequate knowledge or lack of awareness, accessibility, time, and cost influenced cervical cancer screening services utilization. In all these studies that included the HBM constructs to guide understanding of the utilization of preventive screening services for cervical cancer, findings consistently showing that perceived barriers such as fear of pain and embarrassment have a major influence on participation rates in cervical cancer screening globally. The HBM has also been used as the main conceptual framework in guiding preventive and treatment-related research in areas like routine screening for breast and cervical cancer, family planning, tuberculosis, seatbelt and booster seat use, and bicycle helmets (Glanz et al., 2008; Ross et al., 2007).

Nature of the Study

A cross-sectional design was used to examine the barriers associated with underutilization of preventive cervical cancer screening among Zimbabwean women. Data were collected using a self-administered questionnaire to examine what influence family income, educational background, marital status, parity, knowledge levels about

cervical cancer and the Pap test, insurance coverage, and age have on the utilization of preventive cervical cancer screening methods.

Definitions

Cervical cancer: A malignant tumor of the lowermost part of the uterus (WHO, 2013).

Colposcopy: A procedure used for the close examination of the vagina, cervix, and vulva for symptoms of a disease (National Cancer Institute, 2016).

Conventional Pap smear: Cellular material smeared on a glass slide for the purpose of screening for cervical cancer (American Society for Cytotechnology, 2016).

Cytotechnologists: Laboratory professionals who analyze Pap smears for the detection of abnormal cells and infectious agents (American Society for Cytotechnology, 2016).

Histopathology: The analysis of changes in tissues caused by disease (The Royal College of Pathologists, 2017).

Human papillomavirus (HPV): A sexually transmitted virus that may cause warts in different parts of the body. Cervical cancer is attributed to HPV (CDC, 2016).

Malignancy: The presence of a cancerous tumor (National Cancer Institute, 2016).

Metastasizing: The spreading of cancer from its original site to other organs of the body (National Cancer Institute, 2016).

Neoplasm: An abnormal cellular growth pattern forming a mass that is either benign or malignant (National Cancer Institute, 2016).

Pap test/smear: A screening procedure done for the early detection of cervical cancer. It helps detect precancerous or cancerous cells of the uterine cervix (American Society for Cytotechnology, 2016).

Socioeconomic status: An individual's or group's social standing or class usually measured by combining factors such as level of education, income level, and professional background or occupation (American Psychological Association, 2017).

Thin Prep imaging system: An automated computerized screening system used for analyzing Pap smears to guide the cytotechnologist (Biscotti et al., 2005).

Assumptions

This study had some assumptions. The first was that everyone who participated in the study met the inclusion criteria to participate. The second was that the questionnaires were administered properly.

Scope and Delimitations

This study was limited to women attending public health facilities in Harare, an urban city in Zimbabwe. The study was open to participants ages 18 to 65 years. The selection of the study region and participants was based on my discretion. The province was selected based on geographic location as well as the availability of a major hospital where participants were recruited.

Limitations

The study was limited to a sample population of women recruited from one province, the city of Harare; therefore, the generalization of the study findings to Zimbabwean women living in other cities should be done with caution. It is possible that

due to cultural issues, there might have been a lack of truthfulness in responses, as the targeted population was a culturally sensitive society in the Shona culture for which it is taboo to discuss issues pertaining to reproductive organs, particularly those of women, with men (Mawere & Kadenge, 2010). Furthermore, this study relied on a self-report survey about knowledge and demographic factors about cervical cancer and cervical cancer screening services utilization. Some participants may not have provided accurate reports about their cervical cancer screening services utilization trends, particularly the Pap test. Also, convenience sampling was used to recruit study participants, and recruitment was done only with those visiting Harare Hospital. The study sample may not have been a true representation of the residents of Harare. Another possible limitation stemmed from using the cross-sectional design, which does not allow the determination of possible causes.

Significance

When the focus shifts from sickness and cure to wellness and prevention, the effect of research-aided social change in public health cannot be underestimated. The reason why humanity celebrates new milestones in medical technology is that more lives are likely to be saved. However, when lives continue to be lost when there are good options to prevent such deaths, it should be a cause for concern. While the developed nations continue to make strides toward the goal of eradicating cervical cancer death, the developing world continues to suffer from increasing rates of death from cervical cancer (CDC, 2014). In continental Africa, cervical cancer accounts for about 53,000 women's deaths annually (WHO, 2015).

By identifying the barriers limiting utilization of preventive cervical cancer screening in Zimbabwe, the research findings may effect social change among the targeted communities where findings may be used to encourage women to adopt preventive screening into their lifestyles. Findings may not only be helpful in improving Zimbabwean women's health but may also be useful to the government of Zimbabwe in cutting costs associated with the disease.

Studies have shown that large-scale permanent behavior changes can be influenced by changing the standards of acceptable behavior in a community. This can be achieved by changing community norms about health-related behaviors (McMichael & Beaglehole, 2000). Findings from the current study may provide policymakers with the data they require to make evidence-based decisions to enact public health campaigns to create lasting social change by figuring out how to alter public perception about cervical cancer and preventive health care in general. I will share my findings with the Research Council of Zimbabwe. Public health officials can use the findings to create solutions to encourage behavioral changes that will help reduce the risk of women dying of cervical cancer. This can be done by using the evidence to change stubbornly held views by local women, such as the need to visit health care institutions only when there are compelling health care reasons.

In a country with a population of more than 14 million people where at least 3 million women are of reproductive age, less than 35,000 women participate in routine cervical cancer screening (Better Healthcare for Africa, 2014). My goal is to work with the ministry of health, public health officials, and other stakeholders to introduce a large-

scale screening program to address the vulnerable and disadvantaged population. Despite the fact that this study was based in one province, the findings are likely to have implications for social change in health care services that would help ensure increased uptake of routine Pap testing for cervical cancer as well as dispelling the general misconceptions about the Pap smear and preventive health care.

Summary

Cervical cancer involves the abnormal and out-of-control growth of cells in the cervical region of the uterus (CDC, 2016). The discovery of the Pap test as a cervical cancer screening tool in the early 19th century came as a major advancement in the delivery of gynecological screening, and with its use deaths from cervical cancer have been significantly reduced (Gannon & Dowling, 2008). The Pap test is fundamental in the detection of premalignant and malignant neoplasms of the uterine cervix (Bano, Folayan, Jolaoso, Kolhe, Norton, et. al, 2008). However, most women who fall victim to the disease will never have had a Pap smear (Perry, 2001). To increase cervical screening uptake, a better understanding of the factors that influence women's decisions to take part in cervical cancer screening is needed. Despite unprecedented screening numbers in the United States and some parts of Europe, the sub-Saharan region of Africa, in which Zimbabwe is located, lags far behind (Mupepi et al., 2011). Multiple researchers have looked at screening patterns in various geographic regions of developing countries; however, there is a dearth of information on factors that determine the utilization of preventive screening services by Zimbabwean women, and this needs to be addressed if morbidity and mortality rates are to be reduced.

In this chapter, I covered the background of the study establishing the foundation for assessing the relationship between independent variables such as family income, education level, health insurance, marital status, parity, knowledge level about cervical cancer and the Pap test, and age, and the dependent variable cervical cancer screening among Zimbabwean women. A cross-sectional design was used, and data were collected using a self-administered paper questionnaire. The study sample was drawn from women visiting Harare Hospital. The HBM provided the theoretical framework for my study because it emphasizes the significance of perception and experiences. Findings from this study could be of major importance to the vulnerable population of Zimbabwean women who are at risk of developing advanced cervical cancer. Findings may be used by local public health officials to tailor evidence-based interventions that could be used to increase the uptake of cervical cancer screening. Cervical cancer screening programs that are successful are primarily dependent on the degree of coverage and the rate of attendance.

In Chapter 2, I present a review of the literature related to cervical cancer screening utilization in different geographic locations among various populations as well as the theoretical framework for the study. Chapter 2 provides evidence that Zimbabwean women are at high risk of developing advanced cervical cancer. This evidence warrants exploring the factors that affect utilization of preventive screening services, findings that may be used in the development and implementation of appropriate interventions.

Chapter 2: Literature Review

Globally, cervical cancer is one of the leading causes of death among women of childbearing age. The disease, which is primarily linked to the HPV virus, is the second most common malignancy in women (WHO, 2013). Nearly half a million new cases are diagnosed every year, and more than 274,000 women die from the disease (WHO, 2013). According to the WHO (2013), almost 90% of these cases occur in third world countries.

Studies have shown that cervical cancer is preventable. With the screen-and-treat programs available, it can be treated with 100% success if it is detected early enough via the Pap screening method and the recently discovered HPV testing (Nour, 2009). Through the implementation of robust screening programs, developed nations like the United States have managed to reduce the incidence of cervical cancer within their populations by using advanced automated screening methods such as the ThinPrep imaging system, which concentrates cellular material on a slide that is then imaged, pinpointing with accuracy areas that need to be reviewed by the cytotechnologist (CDC, 2014). The Pap smear screening method involves opening the vaginal canal using a device called a speculum to gain access to the tip of the uterus called the cervix where cellular material is scraped, collected, and sent to the laboratory for analysis. In the laboratory, microscopic examination is carried out by a specialist for the detection of premalignant lesions known as cervical intraepithelial neoplasia (American Cancer Society, 2016).

According to a 2016 WHO report, an estimated one million women worldwide were living with cervical cancer. Most of them had limited or no access to preventive

cervical cancer screening, curative treatment, or palliative care upon diagnosis (WHO, 2016). Nearly 2.3 million women of childbearing age are at risk for developing cancer of the cervix (WHO, 2016). Although cervical cancer is preventable through routine screening, evidence indicates that most women remain at risk because cervical cancer is still the leading cause of cancer-related deaths in many countries including Zimbabwe, primarily because these countries lack properly tailored screening programs, infrastructure, and well-trained personnel (Rosser et al., 2015).

While most of the developed world has taken advantage of the effective preventive cervical cancer screening procedures, major disparities in terms of death rates exist based on geographic areas. Most third world countries like Zimbabwe have failed to take advantage of these available options; there is still a considerable gap in the utilization of preventive screening, which affects mortality and morbidity rates (WHO, 2016). More than 80% of the women who are diagnosed with malignant neoplasm of the cervix have never had a Pap test; therefore, it is important to understand the factors that influence women's decisions to participate in routine cervical screening (Pendrith, Thind, Zaric, & Sarma, 2016). Studies have been conducted to determine factors associated with the utilization of preventive cervical cancer screening in Africa. Findings varied by region primarily due to cultural diversity, religious beliefs, and factors associated with access to care (Lim & Ojo, 2017). As a result, the findings from other parts of Africa may not be generalizable.

Studies carried out in Zimbabwe focused on the rural population and determining barriers to utilization of cervical cancer screening services. Tarwireyi (2005) and Mupepi

et al. (2012) reviewed perceptions and barriers as well as demographic factors influencing screening patterns of Zimbabwean women in rural areas. Factors that determine the utilization of screening services in urban areas must also be analyzed to help planners design comprehensive cervical cancer screening campaigns. At independence in 1980, Zimbabwe introduced a mass screening program in which the Pap test was free and readily available at all hospitals in the major cities, provincial hospitals, and district hospitals; however, a very low percentage of women took advantage of this program (Better Healthcare for Africa, 2014). As of 2015, none of the sub-Saharan African countries in which studies were carried out had a national screening program (WHO, 2016).

Identifying the factors that influence the uptake of preventive cervical cancer screening may help in the process of developing interventions that are appropriate and more likely to meet the needs of the targeted population. In this chapter, I discuss information to support the argument that cervical cancer remains a major threat to women's health globally, particularly in the developing world, despite the availability of technology and resources to prevent it. I also discuss cervical cancer in general, including its pathogenesis, contributing factors to its incidence, and factors determining the utilization of preventive screening. I reviewed literature on studies that addressed variables such as age, educational level, parity, marital status, knowledge, and accessibility of health care facilities, shortage of health care personnel, and other factors that play a role in the utilization of preventive services. I further elaborate on the

theoretical framework that my study was based on, and highlight the implications findings may have on social change.

Literature Search Strategy

To retrieve studies pertaining to my research, I conducted a systematic review of relevant literature. I reviewed studies that addressed factors influencing the utilization of cervical cancer screening services by different population groups in different geographic areas, especially in developing countries. The primary databases that I used for carrying out my literature review were EBSCOhost (Academic Search Complete) and PubMed via the Walden University Library. I also used the Google and Google Scholar search engines. The key words I used to retrieve the relevant articles were *cervical cancer*, *cervical cancer screening*, *cervical cancer screening in Zimbabwe*, *cervical cancer screening in developing countries*, *cervical cancer screening in sub-Saharan Africa*, *cervical cancer and HBM*, and *barriers to cervical cancer screening*. To retrieve as much relevant information as possible, I used these keywords in various combinations. My initial search was confined to studies published after 2012, though relevant published scientific literature published before 2012 was also included.

Theoretical Foundation

The goal of this study was to determine the factors that influence the utilization of cervical cancer screening services by Zimbabwean women. There are several theoretical frameworks that researchers and psychologists have used to explain the utilization of health services. The theoretical foundation for this study was the HBM; its theoretical constructs have been used in previous studies to predict health behaviors as well as

improve interventions, including cervical cancer screening programs (Tavafian, 2012). In the 1950s, social psychologists Rosenstock and colleagues, puzzled by the failure of people vulnerable to the infectious diseases to participate in free screening programs that were designed for the prevention and detection of diseases, developed the HBM to understand the reasons why people utilize or fail to take advantage of available health services (Rosenstock, 1974).

The HBM focuses on explaining health behaviors associated with prevention rather than behaviors associated with illness (Orji, Mandryk & Vassileva, 2012). The main health behaviors that are emphasized by the model lean more toward preventing disease exposure during the time when the disease is asymptomatic (Orji et al., 2012). The HBM is dependent on a number of key predictive concepts that determine the reasons why people are likely to take preventive action like screening to detect and control diseases. The HBM is based on assumptions that there are five elements that motivate behaviors in health, including perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers, cues to action, and perceived self-efficacy (Boston University School of Public Health, 2016).

Applying the HBM to Cervical Cancer Screening Behavior

The HBM has been widely used for the determination of relationships between health beliefs and health behaviors and also for better-informing intuerventions. This section covers the HBM constructs, and how they are applicable in relationship to cervical cancer screening behavior.

Perceived Susceptibility to Cervical Cancer

Under the HBM, the belief of one acquiring a disease, infection or condition of illness is referred to as perceived susceptibility. Perceived susceptibility is defined as an individual's perception of his/her chance or risk of contracting a disease or illness. (Glanz et al., 2008). In terms of cervical cancer, there should be a level of belief by women that developing cervical cancer is a possibility before giving any consideration to the possible benefit of having a Pap test. Based on the prediction of the HBM, there is more of a likelihood for women to follow recommendations regarding cervical cancer screening if they believe they have a degree of susceptibility to cervical cancer (Glanz et al., 2008). Evidence from previous studies has shown that people who are of the belief that they have cervical cancer risk factors will likely act to avert possible adverse effects associated with getting the disease (Tavafian, 2012). As verified in previous studies in developing countries, the major reason for not having routine Pap tests has been women's perceptions that they are not at risk of developing cervical cancer (Paz-Soldán et al., 2012; Ibekwe1, 2010; Mutyaba et al., 2006). A study of Hispanic women by Stein & Fox (1990) concluded that Hispanic women do not prioritize preventive care such as cancer screening. Therefore, they are at a higher risk of developing diseases because of a curative mentality rather than embracing prevention practices. In this regard, Hispanic women do not perceive their own vulnerability to cervical cancer and do not see themselves at risk.

Perceived Severity of Cervical Cancer

A disease's perceived severity denotes the seriousness of a health issue based on the concerned individual's assessment (Glanz et al., 2008). This is associated with how somebody feels about how serious developing a form of illness might be or what the associated challenges are if the disease goes untreated, including diagnostic outcomes that may be clinically significant such as dying, becoming permanently disabled or consequences on social life that may have effect on work, social relationships and family life (Tavafian, 2012). In a survey carried out in Quebec Canada on women of child-bearing age to determine their perceptions about the severity of cancer of the cervix, 57% confirmed they were scared of being diagnosed with cancer of the cervix in their life, and at least 93% believed cervical cancer to be a disease with catastrophic consequences (Sauvageau et al., 2007). Studies have shown that even though women perceive cervical malignancy as a serious health threat, the fact that the disease has no cure makes some women less interested in doing the Pap test (Ndikom & Ofi, 2012; Ngugi et al., 2012; & Williams et al., 2013). It is worth exploring the reasons why the majority of women who are at risk fail to take advantage of available cervical cancer screening programs.

Perceived Benefits of Cervical Cancer Screening

When an individual feels personally susceptible to a seriously threatening health condition (perceived threat), and the perception leads to a personal change of behavior, such change is dependent on the individual's perceived benefits of taking any of the available actions in order to reduce the threat caused by the disease (Glanz et al., 2008). For example, women must believe that visiting a women's health clinic or having a Pap

smear would be beneficial in preventing advanced cervical cancer. This means that having perceptions of susceptibility to and severity of the disease are not the major determinants of one accepting recommendations about health actions like having a Pap test, rather they must have the perception that such an action has potential benefits towards the reduction of the threat. In a study that analyzed women who had regular screening versus those that had never had a Pap smear, Ibekwe (2010) found that there was an overwhelming agreement on the importance of cervical cancer screening where women believed they would get peace of mind by participating in routine Pap screening regardless of family history, because it would enable diagnosis of premalignant lesions that are more amenable to cure (Ibekwe1, 2010). This study finding agreed with findings from studies carried out in Mexico, Latin American countries of Bolivia, Brazil, Ecuador, Guatemala, Nicaragua, Peru, and Caribbean countries of Trinidad and Tobago and Dominican Republic, where the majority of women of childbearing age from various socio-demographic backgrounds were largely aware of the importance of the Pap test even though some of them did not have regular Pap tests (Soneji & Fukui, 2013). The constructs of the HBM are built on the premise that those with perceived benefits have a major likelihood of taking preventive actions when compared to those without any perceived benefits or little perceived benefits. According to Ibekwe, (2010), it is important to evaluate the reasons why cervical cancer screening services are widely underutilized, particularly in the developing countries where the majority of those at risk live. Education is required to help clarify possible misconceptions about the disease, thus

helping to increase the uptake of cervical cancer screening among the high-risk populations.

Perceived Barriers to Cervical Cancer Screening

This refers to how an individual views the challenges and possible psychological costs of the recommended action (Glanz, Rimer, & Lewis, 2008). Perceived barriers pertain to any negativity that may deter somebody from pursuing certain health activities or recommended behaviors (Tavafian, 2012). Perceived barriers come into play when an individual goes through a cost-effective analysis which results in weighing the possible benefits as well as perceived barriers where factors like "could this be helpful to me," "is it not going to be expensive," "will there be negative consequences" "will it not be unpleasant," or "will it not inconvenience me" will be considered. Therefore, a combination of susceptibility and severity levels become the catalysts which push an individual into action, while the perception of the possible benefits (excluding barriers) pushes an individual to take a specific action (Glanz et al., 2008). In general, if a given high-risk population of women believes the perceived benefit of participating in Pap screening towards cervical cancer prevention outweighs the barriers to or costs involved in the preventive efforts, they have a higher probability of obtaining a Pap test.

Some studies have found that some women are unwilling to participate in Pap screening because they perceive the Pap collection process to be unpleasant and feel embarrassed to be observed by a male health care provider, particularly women of Islamic faith, while others feel it unnecessary to undergo a pelvic examination for no compelling reason (Mupepi et al., 2012; Boyer et al., 2001; Ackerson, 2010; Abdullahi

2009). In some of these studies, participants pointed out personal negative experiences, such as bleeding, experiencing pain or receiving negative feedback from others as barriers to having a Pap smear (Abdullahi et al., 2009; Marlow, Waller, & Wardle, 2015). A good percentage of study participants appreciated the importance of the Pap smear; however, they cited fear of the test, financial reasons, limited knowledge about the disease, and distance to nearest clinic as hindrances to obtaining the test. Furthermore, some perceived the metallic speculum as a painful collection device and questioned the hygiene as they could not trust the sterilization procedure (Abdullahi et al., 2009 & Marlow, Waller, & Wardle, 2015).

Another reported perceived barrier preventing some women from participating in routine Pap testing was fear of an abnormal test result, which was perceived as living with an incurable disease thought to be a death sentence by many (Were, Nyaberi & Buziba, 2011; Jain, Halder, & Mehrotra, 2016; Mutyaba et al, 2006). In studies carried out on Hispanic women, low socioeconomic status, which included lack of knowledge, low levels of education, cost of the Pap test, and poverty, are factors contributing to low rates of screening (Watts et al., 2009).

Cues to Action for Cervical Cancer Screening

Cues to action refer to whatever is needed to prompt an individual into positioning herself into a status quo that will make her ready to embark on the prescribed solution (Glanz et al., 2008). Such cues may consist of practical ways of pushing them, like reminders on mobile devices, marked calendars, advice from friends, or health-related warnings on labels of products (Okudo, Ajayi & Atolagbe, 2015; Robb, Vernon &

Walle, 2015). For example, a woman's likelihood of participation in routine Pap tests may be based on doctor's office reminders like email, a phone call and/or text message 24-48 hours before the appointment or a reminder from a family member like a spouse. Previous studies have reported the influence of cues on women on their behavior in relation to how they practice cervical cancer screening. Knowing a fellow woman who was diagnosed with cervical cancer may easily be a cue to action for family members, workmates, or friends (Tavafian, 2012).

Studies on the influence of cues on women participating in routine Pap screening showed that education provided by health care personnel and the availability of clinics offering free services had significant influence (Morema et al, 2014, Ackerson, 2010). Other studies found cues to action that determined women's participation in preventive health that included mass media campaigns, churches, husbands, warning labels on products, news from radio and televisions and billboards (Rawlett, 2011; Wardle, Robb, Vernon & Walle, 2015; Okudo, Ajayi & Atolagbe, 2015). The importance of influence exerted by healthcare workers, particularly physicians, was highlighted by O'Connor et al., (2014) and Armstrong, James & Dixon-Woods (2012). Furthermore, in a study of Hispanic women, researchers found that an important element of Hispanic culture is respect of authority as evidenced by Hispanic women considering physicians as influential figures and heeding what they say (Watkins et al. 2002).

Perceived Self-Efficacy for Cervical Cancer Screening

Self-efficacy is an individual's belief that he/she has the ability to successfully accomplish something (Glanz et al., 2008). This means there is less likelihood for people

to try doing something new unless they are of the conviction that they can successfully accomplish it. People may acknowledge the usefulness (perceived benefit) of adopting a new behavior; however, if they feel they lack the capability of doing it or deem it undoable (perceived barrier), there is a greater probability that they will not try it. Self-efficacy, which was not part of the original constructs of the HBM, was added to enable the measuring of one's confidence and capability of performing a specific behavior (Glanz, Rimer, & Lewis, 2002).

Rajkumar (2012) concluded that behavioral change may only take place when an individual feels threatened by the condition at hand (perceived susceptibility and severity), believing that acquisition of a new behavior will benefit him/her (perceived benefits) and having the belief that he/she is capable of taking the action. For the change in behavior to be successful, the current behavioral pattern must feel a threat (perceived susceptibility and severity), and there must be a conviction that the outcome of a specific type of change will be valuable and attainable at a reasonable cost (perceived benefit). Findings from a study conducted by Ma et al. (2015) showed that self-efficacy has a significant impact on Pap test behavior. Her study on Vietnamese women showed that self-efficacy plays an important role in cervical cancer screening behavior. Similarly, in South Africa, a study on students conducted by Hogue et al. (2014) reported comparable findings.

Choice of Theory Rationale

Historically, the HBM has been used in the assessment of the reasons behind people's failure to take advantage of available preventive health care services and to

understand why those who take advantage of them do so. More importantly, this model has been employed by multiple researchers as a guide in trying to understand the perceptions of women regarding screening for cervical cancer and to try to develop health interventions focused on behavioral change, particularly with respect to the perceived barriers construct, and it has positively impacted cervical cancer screening behavior outcomes (Learmonth, De Abreu, and Horsfall, 2013). Effectively promoting the prevention of cervical cancer among populations at risk is critical in the fight to eliminate cancer disparities, and it can only be accomplished through the development of culturally relevant interventions based on efficacious theory.

Most likely due to the fact that the HBM constructs are fairly intuitive, researchers have used them in community- based interventions conducted among lower socioeconomic level populations who are at risk. These studies have covered high-risk populations in areas like breast and cervical cancer screening, tuberculosis, family planning, HIV, and use of seat belts and booster seats (Julinawati et al., 2013; Moore de Peralta et al., 2014). Other studies have shown the reliability and validity of the HBM as it has been used in different nations and with people of various cultures, serving as an explanatory theory that helps in both guiding and informing the reason why certain problems or barriers exist (Julinawati et al., 2014). My research focused on a high-risk, underserved population of Zimbabwean women, and the goal was to explore and understand their perceptions regarding the utilization of screening services that affect their utilization of screening services in order to help find ways of empowering them to

overcome the barriers related to cervical cancer screening. This makes the HBM ideal for this study.

Literature Review Related to Key Variables and Constructs

Cervical cancer is one of the most preventable malignancies; if detected early enough, it is highly curable (CDC, 2014). The discovery of the Pap test gave the world hope for reducing cervical cancer and ultimately eliminating it. Despite the availability of an effective screening tool designed for detecting cases at the premalignant stage, cervical cancer remains a major burden worldwide, particularly in developing nations (WHO, 2014). Scientists have concluded that HPV, arguably the most common sexually transmitted infection, is the main causative agent of the disease (WHO, 2016). An HPV infection can be the genesis of cervical intraepithelial neoplasia (CIN), a term which was coined by Richart (1973), which refers to a precancerous lesion that may ultimately progress to invasive carcinoma. It is important to evaluate the factors that determine the utilization of screening services. A number of factors appear to influence a woman's decision to go for a Pap smear.

Studies have shown that despite the availability of screening programs, cervical cancer remains the number one cause of cancer deaths among women in developing countries (WHO, 2014). All three research methodologies, qualitative, quantitative and mixed methods have been applied in numerous studies to explore attitudes, knowledge, beliefs, perceptions, and factors affecting the utilization of cervical cancer screening services by women in various geographic locations in the world (Compaore et al., 2013;

Maseko, Chirwa & Muula, 2015; O'Connor et al., 2014; Soneji et al. 2013; & Marlow et al 2015).

Cervical cancer continues to be a global burden, despite the availability of an effective method of detecting the disease at an early stage when it is 100% curable. Researchers have analyzed population-based surveys and found that cervical cancer screening coverage in developed countries stands at 63%, compared to 19% in developing countries (Sreedevi, Javed, & Dinesh, 2015). The high incidence of cervical cancer in some developing countries has been attributed to factors such as low socioeconomic background, low levels of education, knowledge, and awareness, limited accessibility of health care facilities and a shortage of healthcare personnel (Soneji et al., 2013). According to Sreedevi et al. (2015), in India, elderly and poorer women are least likely to undergo cervical cancer screening, yet they are the groups most vulnerable to developing cervical cancer. Cervical cancer screening is only available to a fraction of Zimbabwean women, the majority of whom are screened during pre- or post-natal check-ups or family planning visits (Better Healthcare for Africa, 2016, Mupepi et al, 2012).

In a study of women from Latin American countries that included Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Nicaragua, Peru, and Trinidad and Tobago, Samir & Natsu (2013) concluded that younger age, knowledge about the Pap test, access to health care centers, higher socioeconomic status and educational levels, and recent doctor's visit were key determinants of one having a Pap test. The authors also found that due to opportunistic screening (done when women visited healthcare providers for other reasons), women with a recent visit to a physician or healthcare facility were 1.47 to 3.44

times as likely to have a Pap test as women without a recent visit, which is in agreement with Soneji et al.'s (2013) findings that knowledge, education, and awareness about cervical cancer play a significant role in women getting screened. Furthermore, Samir and Nasui (2013) found that a poor woman with a recent visit to the physician was more likely to have a Pap test than a rich woman without a recent visit. They also confirmed that parity is another determinant of cervical cancer screening, as the majority of women of childbearing age were likely to visit maternal healthcare clinics where mandatory tests for diseases like gonorrhea and chlamydia, as well as the Pap test, are performed. The probability of a woman being knowledgeable about the Pap test increased with increasing age and level of education. In Bolivia and Peru, women without formal education or with only primary education were 95% less likely to be knowledgeable about the Pap test than women with secondary and higher education (Samir & Natsu, 2013). This concurred with Zimmerman et al.'s (2015) finding that there is a synergistic relationship between being educated and a higher level of health literacy.

The results of many studies concurred that lack of knowledge and low level of awareness about the disease play roles in a woman not participating in cervical cancer screening (Williams et al. 2013; Idowu et al. 2016, Sudenga et al. 2013, Morema et al. 2014, Samir & Natsu, 2013, & Soneji et al. 2013). A significant number of the respondents in these studies had absolutely no knowledge about the disease, while in some of the studies almost all of the participants professed ignorance about the disease and screening services available, which they cited as the reason for not getting screened. The authors of several of these studies concluded that there is generally poor knowledge about cervical cancer in

continental Africa and that generally spans across multiple literacy levels (Sibiya, 2014,; Ndikom & Ofi, 2012; Ngugi et al., 2012; Lim, Ojo, 2016 & Williams et al., 2013).

Studies carried out in the sub-Saharan region of Africa found multiple reasons for lack of compliance by African women with cervical cancer screening recommendations, including decreased knowledge about the disease, cultural beliefs, perceived good health status and increased distance from nearest health care center (Oche et al, 2013; Firnhaber, 2015; Teng et al. 2014; Rosser et al., 2015; Compaore et al., 2013; McFarland, 2013; Ebu, Mupepi, Siakwa, & Sampselle, 2014; Better Health for Africa, 2013). Distance to a health care center was also found to be significant in a study in Thika, Kenya (Ngugi et al. (2012). The authors pointed out that distance to the nearest health care center may be a major concern with some women having to walk several miles to get to the nearest clinic. In addition, in a study by Ndikom, Ofi and Omokhodion (2014) in Ibadan, Nigeria, the respondents identified transportation costs and distance as major barriers to screening services utilization,

A study by Oche et al. (2013), which focused on Nigerian nurses, found that 99% of respondents were aware of cervical cancer and had high adherence to screening, a finding which concurred with studies carried out in Latin America which confirmed the importance of education in determining the utilization of cervical cancer screening services. With cervical cancer screening coverage standing at 3.2% in Kenya, Morema et al. (2014) analyzed factors that influenced cervical cancer screening uptake among women aged 18-49 who visited a teaching hospital in Kisumu. They found a strong association between age, income level and knowledge about the disease. Women older

than 30 who had attained at least a high school diploma and had a decent paying job were likely to be knowledgeable about the disease and be aware of susceptibility and thus were likely to report for Pap screening. The researchers recommended increasing awareness, enhancing health education and providing free services to improve uptake. Similarly, Lim and Ojo (2016) carried out a systematic review of previous studies to summarize perceived barriers which prevented women in multiple countries in the sub-Saharan region of Africa from utilizing cervical cancer screening services, even though they were widely available. Eight studies were included. The authors found various reasons behind the poor utilization of cervical cancer screening services, including fearing the screening procedure and a possible negative outcome, embarrassment, lack of support from a spouse, societal stigmatization, Pap smear cost and a shortage of healthcare personnel. These findings varied by country, as the region is culturally and linguistically diverse (Lim and Ojo, 2016). Zimbabwe is no exception, as its people are also of different cultural backgrounds. These cultures play a major role in the lifestyles of the people, and therefore their beliefs, attitudes, and practices vary. Thus findings from sub-Saharan countries may not be generalizable to each other. The different cultures in different African countries play a major role in the lifestyles of the people; therefore, these circumstances may not be applicable in Zimbabwe and vice versa.

Health education is an important tool for preventive health care, and effective health campaigns work better with higher literacy levels (MaCray, 2005). Zimbabwe boasts a much higher literacy level than most sub-Saharan countries. Therefore, factors that may influence and/or determine the utilization of preventive health services like Pap

screening in Zimbabwe may not be directly applicable to another country. Religious background has a significant influence on how women perceive pelvic examination. Studies carried out in Nigeria, Tanzania, Ghana, and Kenya found that women practicing Islam were not open to a pelvic exam by male practitioners because of their religious belief (McFarland, 2013). This may not be the case in Zimbabwe where less than 1% of women practice Islam (Zimbabwe National Statistics Agency, 2013). Therefore it is important to carry out a study to find out the factors that determine the utilization of screening services among woman in Harare, Zimbabwe.

Studies in Nigeria, Kenya, Burkina Faso, and Ghana showed the important role spousal consent plays based on cultural beliefs. Some women feared being perceived as unfaithful to their spouses, as there is an element of disapproval by husbands about the sampling procedure for Pap collection (Morema et al. 2015; Compaore et al, 2013; Rosser et al., 2015; Oche et al, 2013; Handlogten et al. 2014). In addition, even in African families where both husband and wife are working and financially contributing to household income, the domestic purse is usually controlled by men. As a result, the majority of financial decisions are usually made by the husband, a reason why women may choose not to request money for screening services (Lim & Ojo, 2016). Studies by Ndikom & Ofi, 2012; Ndikom & Ofi 2012; Ngugi et al., 2012; & Williams et al., 2013 concluded that the general belief that cancer is an incurable disease, and a positive diagnosis, therefore, equates to a death sentence caused some women to opt-out of the screening, as they saw no benefit to it. This has not been shown to be the case in studies of other continents

where perceived severity of the disease was a major cause for utilization of screening services by women.

Embarrassment has been documented in many studies as a significant barrier towards the utilization of cervical cancer screening services because the Pap collection process involves pelvic examination which is often carried out by a male health care worker (Williams et al. 2013; Teng et al. 2014 & White et al. 2012). Even though these studies were carried out in sub-Saharan countries, there is a lack of adequate information related to my study. An essential part of my target population was not included in most of these studies; therefore, it will be valuable to extend a similar study to the southern region which includes Zimbabwe.

Summary and Conclusions

Even though Zimbabwe is an integral part of the sub-Sahara region of Africa, there have been few studies dealing with Zimbabwean women's level of awareness about the guidelines for cervical cancer screening, and the reasons behind the underutilization of available screening services, particularly among women living in cities like Harare. The majority of the studies have been carried out in West Africa, mainly in Ghana and Nigeria, and in East Africa, mainly in Kenya and Tanzania. Since Africa is a vast continent with major cultural and language diversities, the generalizability of results from these studies may be limited and not truly applicable to Zimbabwean women. Therefore, this study proposes to fill that gap. Because prevention is the cornerstone of overcoming the challenges caused by diseases, it will be important to understand the factors that determine the utilization of cervical cancer screening services by Zimbabwean women in

Harare. The fact that cervical cancer remains the number one cause of cancer deaths among Zimbabwean women despite being one of the most preventable and curable cancers raises major concerns which warrant investigation. A study of Zimbabwean women would help shed some light on the reasons behind underutilization in this population. The findings from this study could potentially be used to tailor intervention programs that could help reduce the women's risk for cervical cancer and ultimately the mortality rates, which would also improve quality of life as well as cutting related costs.

The HBM has been used extensively by public health practitioners in trying to determine the association between a given population's health behaviors and beliefs as well as to tailor effective interventions (Glanz et al., 2008). Multiple interventions for cervical cancer screening promotion have used the HBM with significant success, unlike programs or interventions developed without a theoretical foundation (Tavafian, 2012). Using theoretical assumptions to quantitatively explore the perspectives of Zimbabwean women towards preventive cervical cancer screening may aid in the fight to reduce cervical cancer-related mortality. In Chapter 3, I discuss in-depth my research design and rationale, my role as the researcher and the research methodology. I also discuss ethical considerations for the study.

Chapter 3: Research Method

The goal of this quantitative study was to examine factors that influence cervical cancer screening among Zimbabwean women. At that time of this study, there were very few studies on determinants of cervical cancer screening that specifically targeted Zimbabwean women. Despite Zimbabwe being a sub-Saharan African country, available literature related to sub-Saharan Africa did not address Zimbabwean women's level of awareness regarding the guidelines for cervical cancer screening and the reasons behind the underutilization of available screening services, particularly among women living in urban areas of Zimbabwe. Most of the available studies were conducted in West Africa, specifically in Ghana and Nigeria, and also in East Africa in Kenya and Tanzania. Because Africa is a vast continent with major cultural, religious, and language diversity, the generalizability of results from these studies may not be applicable to women in southern Africa, specifically Zimbabwe, which was the focus of my study. In this chapter, I provide a detailed description of the research design, the rationale for the design, and the research methodology. I also discuss the ethical considerations for the study.

Research Design and Rationale

To explore the factors that determine the utilization of cervical cancer screening services by Zimbabwean women, I conducted a nonexperimental cross-sectional study using a survey. I used a quantitative research design to examine associations between study variables. Independent variables included family income, educational background, marital status, parity, knowledge levels about cervical cancer and Pap test, and insurance

coverage. The dependent variable was the utilization of cervical cancer screening services.

The cross-sectional design allowed me to use a previously validated instrument from similar studies. The advantage of using this instrument was that it had been extensively tested. The quantitative method was ideal for my study, which included closed-ended questions, thereby ensuring the collection of standard responses from participants. It was appropriate to use the cross-sectional design because it allowed for research to be conducted in a natural setting where generalization to the larger population was possible; this design also helped me keep research costs low (see Frankfort-Nachmis & Nachmias, 2008). Considering other types of observational studies, I chose a cross-sectional design because it did not require a lot of time.

Setting and Sample

The population of interest was sexually active women utilizing Harare Hospital. All of the participants were Zimbabwean nationals. Harare is the capital city of Zimbabwe. It has a population of about 1.5 million people, of which about 500,000 are women between the ages of 18 and 65 years (Cancer Association of Zimbabwe, 2013). Because cervical cancer affects women of reproductive age, the WHO (2013) recommends screening for all women ages 15-60. Due to ethical considerations, minors were excluded. The study included women at least 18 years of age, which is the legal age of majority in Zimbabwe. Due to literacy concerns among the elderly, 65 was the upper age limit.

For a study to be credible, it is important to determine an optimal sample size to ensure adequate power for detecting a statistically significant association. Statistical power is the probability that a study will be able to detect a real treatment effect. A high statistical power helps improve the chances that research findings are not due to chance alone. The generally accepted value for power is .80, and therefore the power for the study was set at 0.80. The effect size was 0.25, and the significance level was 0.05. A sample size of 384 subjects was considered to be sufficient based on the research questions, power analysis, and evidence from similar studies. The sample size for the study was determined using the formula Ss = *(Z2 *(p)* (1-p))/c2* (Creative Research System, 2007), where *Z* = *Z* value (1.96 for 95% confidence level), *p* = the level of precision, expressed as a decimal (.05), and *c* = confidence interval (95%). With a possible response rate of 50%, a margin of error of 5% (confidence interval) and a confidence level of 95%, the formula yielded a sample size of 384 participants.

Convenience sampling was used in the collection of data because it is governed by very few sample collection rules (see Creswell, 2005). One of the major advantages of convenience sampling is that the relative time and cost required are low compared to techniques such as probability sampling; therefore, convenience sampling makes achieving the required sample size relatively quick and inexpensive (Creswell, 2005). This method also helps in gathering useful data and information that would not have been obtainable using probability sampling, which requires more formal access to lists of populations.

The respondents ($N = 384$) were purposively selected. Each woman who visited the hospital and/or clinic and met inclusion criteria (i.e., women between the ages of 18 and65 years) were invited to participate. Consent was obtained for each woman invited to participate, and questionnaires were handed out until the required sample size was achieved.

Data Collection Methods

For this study, data were collected using a questionnaire with close-ended questions. The closed-ended questions were defined by their need to be answered by explicit options from which respondents would choose. The advantage of using closed-ended questions was that responses by participants would be standard; therefore, coding would be straightforward and responses could be categorized into groups based on options selected (see Frankfort-Nachmis & Nachmias, 2008).

Data collection was done at Harare Hospital. I visited the hospital and handed out surveys to women visiting the health care facility. The consent forms were distributed simultaneously with the questionnaires, and the women were asked to voluntarily participate. All surveys were completed on the spot in privacy. Privacy was ensured by giving participants time to complete the questionnaire in a booth away from me and prospective participants.

Instrumentation and Materials

There are several data collection methods and instruments in quantitative research. The data collection instrument for this study was a questionnaire adapted from the Cervical Cancer and Pap Test Questionnaire developed and validated by Uruttia and Hall

(2013) who used it for examining Chilean women's beliefs regarding cancer of the cervix and the Pap test. The questionnaire items were further adapted for compatibility with the Zimbabwean population, and they covered a wide range of issues including socioeconomic and demographic data, knowledge about cervical cancer and available screening methods, general beliefs and attitudes about the Pap test and cancer of the cervix, the importance of accessing screening services, and perceptions of health care services.

Reliability and Validity

In survey research, the questionnaire is evaluated with respect to validity and reliability. Validity refers to an instrument's ability to measure what it is intended to measure, while reliability pertains to the consistency of the instrument in obtaining similar results (Kirk & Miller, 1986). It is important to have a valid instrument that is reliable when carrying out a survey study. According to Creswell (2005), threats to internal validity relate to the generation of incorrect conclusions caused by erroneous data collection. In my study, caution was exercised to mitigate internal validity threats that might arise from the collected data and the data collection tool. Data collected were put into SPSS Version 25.0 for analysis.

Obtaining data that are misleading (e.g., wrong age, race, gender, or religion) may be a threat to a study's internal validity and may affect the ability to reach the correct conclusion from the data collected (Creswell, 2005). Respondents were informed that they all got an identical questionnaire. Participants were advised not to write their names on the questionnaires. I ensured that the participants were educated about the survey, and

made them aware that participation was voluntary. I urged them to give honest responses to the questions. There was the added advantage of standardizing the questions, phrasing them in a similar fashion to those from tools used in previous studies, thus improving the questionnaire's reliability and validity. The questionnaire was modified for compatibility with the Zimbabwean population. The questionnaire covered a range of issues, including knowledge level of Pap screening tests, attitudes, and beliefs towards cervical cancer and Pap screening tests, socioeconomic and demographic data, and possible reasons for getting a Pap test, health practices, and perceptions of preventive healthcare.

Research Variables

The dependent variable for this study was cervical cancer screening, which according to the WHO guideline of 2013 is recommended for all sexually active women starting at the age of 15. The independent variables were family income, insurance coverage, level of education, age, marital status, and parity, with age being the covariate and the others being potential confounders. Extra caution was taken during the analysis to eliminate confounding. The selection of these variables was based on the ability of the HBM to predict the reason(s) why some people take action towards preventing by screening for illness, like participating in Pap screening for the detection of cervical cancer. An individual's beliefs, attitudes, and perceptions about a disease determine his/her actions to seek methods to prevent, screen for, and control disease. An overview of the variables to be analyzed is presented in Table 1 below.

Table 1

Descriptions of the Variables

Variable	Description	Type of variable
Dependent Variable Cervical cancer screening	Adoption of cervical cancer screening as per WHO recommendation. Yes: Have had a Pap test = 1 No: No, have never had a Pap test = 2	Categorical
Independent variables		
Age	18 - 25 = 1 -26 - 45 = 2 -46 - 65 = 3	Categorical
Monthly family income	Less than $1000 – 1 $1001 and above - 2	Categorical
Insurance coverage	Yes – 1 No - 2	Categorical
Level of education	Primary/Elementary education -1 High School/secondary education -2 University Education -3 Professional (lawyer, doctor etc.). - 4	Categorical
Marital status	Single – 1 Married - 2 Separated - 3 Divorced - 4 Widowed - 5 Other – 6	Categorical
Parity	0 1 - 4 - 8 9 and above	Categorical 5

	What one perceives as barriers to having a Pap test	
Perceived barriers	Strongly agree - 4 Agree - 3 Disagree - 2 Strongly disagree - 1	Categorical
	How severe one perceives cervical cancer to be	
Perceived severity	Strongly agree - 4 Agree - 3 Disagree - 2 Strongly disagree - 1	Categorical
	How much one feels susceptible to cervical cancer	
Perceived susceptibility	Strongly agree – 4 Agree - 3 Disagree - 2 Strongly disagree - 1	Categorical
Perceived benefits	Strongly agree – 4 Agree - 3 Disagree - 2 Strongly disagree – 1	Categorical
Knowledge about cervical cancer	Yes – 1 No - 2	Categorical

Dependent Variable

Cervical Cancer Screening: Whether an individual has had cervical cancer screening was determined using one question. Participants were asked if they had ever had a Pap test. This question was adapted from the Cervical-Cancer-Knowledge-Prevention-64 (CCKP-64), which was used by Jaglarz et al. (2014) and shows good internal reliability. Their studies sought to evaluate women's knowledge, practice, and perceptions of cervical cancer screening and their barriers to it. The Cronbach's

coefficient alphas were 0.918 for knowledge: 0.833 for perception and practice, and 0.795 for barriers. Cronbach's coefficient alpha is used to measure the internal consistency of a scale.

Independent Variables

Data were collected based on seven questions that provided information on each participant's age, marital status, level of education, employment status, family income, insurance coverage and number of children. Questions were adapted from the standard California Behavioral Risk Factor Surveillance System questionnaire which was also used by Yu et al. (1998) and Mupepi et al. (2011), both of whom showed good internal reliability (Cronbach's coefficient alphas were 0.918 for knowledge, 0.833 for perception and practice, and 0.795 for barriers).

Knowledge About Cervical Cancer

To understand the factors that determine the utilization of cervical cancer screening services, it is important to know how knowledgeable participants are regarding cervical cancer. Survey questions were adapted from the Cervical-Cancer-Knowledge-Prevention-64 (CCKP-64), which was used by Jaglarz et al. (2014) to assess schoolgirls' and female students' knowledge levels about cervical cancer and its prevention. The Cronbach alpha coefficient for the whole instrument was 0.71. For my study, the general knowledge section was modified to four questions that assessed how knowledgeable participants were about cervical cancer. Response options were yes or no. Participants were asked if they ever heard of cervical cancer or the Pap test if they ever had a Pap test and also if cervical cancer can be a terminal illness.

Health Belief Model Constructs

The HBM is based on a psychological and behavioral theory which argues there are two components of health behavior whereby an individual tries to avoid illness or to recover from illness while believing that taking a specific health action may help in the prevention or curing of an illness. Based on the five constructs of the HBM, perceived benefits, perceived severity, perceived susceptibility, perceived barriers and cues to action, the action an individual may take to prevent an illness or cure a disease is dependent on his/her perception of benefits or barriers related to a health behavior. All HBM constructs will be measured by asking participants questions adapted from the Cervical Cancer and Pap Test Questionnaire (in Spanish, Creencias, Papanicolaou, Cancer -28, CPC-28) developed by Uruttia and Hall (2013) for examining Chilean women's beliefs regarding cancer of the cervix and the Pap smear. The Cronbach alpha was 0.735. A Likert scale (strongly agree = 4, agree = 3, disagree = 2, and strongly disagree = 1) was used and responses were summed.

Perceived benefits. Perceived benefits were measured by asking nine questions (see appendix A) to determine what the participant considered as benefits of having a Pap test.

Perceived severity. Perceived severity was measured by asking four questions (see appendix A) which covered how serious a health problem participants deemed cervical cancer to be, whether cervical cancer may lead to one having a hysterectomy and whether there is a need for receiving chemo and/or radiotherapy.

Perceived susceptibility. Perceived susceptibility was measured by asking three questions (see appendix A) which asked about how susceptible participants were to contracting cervical cancer and whether it may result in death.

Perceived barriers. Perceived barriers were measured by asking nine questions (see appendix A) which focused on the possible reasons why one may not have a Pap test.

Cues to action. Cues to action were measured by asking six questions (see appendix A) which focused on factors that contributed to one deciding to take action like visiting a healthcare facility to take a Pap test.

Data Analysis Plan

The research questions below were addressed in the study:

RQ1: Is there an association between sociodemographic factors, such as age, marital status, parity, and level of education and cervical cancer screening services utilization by women in Zimbabwe?

H_o1: There is no association between sociodemographic factors, such as age, marital status, parity, and level of education and cervical cancer screening services utilization by women in Zimbabwe.

H_a1: There is an association between sociodemographic factors, such as age, marital status, parity, and level of education and cervical cancer screening services utilization by women in Zimbabwe.

RQ2: Is there an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe?

H_o2: There is no association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe

H_a2: There is an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe

RQ3: Do access to care enabling factors, such as family income and insurance coverage, have an effect on the utilization of cervical cancer screening services among Zimbabwean women?

H_o3: Access to care enabling factors, such as family income and health insurance coverage, do not have an effect on the utilization of cervical cancer screening services among Zimbabwean women.

H_a3: Access to care enabling factors, such as family income and health insurance coverage, have an effect on the utilization of cervical cancer screening services among Zimbabwean women.

RQ4: Is there an association between the constructs of the HBM (perceived barriers, perceived severity, cues to action, perceived susceptibility and perceived benefits) and cervical cancer screening services utilization by women in Zimbabwe?

H_o4: There is no association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe

H_a4: There is an association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe.

RQ5: Do sociodemographic and HBM variables predict cervical cancer screening services utilization by women in Zimbabwe?

H_o5: Sociodemographic and HBM variables do not predict cervical cancer screening services utilization by women in Zimbabwe.

H_a5: Sociodemographic and HBM variables predict cervical cancer screening services utilization by women in Zimbabwe.

Data collected were reviewed and verified to ensure completeness before being analyzed. To make data entry easy and straightforward, each of the survey questions was coded. Data was exported into Statistical Package for Social Scientists 25.0 (SPSS), in which both descriptive and inferential analyses were performed. For the determination of respondents' socio-demographic characteristics, simple frequencies were run. The statistical tests were performed using an alpha level equal to .05 ($\alpha = .05$) for statistical significance. If the *p*-value fell lower or equivalent to that alpha level the null hypothesis was rejected, while the null hypothesis was not rejected if the *p*-value was higher than the alpha level. To analyze the possible relationship between cervical cancer screening services utilization and the predictor variables (sociodemographic and socioeconomic factors such as family income, insurance coverage, level of education, age, marital status, and parity), logistic regression was used. Association was considered significant if the p-value was less than or equivalent to 0.05. Table 2 provides an overview of the statistical analyses used to answer the research questions.

Table 2

Statistical Analysis of Research Questions

Research Question	Variable	Statistical Analysis
1. Is there an association between sociodemographic factors such as age, marital status, parity, and level of education and cervical cancer screening services utilization by women in Zimbabwe?	Age Marital status Parity Level of education	Logistic regression (Bivariate analysis)
2. Is there an association between knowledge about cervical cancer and Pap test and cervical cancer screening services utilization by women in Zimbabwe?	Knowledge about cervical cancer Knowledge about Pap test	Bivariate analysis
3. Does access to care enabling factors such as family income and insurance coverage have an effect on the utilization of cervical cancer screening services among Zimbabwean women?	Family income Insurance coverage	Logistic regression (Bivariate analysis)
4. Is there an association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe?	HBM Constructs	Multiple logistic regression (Multivariate analysis)
5. Which variable is the strongest predictor of cervical cancer screening services utilization?		Multiple logistic regression (Multivariate analysis)

For research question 1 (RQ1), categorical and discrete data were sorted then grouped. Bivariate analysis was used to test the association between categorical variables marital status and level of education and the utilization of cervical cancer screening services, while the t-tests will be used for the continuous (interval) variables, age, and parity. Similarly, for research question 2 (RQ2), bivariate analysis was used to test the association between the categorical variables knowledge about the Pap test and cervical cancer and the utilization of cervical cancer screening services. For research question 3 (RQ3), categorical and discrete data were classified. Bivariate analysis was used to test the association between the categorical variable insurance coverage and the utilization of cervical cancer screening services. Finally, for research question 4 (RQ4) and research question 5 (RQ5), bivariate analysis was used.

Building the Logistic Model

The first step involved examining the data to figure out if there was need for transformation. This was based on distribution, linearity, multicollinearity, and low cell counts to ensure that the assumptions of logistic regression were not violated. Contingency tables were analyzed for each categorical covariate, and those cells with low counts were given particular attention. For the continuous covariate (age), nonparametric smoothing was used. The covariate may be categorized, and attention must be given to the plot of mean response (estimate of π) in every group against the group mid-point. By plotting the logit transformation of the mean response, a plot on the logit scale which suggests the appropriate scale of the variable may be obtained. Alternatively, the logistic regression models may be fitted with one covariate at a time and the fits analyzed.

Particular attention was given to the estimated coefficients, the standard errors they produced and the likelihood ratio tests for the significance of the coefficients.

The second step involved doing a univariate logistic regression to find candidate variables. The Wald statistic was used in verifying the importance of each variable in the multiple model. Each variable coefficient was compared with the model coefficient containing only that variable. Variables that appeared insignificant were eliminated; then a new model was fit and was checked for any significant difference from the old model. Any difference would mean the variable that was deleted was important. The deleting, refitting and verifying processes were repeated until the model included all the important variables. At this stage, variables were added into the model that were not selected in the original model, assessing the joint significance of the variables that were not selected. The importance of this step is the identification of the confounding variables. Any necessary changes could be made in the model. The assumption at this stage was that the preliminary main effects model containing all important variables was complete. All variables whose p-value < 0.25 were selected together with the variables of known test significance.

The third step involved building the model. This involved the checking of the assumption of linearity in logit for every continuous covariate by looking at the smoothed plot of logit in step 1 against the covariate. If not linear, an appropriate transformation of the covariate was done so that the logit was roughly linear in the new variable. Variables were entered one at a time, and the fits analyzed. Particular attention was given to the

estimated coefficients, the standard errors they produced and the likelihood ratio tests for the significance of the coefficients.

Threats to Validity

To solidify the accuracy of a research study, validity is important. According to Frankfort-Nachmias & Nachmias (2015), the importance of validity in a study is the provision of evidence to confirm the ability of the measuring instrument to absolutely measure the variables that it intends to measure. Therefore. The validity of an instrument influences the validity of the study conclusions that are drawn from testing of the hypotheses (Frankfort-Nachmias et al. 2015). Because of logistical management, convenience sampling was used for data collection; therefore, the population for this study was limited to women in the Zimbabwean capital city of Harare. This means that generalizability of results to other populations may not be possible as findings might not be a true representation of the whole country or region. Due to cultural issues, there may be a lack of truthfulness in responses. Arguably, the targeted sampling population was one of a culturally sensitive background; in the Shona culture, it is almost taboo to discuss issues pertaining to reproductive organs, particularly those of women with men (Mawere & Kadenge, 2010). I assumed that the participants who were involved with my study had a sincere interest in participating and therefore gave accurate and reliable responses. However, a threat to validity was possible, as there was a chance that some responses may not have been truthful.

Ethical Considerations

This study was conducted after receiving permission from the Walden University's Institutional Review Board. Before carrying out a study, it is important to consider the rights of the participants (Rudestam & Newton, 2015). Since my study dealt with women from a vulnerable population who cannot protect themselves, it was important to take precautions during and after the data collection process. It was important to consider confidentiality, which is based on the principle of anonymity where I had to make sure participants remained anonymous throughout and after my study (Escobedo et al., 2007).

Informed consent is also a vital step for any research project. Therefore, I presented each participant with the chance to sign a consent form which described the nature and purpose of the research. A promissory note was also included guaranteeing that the participants' personal information and their responses to the questionnaire would remain confidential. As part of the informed consent, I also gave every participant the liberty to decide whether to accept or refuse to participate in the research (Trochim, 2006).In addition, all of the participants were informed about their right to withdraw from the study at any time. Other than each individual's age, no personal information was collected. The survey questionnaires were stored securely in a locked filing cabinet whose access was restricted to me as the researcher. I will destroy these documents after a period of 5 years. There was no monetary reimbursement for participating in the study.

Summary

In this chapter, I provided the techniques I used in data collection to cover each research question. I also briefly described the study design, the population that was sampled, the method for sampling, the study instrument, the data analysis plan, methodology limitations, and ethical considerations. In Chapter 4, I discuss the study findings.

Chapter 4: Results

The goal of the study was to investigate factors that determine the utilization of cervical cancer screening services among Zimbabwean women living in Harare, Zimbabwe. In this chapter, I present the findings used to answer the research questions. The study was centered on these research questions and hypotheses:

RQ1: Is there an association between sociodemographic factors, such as age, marital status, parity, and level of education, and cervical cancer screening services utilization by women in Zimbabwe?

H_o1: There is no association between sociodemographic factors, such as age, marital status, parity, and level of education, and cervical cancer screening services utilization by women in Zimbabwe.

H_a1: There is an association between sociodemographic factors, such as age, marital status, parity, and level of education, and cervical cancer screening services utilization by women in Zimbabwe.

RQ2: Is there an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe?

H_o2: There is no association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe.

H_a2: There is an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe.

RQ3: Does access to care-enabling factors, such as family income and insurance coverage, have an effect on the utilization of cervical cancer screening services among Zimbabwean women?

H_o3: Access to care-enabling factors, such as family income and health insurance coverage, does not have an effect on the utilization of cervical cancer screening services among Zimbabwean women.

H_a3: Access to care-enabling factors, such as family income and health insurance coverage, has an effect on the utilization of cervical cancer screening services among Zimbabwean women.

RQ4: Is there an association between the constructs of the HBM (perceived barriers, perceived severity, cues to action, perceived susceptibility, and perceived benefits) and cervical cancer screening services utilization by women in Zimbabwe?

H_o4: There is no association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe.

H_a4: There is an association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe.

RQ5: Do sociodemographic and HBM variables predict cervical cancer screening services utilization by women in Zimbabwe?

H_o5: Sociodemographic and HBM variables do not predict cervical cancer screening services utilization by women in Zimbabwe.

H_a5: Sociodemographic and HBM variables predict cervical cancer screening services utilization by women in Zimbabwe.

Data Collection

Data were collected in Harare, Zimbabwe between January 12 and 30, 2019. The study sample was limited to women ages 18 to 65 who were recruited from Harare Central Hospital. All of the participants were Zimbabwean nationals. A 40-item questionnaire adapted from Uruttia and Hall (2013) was used to collect data (see Appendix A).

A total of 452 women were approached, of which 412 agreed to complete the questionnaire, for a 91.2% response rate. Forty of the 452 women declined to participate for various reasons such as being in a hurry, not being in a stable mind due to the illness of a loved one in the hospital, or lack of interest. For the 412 questionnaires completed, the raw data were reviewed for accuracy and completeness. Sixteen questionnaires were deemed inadequate for the study due to some questions having multiple responses or missing responses. These questionnaires were not included in the study, leaving a total sample size of 394.

Results

Data were analyzed using descriptive and inferential statistics. This chapter includes the study results starting with the demographics and other characteristics of the participants. Descriptive and inferential statistical results for the research questions are contained in the next sections, and the chapter concludes with a summary of the main findings from the study.

Demographic Profile of Participants

Sociodemographic characteristics of the sample are presented in Table 3. Most participants (32.2%) were in the age group 25-34, followed by those in the 18-24 age group (20.8%). Most participants were married (55.3%), and 42.9% had 3 to 4 children. In terms of education, secondary school graduates made up most of the sample (64.7%).

Overall, 60.9% of the participants were employed, and of these 19.5% were self-employed. Nearly half of the participants (47%) did not have any source of income. Of the 239 employed respondents, 39.8% reported making less than $500 per month. Over two-thirds of the participants did not have health insurance coverage. According to the distribution of the sample, more participants were poor and did not have health insurance.

Table 3

*Demographic Profile (*N=*394)*

	Frequency (*n*)	Percentage	*p*-Value
Age			0.526
18-24	82	20.8	
25-34	131	33.2	
35-44	75	19	
45-54	75	19	
55-65	31	7.9	
Marital Status			0.365
Single never married	76	19.1	
Married/domestic partnership	217	55.3	
Separated	14	3.6	
Divorced	29	7.4	
Widowed	58	14.7	
Number of children			0.621
0	31	7.9	
1-2	155	51	
3-4	169	42.9	
5-6	25	6.3	
7 and above	14	3.6	
Education			0.137
Primary	63	16	
Secondary	255	64.7	
University	57	14.5	
Professional	19	4.8	
Employment			0.878
Unemployed	139	35.3	
Employed	163	41.4	
Retired	15	3.9	
Self-employed	77	19.5	
Monthly income			0.001
0	185	47.0	
1 to 500	157	39.8	
501-1000	47	11.9	
1001 and above	5	1.3	
Health insurance			0.001
Yes	120	30.5	
No	274	69.5	

Knowledge About Cervical Cancer

Table 4 presents how knowledgeable respondents were about cervical cancer. Of the 394 participants in the study, 89.6% indicated that they had heard about cervical cancer, and 63.5% had heard about the Pap test.

Table 4

Participants' Knowledge About Cervical Cancer

	Frequency	Percentage	*p*-Value
Have you ever heard about cervical cancer?			0.001
Yes	353	89.6	
No	28	7.1	
I do not know	13	3.3	
Have you ever heard about the Pap test?			0.001
Yes	250	63.5	
No	134	34.0	
I don't know	10	2.5	
Cervical cancer can be a terminal illness			0.001
Yes	59	15.0	
No	335	85.0	

Cervical Cancer Screening Services Utilization

Table 5 presents the distribution of cervical cancer screening services utilization by Zimbabwean women living in Harare. Of the 394 participants in the study, only 38.8% had ever had a Pap test. Of the 153 who had a Pap test, 19% indicated they had taken their last test more than 4 years ago, 12% more than 2 years ago, 6.9% 1 year ago, .8% less than 1 year ago, and 0.5% about 3 years ago.

Table 5

Cervical Cancer Screening Services Utilization by the Study Participants

	Frequency (*n*)	Percentage	*p*-Value
Have you ever had a Pap test?			<0.001
Yes	153	38.8	
No	240	60.9	
I do not know	1	0.3	
When was your last Pap test?			<0.001
Less than a year	3	.8	
1 year ago	27	6.9	
2 years ago	48	12.2	
3 years ago	2	.5	
Over 4 years	75	19.0	
Never	239	60.7	

Theoretical Variables

To gauge whether the HBM plays a part in Zimbabwean women's utilization of cervical cancer screening services, perceived barriers, perceived severity, beliefs about susceptibility, beliefs about cues to action and perceived benefits are presented in Table 6.

Perceived Barriers

Participants answered nine questions about perceived barriers using a four-point scale. Items asked about the possible reasons why one may not have a Pap test. The mean

for this scale was 2.419 (SD 0.537) When examining individual items, not knowing the age at which it is necessary to have a Pap test (59.9%) and not knowing how often they needed to get a Pap test (58.1%) long waiting times (55%) were the most common perceived barriers. Only 27.4% of the participants cited lack of time as the reason they had not had a Pap test.

Perceived Severity

Participants answered four questions about perceived severity using a four-point scale. Perceived severity items asked about how serious participants deemed cervical cancer as a health problem and had a mean of 3.389 (SD 0.561). The majority of the participants agreed or strongly agreed with all the items, with the highest level of agreement being for cervical cancer may cause death (91.8%), that it may lead to hysterectomy (91.1%) and that it is a serious health problem (90.9%).

Perceived Susceptibility

Participants answered six questions about perceived susceptibility using a four-point scale. Perceived susceptibility items asked how susceptible participants felt about contracting cervical cancer, and whether it may result in death, and had a mean of 3.004 (SD 0.485). The majority of the respondents were aware of falsehood regarding having a Pap test, as the percentages that disagreed or strongly disagreed with the statements if I do not have symptoms, I do not need a Pap test, if I have not had children, I do not need a Pap test, and if I do not have intercourse, I do not need a Pap test were 75.7%, 75.9%, and 69.1%, respectively.

Cues to Action

Participants answered six questions about Cues to Action using a four-item scale Cues to action items asked what could trigger participants to accept recommendations to have a Pap test and had a mean of 3.000 (SD 0.650). The most important cues to action were participants' reading or watching messages about cervical cancer and the Pap test screening in the newspaper, radio, or television (84%), being told by a nurse or midwife to get screened (82.7%), and being told by a doctor to get screened (77.4).

Perceived Benefits

Participants answered six questions about perceived benefits on a four-point scale. Perceived benefits items asked about what the participants considered as the benefits of having a Pap test and had a mean of 3.481 (SD 0.477). The most commonly cited perceived benefits were that it made them feel good (93.4%) and to take care of their health (93.2%). while 88.8% deemed it a lifesaver.

Table 6

Women's Perceptions of Cervical Cancer and the Pap Test (N = 394)

Perceptions/Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
	#	%	#	%	#	%	#	%
Perceived barriers								
I do not have time to get a Pap test.	46	11.7	62	15.7	233	59.1	52	13.2
I have not taken the Pap test because they treat me badly in the healthcare center.	52	13.2	60	15.2	215	54.6	67	17
I do not know at what age it is necessary to have a Pap test.	68	17.3	168	42.6	117	29.7	41	10.4
I have not taken a Pap test because when I go, I need to wait a long time to be seen.	85	21.6	132	33.5	135	34.3	42	10.7

Perceptions/Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
	#	%	#	%	#	%	#	%
I have not taken the Pap test because I am afraid to find out if I have cancer.	70	17.8	99	25.1	155	39.3	70	17.8
I have not taken the Pap test because the healthcare center is only open during hours when I cannot go	39	9.9	60	15.2	233	59.1	62	15.7
I have not taken the Pap test because I am embarrassed to have a genital exam.	90	22.8	51	12.9	175	44.4	78	19.8
I do not know how often I need to get a Pap test.	76	19.3	153	38.8	122	31	43	10.9
I have not taken a Pap test because the clinic is far away.	62	15.7	88	22.3	172	43.7	72	18.3
Perceived severity								
Cervical cancer may lead to death.	196	49.7	166	42.1	24	6.1	8	2
Cervical cancer may lead to a woman having a hysterectomy. (Removal of uterus)	215	54.6	144	36.5	30	7.6	5	1.3
Cervical cancer is a serious health problem.	219	55.6	139	35.3	28	7.1	8	2.0
Cervical cancer can lead to a woman needing to receive chemotherapy or radiotherapy treatment.	188	47.7	144	36.5	43	10.9	19	4.8
Perceived susceptibility								
If I do not have symptoms, I do not need a Pap test.	50	12.7	46	11.7	217	55.1	81	20.6
If I have not had children, I do not need a Pap test.	36	9.1	59	15	218	55.3	81	20.6
If I do not have intercourse, I do not need a Pap test.	47	11.9	75	19	193	49	79	20.1
I am at risk for developing cervical cancer.	143	36.3	162	41.1	73	18.5	16	4.1
If I have cervical cancer, I can die.	163	41.4	157	39.8	64	16.2	10	2.5
Cervical cancer is one of the most common cancers among women of my age.	180	45.7	150	38.1	45	11.4	19	4.8

Perceptions/Items	Strongly Agree		Agree		Disagree		Strongly Disagree	
	#	%	#	%	#	%	#	%
Cues to action								
I have taken a Pap test:								
Because a nurse or midwife told me.	132	33.5	194	49.2	55	14	13	3.3
Because a doctor told me.	115	29.2	190	48.2	77	19.5	12	3
Because my mother spoke to me about it.	114	28.9	133	33.8	128	32.5	19	4.8
Because a friend or neighbor spoke to me about it.	111	28.2	139	35.3	122	31.0	22	5.6
Because members of my family told me to get it.	110	27.9	149	37.8	113	28.7	22	5.6
Because I listened to or read something in the newspaper or on a television or radio program.	165	41.9	166	42.1	50	12.7	13	3.3
Perceived benefits								
Getting a Pap test makes me feel good because it means that I take care of my health.	262	66.5	106	26.9	21	5.3	5	1.3
The Pap test can save my life.	195	49.5	155	39.3	30	7.6	14	3.6
To take care of my health.	234	59.4	133	33.8	20	5.1	7	1.8

Inferential Statistics

To further evaluate factors that influenced Zimbabwean women living in Harare to utilize cervical cancer screening services, inferential statistics were used to analyze the research questions.

RQ1: Is there an association between sociodemographic factors such as age, marital status, parity, and level of education and cervical cancer screening services utilization by women in Zimbabwe?

*Ho*1: There is no association between sociodemographic factors such as age, marital status, parity, and level of education and cervical cancer screening services utilization by women in Zimbabwe?

Ha1: There is an association between sociodemographic factors such as age, marital status, parity, and level of education and cervical cancer screening services utilization by women in Zimbabwe.

As seen in Table 7, the results obtained from the testing of the first null hypothesis showed that having received a professional level of education was significantly associated with cervical cancer screening services utilization by the women in Zimbabwe ($p < 0.05$). The first null hypothesis was therefore rejected in favor of the alternative hypothesis. When compared to those with only primary school education, those with professional education were more than three times as likely to utilize cervical cancer screening services. No other demographic variable was related to screening.

Table 7

Univariate Logistic Regression for Sociodemographic Factors

							95% C.I. of Exp (B)	
	B	*S.E.*	*Wald*	*df*	*p*	*Exp (B)*	*Lower*	*Upper*
Participant age 18-24	Ref		3.162	4	.531			
25-34 years	.501	.298	2.821	1	.093	1.650	.920	2.960
35-44 years	.474	.335	1.996	1	.158	1.606	.832	3.100
45-54 years	.419	.336	1.550	1	.213	1.520	.786	2.938
55-65 years	.365	.440	.687	1	.407	1.440	.608	3.410
Marital Status Single never married	Ref		4.294	4	.368			
Married/Domestic partnership	-.480	.271	3.143	1	.076	.619	.364	1.052
Separated	-.129	.587	.049	1	.825	.879	.278	2.776
Divorced	-.334	.447	.560	1	.454	.716	.298	1.718
Widowed	-.049	.350	.020	1	.888	.952	.479	1.891
Number of children	-.028	.047	.350	1	.554	.973	.888	1.066

	B	*S.E.*	*Wald*	*df*	*p*	*Exp (B)*	*95% C.I. of Exp (B)* *Lower*	*Upper*
Highest level of School								
Primary	Ref		5.357	3	.147			
Secondary	.368	.303	1.477	1	.224	1.446	.798	2.619
University	.593	.383	2.398	1	.122	1.809	.854	3.832
Professional	1.158	.540	4.606	1	.032	3.184	1.106	9.170

Note. The dependent variable is a binary categorical variable on whether a woman uses cervical cancer screening services or not. Each of the independent variables is included into the univariate model with the dependent variable.

RQ2: Is there an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe?

*Ho*2: There is no association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe.

*Ha*2: There is an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services utilization by women in Zimbabwe.

As seen in table 8, for research question two, both having ever heard of the Pap test and cervical cancer were significantly associated with utilization of cervical cancer screening services by the women in Zimbabwe ($p<.001$). Those who had heard of the Pap test were about 70 times (OR=70.500, 95% CI of OR = (21.854, 227.428) to utilize cervical cancer screening as those who had not heard of the Pap test. Those who had cervical cancer knowledge were nearly seven times (*OR* = 6.756, 95% C.I. of OR = (2.357, 19.365), $p < 0.001$) as likely to utilize cervical cancer screening services as those who never heard of the disease. Therefore, the null hypothesis was rejected, while the alternative hypothesis was accepted.

Table 8

Univariate Logistic Regression Coefficients for Knowledge

	B	*S.E.*	*Wald*	*df*	*p*	*Exp (B)*	*95% C.I. of Exp (B)* *Lower*	*Upper*
Yes No	Ref							
Having heard of Pap test	4.256	.598	50.716	1	.000	70.500	21.854	227.428
Cervical cancer knowledge	1.910	.537	12.645	1	.000	6.756	2.357	19.365

Note. The dependent variable is a binary categorical variable on whether a woman has heard about cervical cancer or the Pap test. Each of the independent variables is put into the univariate model with the dependent variable.

RQ3: Do access to care enabling factors, such as family income and insurance coverage, have an effect on the utilization of cervical cancer screening services among Zimbabwean women?

*Ho*3: Access to care enabling factors, such as family income and health insurance coverage, do not have an effect on the utilization of cervical cancer screening services among Zimbabwean women.

*Ha*3: Access to care enabling factors, such as family income and health insurance coverage, have an effect on the utilization of cervical cancer screening services among Zimbabwean women.

As seen in table 9, monthly income, as well as health insurance status, had significant effects on cervical cancer screening services utilization by the women in Zimbabwe ($p<.05$). Those who reported having a monthly income of 501 USD and above were more than five and a half times ($OR = 5.655$, 95% C.I. 2.848, 11.226, $p < 0.001$) as

likely to utilize cervical cancer screening services as those who had 0 USD monthly income. Furthermore, those who reported having health insurance were nearly two and a half times (*OR* = 2.376, 95% C.I. of OR = (1.532, 3.684), $p < 0.001$) as likely to utilize cervical cancer screening services as those who did not have health insurance. Based on these findings, the null hypothesis was therefore rejected in favor of the alternative hypothesis.

Table 9

Regression Coefficients for Care-Enabling Factors

							95% C.I. of Exp (B)	
	B	*S.E.*	*Wald*	*df*	*p*	*Exp (B)*	*Lower*	*Upper*
Monthly income in US$ (0)	Ref		25.657	2	.000			
1-500	.116	.229	.257	1	.612	1.123	.716	1.761
501 and above	1.732	.350	24.520	1	.000	5.655	2.848	11.226
No	Ref							
Yes								
Health insurance	.865	.224	14.936	1	.000	2.376	1.532	3.684
Employment status (Unemployed)	Ref		.678	3	.878			
Employed	-.069	.236	.084	1	.772	.934	.588	1.483
Retired	.106	.567	.035	1	.852	1.112	.366	3.378
Self employed	-.223	.295	.570	1	.450	.800	.449	1.426

Note. The dependent variable is a binary categorical variable on whether a woman uses cervical cancer screening services or not. Each of the independent variables is put into the univariate model with the dependent variable.

RQ4: Is there an association between the constructs of the HBM (perceived barriers, perceived severity, cues to action, perceived susceptibility and perceived benefits) and cervical cancer screening services utilization by women in Zimbabwe?

*Ho*4: There is no association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe

*Ha*4: There is an association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe.

The effects of the constructs of HBM (namely, perceived barriers, perceived severity, cues to action, perceived susceptibility and perceived benefits) were obtained by calculating the average for the components/items that make up each of the constructs.

The logistic regression model (Table 10) indicates that perceived susceptibility to cervical cancer perceived benefits and perceived barriers to cervical cancer screening had a significant ($p < 0.05$) relationship with the utilization of cervical cancer screening services by the women in Zimbabwe. Those who perceived more barriers to cervical cancer screening were about half as likely to be screened when compared to those with less perceived barriers ($OR = 0.534$, 95% *C.I.* of $OR = (0.359, 0.794)$, $p < 0.05$). When compared to those who felt not susceptible, those who felt susceptible were about one and a half times as likely to be screened ($OR = 1.543$, 95% *C.I.* of $OR = (1.009, 2.360)$, $p < 0.05$); and similarly when compared to those who saw no benefit in cervical cancer screening, those who perceived there are benefits to cervical cancer screening were about one and a half times as likely to be screened ($OR = 1.560$, 95% *C.I.* of $OR = (1.003, 2.428)$, $p < 0.05$). The null hypothesis was therefore rejected in favor of the alternative hypothesis.

Table 10

Regression Coefficients for the Constructs of HBM

							95% C.I. of Exp (B)	
	B	*S.E.*	*Wald*	*df*	*p*	*Exp (B)*	*Lower*	*Upper*
Perceived barriers	-.627	.202	9.626	1	.002	.534	.359	.794
Perceived severity	.340	.190	3.205	1	.073	1.404	.968	2.037
Perceived susceptibility	.434	.217	4.003	1	.045	1.543	1.009	2.360
Cues to action	-.025	.159	.025	1	.873	.975	.714	1.332
Perceived benefits	.445.104	.226	3.889	1	.049	1.560	1.003	2.428

Note. The dependent variable is a binary categorical variable on whether a woman uses cervical cancer screening services or not. The constructs of HBM (namely, perceived barriers, perceived severity, cues to action, perceived susceptibility and perceived benefits) are obtained by calculating the average for the components/items that make up each of the constructs.

RQ5: Do sociodemographic and HBM variables predict cervical cancer screening services utilization by women in Zimbabwe?

*Ho*5: Sociodemographic and HBM variables do not predict cervical cancer screening services utilization.

*Ha*5: Sociodemographic and HBM variables predict cervical cancer screening services utilization.

As seen in table 11, the strongest predictor of cervical cancer screening services utilization was monthly income. Those who had a monthly income of 501 USD and above were nearly six times (OR = 5.839, 95% C.I. of OR = (2.394, 14.241), $p < 0.001$) as likely to utilize cervical cancer screening services as those who had 0 USD monthly income.

The second strongest predictor of cervical cancer screening services utilization was marital status, as those who were divorced were less than one-third (*OR* = 0.299, 1/OR = 3.344, 95% C.I. of OR = (0.098, 0.912), $p < 0.05$) as likely to utilize cervical cancer screening services as those who were single. Similarly, those who were married or in a domestic partnership were less than one-half (*OR* = 0.466, 1/OR = 2.146, 95% C.I. of OR = (0.235, 0.925), $p < 0.05$) as likely to utilize cervical cancer screening services as those who were single.

Another strong predictor of cervical cancer screening services utilization was the HBM construct perceived barriers. Those who perceived more barriers to cervical cancer screening were about half as likely to be screened when compared to those with less perceived barriers (*OR* = 0.472, 95% *C.I.* of *OR* = (0.293, 0.760), $p < 0.05$, Table 11).

Table11

Regression Coefficients for Sociodemographic Factors, Care-Enabling Factors, and Constructs of HBM

							95% C.I. of Exp (B)	
	B	*S.E.*	*Wald*	*df*	*p*	*Exp (B)*	*Lower*	*Upper*
Participant age								
18-24 years	Ref		2.964	4	.564			
25-34 years	.556	.355	2.445	1	.118	1.743	.869	3.497
35-44 years	.200	.418	.229	1	.632	1.221	.538	2.771
45-54 years	.351	.433	.659	1	.417	1.421	.609	3.318
55-65 years	.172	.564	.093	1	.760	1.188	.393	3.591
Marital status								
Single never married	Ref		8.069	4	.089			
Married/Domestic Partnership	-.764	.350	4.770	1	.029	.466	.235	.925
Separated	-.908	.696	1.701	1	.192	.403	.103	1.578
Divorced	1.208-	.569	4.502	1	.034	.299	.098	.912

							95% C.I. of Exp (B)	
	B	*S.E.*	*Wald*	*df*	*p*	*Exp (B)*	*Lower*	*Upper*
Widowed	-.184	.460	.159	1	.690	.832	.338	2.051
Number of children	-.076	.057	1.800	1	.180	.927	.829	1.036
Highest level of School primary	Ref		3.211	3	.360			
Secondary	.365	.338	1.170	1	.279	1.441	.743	2.793
University	-.223	.488	.208	1	.648	.800	.308	2.083
Professional	-.003	.688	.000	1	.997	.997	.259	3.843
Monthly income in USD $0	Ref		15.719	2	.000			
1-500	.174	.295	.348	1	.555	1.190	.668	2.120
501 and above	1.765	.455	15.050	1	.000	5.839	2.394	14.241
Health insurance	-.703	.280	6.309	1	.012	.495	.286	.857
Employment status (Unemployed)	Ref		3.926	3	.270			
Employed	-.517	.291	3.148	1	.076	.596	.337	1.056
Retired	.273	.661	.171	1	.679	1.314	.360	4.796
Self employed	-.232	.393	.349	1	.555	.793	.367	1.714
Perceived barriers	-.750	.243	9.527	1	.002	.472	.293	.760
Perceived severity	.159	.241	.437	1	.509	1.173	.731	1.881
Susceptibility Domain	-.127	.288	.193	1	.660	.881	.501	1.549
Cues to action	.038	.188	.040	1	.841	1.038	.718	1.502
Perceived benefits	.418	.275	2.307	1	.129	1.519	.886	2.607

Note. The dependent variable is a binary categorical variable on whether a woman uses cervical cancer screening services or not. The logistic regression model is statistically significant ($p < 0.05$) and has a moderate effect size of 0.415 (based on the coefficient of determination – the Cox and Snell R Squared).

Summary

Chapter 4 presented the purpose of the study, the research questions, the null and alternative hypotheses of this study. The data collection process was stated in brief and a description of the data analysis process followed. Descriptive statistical analysis was provided with frequency tables displaying the results of the analysis based on each of the independent variables. Inferential statistical analysis was performed using the logistic

regression model to investigate the research questions, and to test the hypotheses. The data analysis showed that following the testing of the hypotheses of the study, all the 5 null hypotheses were rejected in favor of the alternative hypotheses.

For RQ1: There was an association between education level and utilization of cervical cancer screening services by women in Zimbabwe. Women with professional education were more than three times as likely to get screened for cervical cancer as their counterparts with only primary education.

For RQ2, there was an association between having ever heard of the Pap test or having cervical cancer knowledge and the utilization of cervical cancer screening services by the women in Zimbabwe. Those who had heard of the Pap test were about 70 times as likely to utilize cervical cancer screening services as those who had never heard of the test, and those who had cervical cancer knowledge were almost seven times as likely to utilize cervical cancer screening services as those who had never heard of the disease.

For RQ3, there was an association between certain access to care enabling factors and the utilization of cervical cancer screening services among Zimbabwean women as those who had monthly income of 501 US$ and above were more than five and a half times as likely to utilize cervical cancer screening services as those who had no monthly income. Additionally, those who had health insurance were nearly two and a half times as likely to utilize cervical cancer screening services as those who did not have coverage.

For RQ4, there was an association between three of the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe. Women with

more perceived barriers were less likely to utilize cervical cancer screening services when compared to those with less perceived barriers. In addition, women who felt susceptible to cervical cancer were more likely to get screened than those who didn't feel susceptible. Finally, women who perceived benefits to cervical cancer screening were more likely to be screened than those who didn't perceive any benefits.

For RQ5, some sociodemographic and HBM variables predicted cervical cancer screening services utilization as there were three strong predictors of cervical cancer screening services utilization, monthly income, marital status, and the HBM construct perceived barriers. Monthly income was the strongest predictor of screening services, as those who had monthly income above 501 were nearly six times as likely to utilize cervical cancer screening services as those with no income. The second strongest predictor of cervical cancer screening services utilization was marital status. Those who were single were over three times as likely to utilize cervical cancer screening services as those who were divorced. Similarly, those who were single were about two times as likely to utilize cervical cancer screening services as those who were married or in a domestic partnership. Another strong predictor of cervical cancer screening services utilization was the HBM construct perceived barriers. Those who perceived more barriers to cervical cancer screening were about half as likely to utilize screening services when compared to those who perceived fewer barriers.

In Chapter 5, I discuss the significance of the findings in light of the literature and public health implications, as well as the conclusions derived from the study. In addition,

the limitations of the study are discussed and recommendations for future research provided.

Chapter 5: Discussion, Conclusions, and Recommendations

Cervical cancer is one of the leading causes of death among women, and it is the number one cause of cancer death in developing countries like Zimbabwe. It is also one of the most preventable cancers if detected early. Through the introduction of preventive measures in populations naive to screening, rates of cervical cancer have been reduced by 60% to 90% in about 3 years of implementation (WHO, 2015). Moreover, mortality and morbidity reduction related to the introduction of Pap smear screening has produced consistent and dramatic results in populations across the globe. Knowledge about the disease and the availability of screening tests is key (WHO, 2015).

The goal of this study was to examine factors that determine the utilization of cervical cancer screening by women living in Harare, Zimbabwe. I investigated the independent variables of age, marital status, parity, knowledge about cervical cancer and the Pap test, level of education, family income, insurance coverage and the HBM constructs (namely, perceived barriers, perceived severity, cues to action, perceived susceptibility, and perceived benefits) to determine whether they play any role in the utilization of screening services by women in Harare. This was a quantitative, nonexperimental cross-sectional study based on a survey.

Key Findings

The study's first research question addressed whether there was an association between sociodemographic factors such as age, marital status, parity, and level of education and cervical cancer screening services utilization by women in Zimbabwe. Of the demographic variables, only the level of education was significantly associated with

cervical cancer screening services utilization. Women with professional-level education were 3 times more likely to utilize cervical cancer screening services than those with primary-level education.

The second research question addressed whether there was an association between knowledge about cervical cancer and the Pap test and cervical cancer screening services. Findings indicated that having heard of the Pap test or having cervical cancer knowledge played a significant role in the utilization of cervical cancer screening services by the women in Zimbabwe. Those who had heard of the Pap test were about 70 times more likely to utilize cervical cancer screening services than those who had not heard of the Pap test, and those who were knowledgeable about cervical cancer were about 7 times more likely to utilize cervical cancer screening services than those who had never heard of the disease. Research Question 3 addressed whether enabling factors such as family income and insurance coverage had an effect on the utilization of cervical cancer screening services. Results indicated that women who made at least US$501 a month were 5.5 times more likely to utilize cervical cancer screening services than those without any income. Women who reported having health insurance were 2 times more likely to utilize cervical cancer screening services than those who did not have health insurance.

Research Question 4 addressed whether the constructs of the HBM were associated with cervical cancer screening services utilization by women in Zimbabwe. Three constructs of the HBM were found to be influential to the utilization of screening services: perceived barriers, perceived benefits, and perceived susceptibility. The fewer the perceived barriers to cervical cancer screening, the higher the likelihood of utilizing

cervical cancer screening services. Those who perceived fewer barriers to cervical cancer screening were nearly twice as likely to be screened as those with more perceived barriers. In addition, women who perceived there were benefits to screening were about 1.5 times more likely to get screened than women who perceived there were no benefits to cervical cancer screening. Finally, women who felt susceptible were 1.5 times more likely to be screened than women who did not feel susceptible to cervical cancer.

Research Question 5 addressed which sociodemographic and HBM variables were the strongest predictors of cervical cancer screening services utilization by women in Zimbabwe. Findings indicated that monthly income, marital status, and perceived barriers were the strongest predictors of cervical cancer screening services by Zimbabwean women in Harare. Income was a significant determinant of screening services, as women who made at least US$501 a month were nearly 6 times more likely to utilize cervical cancer screening services than those without any income. Those who were single were 3 times more likely to utilize cervical cancer screening services than those who were divorced. Similarly, those who were single were 2 times more likely to utilize cervical cancer screening services than those who were married or were in a domestic partnership. Finally, women with fewer perceived barriers to cervical cancer screening were twice more likely to utilize cervical cancer screening services than those who perceived more barriers.

Interpretation of the Findings

Demographic Factors and Cervical Cancer Screening Services Utilization

One of the goals of this study was to determine whether an association between sociodemographic factors (age, marital status, parity, and level of education) and the utilization of cervical cancer screening services existed. Of the demographic variables studied, only education had a significant association with cervical cancer screening. According to Soneji and Fuki (2013), level of education is arguably the best predictor of quality of health because the higher the level of education, the higher the chances of being employed, earning a decent income, and having health insurance coverage and improved health status. Findings from the current study showed that an individual's level of education played a role in the utilization of cervical cancer screening services. Women with professional-level education were 3 times more likely to utilize cervical cancer screening services than those with primary-level education. This finding was consistent with Soneji and Fuki who argued that the educational and occupational statuses of an individual are often related to his or her level of health literacy and financial capability to meet health care costs.

In the current study, age and parity did not have any association with the utilization of cervical cancer screening services in Harare. This result differed from those of other studies in which these variables did play a role in the utilization of screening services. Soneji and Fukui (2013) found that age and parity were important determinants of cervical cancer screening, as most women of childbearing age were likely to visit

maternal health care clinics during pregnancy where the Pap test and mandatory tests for diseases like gonorrhea and chlamydia were performed.

Cervical Cancer and Pap Test Knowledge

This study addressed the association between knowledge about cervical cancer and the Pap test and cervical cancer screening in Zimbabwean women. For women to appreciate available cervical cancer screening methods, there needs to be awareness of the availability of the screening methods and knowledge about the disease. In the current study, women who had knowledge of the Pap test were 7 times more likely to utilize cervical cancer screening services than those who had no knowledge of the test. This finding was consistent with those from multiple studies carried out in the sub-Saharan region of Africa. Several researchers found that the lack of cervical cancer screening by African women was mainly due to lack of knowledge about the Pap test (Better Healthcare for Africa, 2013; Compaore et al., 2013; Ebu et al., 2015; Firnhaber et al., 2015; McFarland, 2013; Oche et al., 2013; Rosser et al., 2015; Teng et al., 2014).

On the other hand, results from the current study showed that women who were knowledgeable about cervical cancer were more likely to utilize cervical cancer screening services than those who had no knowledge of the disease. This was consistent with Soneji and Fuki (2013) who found that among women from Latin American countries, which included Bolivia, Brazil, Dominican Republic, Ecuador, Guatemala, Nicaragua, Peru, and Trinidad and Tobago, knowledge about cervical cancer was a key determinant to having a Pap test. Morema et al. (2014) had similar findings in Kenya, where knowledge about cervical cancer was significant in determining screening services utilization.

Additionally, studies in West Africa by Idowu et al. (2016) and Sudenga et al. (2013) also indicated that low levels of knowledge or awareness about cervical cancer played a role in a woman's chances of participating in cervical cancer screening.

It is logical to say that those lacking knowledge about a disease are less likely to participate in preventive screening for that disease. Being knowledgeable about a specific disease has been attributed as a possible factor affecting screening behaviors among various populations in different parts of the world (Soneji & Fukui, 2013). Women who have no knowledge about cervical cancer and the procedure used to test for it will not consider preventive measures due to ignorance. On the other hand, t those knowledgeable about a disease and the importance of preventive healthcare services would probably be more likely to receive routine screening services.

Cervical Cancer Screening Enabling Factors

This study also assessed whether enabling factors such as family income, insurance coverage, and employment status have an effect on the utilization of cervical cancer screening services among Zimbabwean women. Enabling factors are the available societal or environmental resources that make it convenient for individuals to seek healthcare services (Mosadeghrad, 2014). There are immense challenges associated with balancing the cost of living for low-income earners, who have to make a choice between basic necessities such as food, clothes and shelter and preventive healthcare such as cervical cancer screening (Lim & Ojo, 2016). The findings from the current study indicated that women who made at least US$501 a month were nearly six times as likely to utilize cervical cancer screening services as those without any income. This finding

concurred with that from a study conducted in Kenya by Morema et al. (2014), who found a strong association between income level and utilization of screening services. Similarly, these findings agreed with those of Lim and Ojo (2016), who carried out a systematic review of previous studies of perceived barriers which prevented women in multiple countries in the sub-Saharan region of Africa from utilizing cervical cancer screening services even though they were widely available. One major barrier identified was low income. Based on these findings, it can be argued that having personal earnings gives individuals the financial flexibility to make good personal health decisions like to receive screening.

Health insurance coverage has been shown to be an important determinant of the utilization of preventive health care services in various parts of the world (Rotarou & Sakellariou, 2018). In the current study, health insurance coverage played an important role in the utilization of cervical cancer screening services. Women who reported having health insurance were two times as likely to utilize cervical cancer screening services as those who did not have health insurance. This finding concurred with that of a 2004 study in California by Bazargan et al., which found that Hispanic women living without health insurance coverage were less likely to be screened for cervical cancer as well as to receive other preventive measures as those with health insurance.

Only 30% of the current study's participants had health insurance coverage which supports Bazargan et al's study findings. It is therefore arguable that in both these studies, the reason for low adherence to screening services was the lack of health insurance. Also, only 41% of the current study participants were formally employed. This played a

significant role in the percentage of those with health insurance since most coverages are employer-based.

Theoretical Constructs

Research question 3 aimed to determine whether there is an association between the constructs of the HBM and cervical cancer screening services utilization by women in Zimbabwe. The goal of the study was to make a contribution towards understanding factors that influence the utilization of cervical cancer screening services using a theoretical model, the HBM. Univariate findings indicated that participants who perceived the Pap test as beneficial (perceived benefits), and those who felt a higher degree of susceptibility (perceived susceptibility) to cervical cancer had a significantly better chance of getting screened, whereas those who felt there were impediments (perceived barriers) were less likely to be screened. The constructs of the HBM perceived severity and cues to action were not found to be statistically significant, although they have been found to be significantly associated with utilization of cervical cancer screening services in other studies (Austin, Ahmad, McNally, & Stewart, 2002; Johnson, Mues, Mayne, & Kiblawi, 2008; Watts et al. 2009).

The current study findings indicated that perceived barriers play a significant role in the utilization of cervical cancer screening services**.** Any factors that an individual may consider as hindrances to their ability to seek cervical cancer screening may be classified as perceived barriers. These barriers may be eliminated or reduced in multiple ways, including financial support. The study findings indicated that women with more

perceived barriers to cervical cancer screening were less likely to utilize cervical cancer screening services when compared to those with less perceived barriers.

Knowing that one is at risk of getting a particular disease has been attributed to a positive mindset where individuals would choose to seek preventive services (Lim & Ojo, 2016). However, in the current study, 42.9% of the participants agreed or strongly agreed with the statement that they had not taken the Pap test because they were afraid to find out if they had cancer. This was in agreement with Williams et al., (2013) who found that the general belief that cancer is an incurable disease where a positive diagnosis equates to a death sentence caused some women to opt-out of the screening, as they saw no benefit of it. However, the study by Lim and Ojo (2016), which was conducted in other continents, found that perceived severity of the disease was a major reason for the utilization of screening services by women (Lim & Ojo, 2016).

Although, 91% of participants in the current study appreciated the importance of the Pap test, nearly 36% of the participants indicated that they did not have the Pap test because they felt embarrassed to have a genital exam. These findings were supported by Ackerson (2010) and Abdullahi (2009) who found that some women feel embarrassed to be observed by male health care providers, while others simply feel they are healthy and it is, therefore, unnecessary to undergo a pelvic examination for no compelling reasons. A study by Wardle et al. (2015) also concurred with these findings. In their study, participants pointed out personal negative experiences such as bleeding and pain or receiving negative feedback from friends and family as barriers to having a Pap smear.

Distance to the nearest clinic plays an important role in health care, 38% of participants in the current study indicated that they had not taken the Pap test because the clinic was far away. Even though there are local clinics in most residential areas in Harare, the majority of them do not offer the Pap screening test. Therefore, those wanting the test have to travel by bus to the nearest facility that offers the test. A study in India by Soneji et al., (2013) also cited accessibility as a major factor in determining women's utilization of screening services, as some women had to walk several miles to reach the nearest clinic or had to pay bus fare to travel. Similarly, a study in Thika, Kenya, by Ngugi et al. (2012) found the distance to the nearest health care center as a major concern, as some women had to walk several miles to get to the nearest clinic. In addition, in a study by Ndikom, Ofi and Omokhodion (2014) in Ibadan, Nigeria, transportation costs and distance were identified by respondents as major barriers to screening services utilization.

The current study found that perceived susceptibility has a significant effect on Zimbabwean women's utilization of cervical cancer screening services. The vast majority of the participants (85%) agreed or strongly agreed that if they contracted cervical cancer they could die from it. Women who felt susceptible were one and a half times as likely to be screened as those who did not feel susceptible. This finding was in agreement with findings by Paz-Soldán et al., (2012) and Mutyaba et al., (2006) that the reason women in developing countries fail to have routine Pap tests is the perception that they are not at risk of developing cervical cancer. Furthermore, Tavian's (2012) study found that women

who believe they are prone to cervical cancer risk factors will likely act to avert possible adverse effects associated with getting the disease.

In the current study, women who perceived there are benefits to cervical cancer screening were one and a half times as likely to get screened as those who did not perceive any benefits. The construct perceived benefits is built on the premise that those with perceived benefits have a major likelihood of taking preventive actions when compared to those without any perceived benefits or little perceived benefits. The vast majority of the participants (93.4%) agreed or strongly agreed that having a Pap smear made them feel good, 93.2% felt that a Pap test was important to take care of their health, while 88.8% deemed it a lifesaver.

Multivariate Model Findings

The final aim of the current study was to determine which sociodemographic and HBM variables were the strongest predictors of cervical cancer screening services utilization. Monthly income, marital status, and perceived barriers were the strongest predictors of cervical cancer screening. The strongest predictor was the monthly income. Women who had a monthly income of US$501 and above were nearly six times as likely to utilize cervical cancer screening services as those who had no monthly income. The second strongest predictor of cervical cancer screening services utilization was marital status. Single women were more than three times as likely to utilize cervical cancer screening services as those who were divorced, and when compared to married women or those in domestic partnership single women were about two times as likely to utilize cervical cancer screening services. It is possible that the cost of the Pap test may have

been the reason why divorced women were less likely to be screened, as most divorced women in Zimbabwe are left to fend for themselves as well as take care of the children, thus limiting the amount of disposable income available to them for screening.

This hypothesis regarding divorced women and cost concurs with the findings in sub-Saharan Africa of Lim and Ojo (2016), who found that one major reason women failed to have Pap tests was lack of spousal support and the Pap cost. Even where both husband and wife are working and bringing in paychecks at the end of every month, women may not make any financial decisions without consulting their husbands and may, therefore, choose to forgo preventive screening such as the Pap test (Lim & Ojo, 2016).

The current study found that the strongest HBM variable was perceived barriers. The more challenges a woman perceives as barriers to cervical cancer screening, the less likely her chances of getting screened for cervical cancer. By including external and/or social factors in the model, such as age, marital status, income, and parity that influence an individual's health behavior, the HBM's strength as an explanatory model in this study was improved.

Limitations of the Study

There were some limitations associated with this study. Data collection for this study was done at Harare Central Hospital, which is situated in the southwestern part of the city. Even though a large percentage of the city's population uses the hospital, the generalizability of the results may be limited, as the hospital's location and accessibility favor certain suburban areas, more specifically the west and southwestern areas. Women from the northern and eastern suburbs may have been underrepresented, while those from

the west and southwest were overrepresented. Therefore some caution should be taken in extrapolating the study findings. Also, the study was conducted in an urban setting.

The study utilized self-reported information about demographics and knowledge about cervical cancer which may not have been accurate. Additionally, the study used a cross-sectional design which falls short on determining possible causes. Different societies have different cultures and traditions, and in each culture, certain norms, practices, and values that govern beliefs form the behavioral foundation. A group's culture, attitudes, and beliefs are pivotal to individuals' behaviors regarding how they utilize health care services (Johnson et al., 2008). Cultural values have been known to influence the utilization of health care services in different populations (Arredondo et al., 2008; Boyer, Williams, Clark, & Marshall, 2000; Johnson et al., 2008). Examining how culture may have influenced screening decisions would have provided a deeper understanding in the current study. Since there are significant disparities in the socioeconomic status of rural versus urban populations in Zimbabwe, the findings may not be generalizable to be a true reflection of the opinions of all the nearly 3 million Zimbabwean women of reproductive age.

Recommendations for Research and Practice

Despite the limitations stated above, the impact of the study findings should not be underestimated. This study focused on women residing in Harare, and data collection was centered at Harare hospital. I recommend that future studies sample from more centers in several suburban and urban areas to come up with a more representative sample.

Lack of knowledge about the disease and the Pap test were key reasons among participants for not receiving cervical cancer screening. The implementation of educational programs and campaigns to increase compliance is therefore of utmost importance. Cervical cancer screening programs are not readily available within some communities, as confirmed by participants who had to travel long distances to the nearest facility that offered the test. Therefore, the number of testing centers must be increased and made more accessible at the community level.

Emphasis must be put on the role of the nurse in the recommendation of the Pap test to all women visiting healthcare institutions to increase awareness. In the current study, the majority of participants had never had the Pap test, and the level of adherence to screening frequency was low for those who had the test. This means there are barriers playing a role in the lack of testing. Studying the barriers to cervical cancer screening would go a long way in helping policymakers and public health officials.

Culture has been noted to play a significant role in the utilization of preventive health services in various populations around the globe. It will be valuable for future studies to examine how culture may influence screening decisions by Zimbabwean women. This study provides a clearer understanding of some of the major factors that affect the utilization of cervical cancer screening services in Zimbabwe. Any future studies should continue exploring ways to shed light on factors limiting accessibility to preventive services related to cervical cancer among all women in Zimbabwe.

Implications

Social Change

These study findings may play a pivotal role in social change within the Zimbabwean female community, as the level of understanding regarding preventive healthcare needs related to cervical cancer has been enhanced. It is unfortunate that in a country with a population of more than 14 million people where at least 3 million women are of reproductive age that only 35,000 women get the Pap test done annually (Better Healthcare for Africa, 2014). With more focus being shifted from sickness and cure to wellness and prevention, the effect of research aided social change in public health cannot be underestimated. My goal is to use these findings to work with the ministry of health, public health officials and other stakeholders to introduce a large-scale screening program to cover the vulnerable and disadvantaged population.

The reason why mankind celebrates new milestones in medical technology is the fact that more lives are likely to be saved; however, when lives continue to be lost when there are seemingly good options to prevent such deaths, there should be cause for concern. Findings from this study may help public health officials plan and help improve awareness on the benefits of prevention, early detection, and treatment of cervical cancer. The study results may also help policymakers in making informed decisions when coming up with policies and health campaigns related to the prevention of cervical cancer. This study can help bring social change to the targeted communities, as findings could be used to encourage women to adopt preventive screening into their lifestyles. This may not only be helpful in the general improvement of Zimbabwean women's health, but rather

beneficial to the government which could cut the burdensome costs associated with covering the indigent when dealing with the disease at an advanced stage. Studies have shown that large scale permanent behavior changes can be influenced by changing the standards of acceptable behavior in a community. This can be achieved by changing community norms about health-related behaviors (McMichael, & Beaglehole, 2000).

To ensure those study findings are communicated, they will be disseminated. Study findings will be made available to local and regional public health officials to provide policymakers with the data required to make evidence-based decisions when implementing public health campaigns. Such campaigns could help with creating lasting social change by altering public perception about cervical cancer and preventive healthcare in general. As a result, stubbornly held views by local women, such as that visiting healthcare institutions is only necessary when there are compelling healthcare needs, might be changed. I will also share my findings with the Research Council of Zimbabwe and other non-governmental organizations that are active in the promotion of public health, such as the World Vision.

Methodological/Theoretical

Using the HBM was key to having a good understanding of the factors that determine the utilization of cervical cancer screening services among the study participants. The study findings supported three of the theory's main tenants, mainly perceived barriers, perceived benefits, and perceived susceptibility. The three constructs were found to be influential to the utilization of cervical cancer screening services,

perceived barriers, perceived benefits, and perceived susceptibility. The HBM is a framework that helps shed light on how individuals get motivated towards taking positive health actions that depend on their desire to avoid negative health consequences. A key element of the HBM is the avoidance of negative health consequences. Furthermore, the HBM can also be utilized as a framework for designing appropriate cervical cancer screening interventions.

Recommendations

Despite the gravity of cervical cancer and the availability of the effective Pap screening test, the majority of the women diagnosed with cervical cancer are those that have rarely or never been screened (WHO, 2013). The routine provision of brief educational information often provided by public health providers may not be adequate in trying to empower women against preventive diseases like cervical cancer. The most cost-effective way of dealing with the burden associated with cervical cancer as well as reducing morbidity and mortality associated with the disease is routine screening. Therefore public health experts and/or policymakers need to find more innovative ways to increase awareness that specifically target vulnerable populations. Awareness campaigns should be made a priority by the ministry of health which should partner with non-governmental organizations to come up with public health campaigns that can be disseminated via multiple media such as radio, newspapers, television, posters, billboards, and social groups such as church and other community meetings.

Based on the findings from this study, important information could be provided about the available preventive measures for early detection of cervical cancer, which

could help in the reduction of mortality related to late diagnosis of the disease. The provision of such information can help improve awareness of the benefits of prevention, early detection, and treatment of cervical cancer while it is still amenable to cure. This can also help with reducing the financial burden borne by patients, families, and communities when dealing with the disease at an advanced stage. Also, findings may help policymakers in making informed decisions when coming up with policies and health campaigns related to the disease. Culturally appropriate educational campaigns should be used to educate the vulnerable populations.

Conclusion

The undertaking of this study was motivated by the lack of information to conclusively understand the reasons behind the low utilization of cervical cancer screening services among women living in urban areas like Harare. Undertaking this study was of relevance because the majority of research studies covering cervical cancer screening services utilization in Zimbabwe primarily focused on the rural population. With rural-urban migration taking its toll on most rural communities in Zimbabwe, a high percentage of women of reproductive age now live in urban settings, and with modernization, the trend is likely to continue.

This study focused on investigating the factors that determine the utilization of cervical cancer screening services by Zimbabwean women living in Harare. The most significant findings from the study were that monthly income, marital status and the HBM construct perceived barriers are key determinants to cervical cancer screening in Harare. It was no surprise that those with little or no income or without health insurance

may not be able to afford the Pap test or bus fare to visit the nearest healthcare facility. Therefore, the government should help subsidize the test and make testing centers more accessible. This study has shown that women in Harare lack knowledge about cervical cancer, the Pap test and the age at which Pap screening should commence, including the regularity at which the test should be taken. Findings from this study may help public health officials to improve awareness of the benefits of prevention, early detection and treatment of cervical cancer thus reducing morbidity and mortality related to the disease.

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Appendix A: Survey

Zimbabwean Women's Perceptions on Cervical Cancer

Instructions: This survey will assess your knowledge and beliefs about cervical cancer screening. Please answer all questions by placing an "X" on the response of your choice.

Section 1. Sociodemographic Information

1. What is your age?
____ 18 – 24 years old
____ 25 – 34 years old
____ 35 – 44 years old
____ 45 – 54 years old
____ 55 – 65 years old

2. What is your marital status?
____ Single, never married
____ Married or domestic partnership
____ Separated
____ Divorced
____ Widowed
____ Other (please specify:
_____).

3. What is the highest level of school you have completed?
____primary school
____secondary education
____university education
____professional (lawyer, doctor, etc.).
____other (please specify:
_____).

4. What is your current employment status?
____unemployed
____employed
____retired
____self employed
____other (please specify:
_____).

5. What is your current monthly income?
_____$ per month.

6. How many children do you have?
_____1.
_____2
_____3
_____4
_____6
_____7

_____8
_____Other (please specify :
_____).

7. Do you have medical aid (health insurance)? ___Yes.
___No

Section 2: Knowledge Information.

		Yes	No	I do not know
8	Have you ever heard of cervical cancer?			
9	Have you ever heard about a Pap test?			
10	Have you ever had a Pap test?			
11	Can cervical cancer be a terminal illness (or can you die from cervical cancer)?			

12. When was your last Pap test?
_____Less than a year
_____1 year ago
_____2 years ago
_____3 years ago
_____Over 4 years
_____Never

A. The following section asks about your beliefs regarding the Papanicolaou (Pap) test and cervical cancer (uterine cervix cancer). Please indicate with an **X** the alternative that best describes your belief about each one of the sentences.

		Strongly Agree	Agree	Disagree	Strongly Disagree
13	Getting a Pap test makes me feel good because it means that I take care of my health.				
14	I do not have time to get a Pap test.				
15	I have not taken the Pap test because they treat me badly in the healthcare center.				
16	I do not know at what age it is necessary to have a Pap test.				
17	I have not taken a Pap test because when I go, I need to wait a long time to be seen.				
18	The Pap test can save my life.				
19	I have not taken the Pap test because I am afraid to find out if I have cancer.				
20	I have not taken the Pap test because the healthcare center is Only open during hours when I cannot go.				
21	I have not taken the Pap test because I am embarrassed to have a genital exam.				
22	I do not know how often I need to get a Pap test.				
23	I have not taken a Pap test because the clinic is far away.				
24	Cervical cancer may lead to death.				
25	Cervical cancer may lead to a woman having a hysterectomy.(Removal of uterus)				

26	Cervical cancer is a serious health problem.				
27	Cervical cancer can lead to a woman needing to receive chemotherapy or radiotherapy treatment.				

B. The following sentences are related to the need that you have to take the Pap test, and the risk of having cervical cancer. Please indicate the degree to which you agree or disagree with each statement by placing an **X** under your choice. Remember, there are no good or bad answers in this questionnaire; therefore, if you are unsure or do not know an answer, feel free to answer what you believe.

		Strongly Agree	Agree	Disagree	Strongly Disagree
28	If I do not have symptoms, I do not need a Pap test.				
29	If I have not had children, I do not need a Pap test.				
30	If I do not have intercourse, I do not need a Pap test.				
31	I am at risk for developing cervical cancer.				
32	If I have cervical cancer, I can die.				
33	Cervical cancer is one of the most common cancers among women my age.				

C. The following sentences are some reasons women have for getting a Pap test. By placing an **X**, please indicate the degree of agreement in each sentence, thinking about the reasons that have made you or would make you get a Pap test. Remember, there are no good or bad answers in this questionnaire; therefore, if you are unsure or do not know an **answer**, feel free to answer what you believe.

		Strongly Agree	Agree	Disagree	Strongly Disagree
34	To take care of my health				
35	Because a nurse or midwife told me				
36	Because a doctor told me				
37	Because my mother spoke to me about it				
38	Because a friend or neighbor spoke to me about it				
39	Because members of my family told me to get it				
40	Because I listened to or read something in the newspaper or in a television or radio program				

Appendix B: Permission to Use Instrument

MU Maria Teresa Urrutia <murrutis@uc.cl>
Fri 1/26, 6:08 AM

Dear Dominic
I am very happy thtan you want use it. I don´t have problema
The best wishes and tel me know your results please.
Regards

Ma. Teresa Urrutia S.
PhD, MN, EM

...

De: Dominic Chifamba [dominic.chifamba@waldenu.edu]
Enviado: jueves, 25 de enero de 2018 21:00
Para: Maria Teresa Urrutia
Asunto: PERMISSION TO USE YOUR QUESTIONNAIRE INSTRUMENT

Dr. Uruttia,

I am a Walden University Ph.D. student studying Health Services. I am currently in the process of conducting my dissertation research. My research focuses on healthcare determinants of cervical cancer screening among women living in Harare, Zimbabwe. As part of my data collection process, I plan to hand out questionnaires to the participants in which I would like to include some of the questions from your tool, "Cervical Cancer and Pap Test Questionnaire" that would be useful for my research.

I am writing to ask for permission; may I use some of these questions?

Thank you for your time and consideration

Dominic Chifamba

Appendix C: IRB Final Approval

Notification of Approval to Conduct Research - Dominic Chifamba

I

IRB <irb@mail.waldenu.edu>

Thu 9/13/2018 4:30 PM

To: Dominic Chifamba

Cc: Richard C. Palmer

Reply all

Inbox

Dear Mr. Chifamba,

This email confirms receipt of the approval letters for the community research partners and also serves as your notification that Walden University has approved BOTH your doctoral study proposal and your application to the Institutional Review Board. As such, you are approved by Walden University to conduct research.

Congratulations!

Libby Munson
Research Ethics Support Specialist, Office of Research Ethics and Compliance

Leilani Endicott
IRB Chair, Walden University

Information about the Walden University Institutional Review Board, including instructions for application, may be found at this link:
http://academicguides.waldenu.edu/researchcenter/orec

Appendix D: IRB Conditional Approval

July 19, 2018.

Dear Mr. Chifamba,

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "Health care determinants of cervical cancer screening in Harare, Zimbabwe," conditional upon the approval of the research partners, as documented in the Medical Research Council of Zimbabwe's review notification as well as approval from Harare Hospital, which will need to be submitted to the Walden IRB once obtained. The researcher may not commence the study until the Walden IRB confirms receipt of those notification of approval.

Your approval # is 07-19-18-0583645. You will need to reference this number in your dissertation and in any future funding or publication submissions. Also attached to this e-mail are the IRB approved consent forms. Please note, if these are already in an on-line format, you will need to update those consent documents to include the IRB approval number and expiration date. You will also need to ensure that your translated consent form is updated with this information. Your IRB approval expires on July 18, 2019. One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Please note that this letter indicates that the IRB has approved your research. You may **NOT** begin the research phase of your doctoral study, however, until you have received official notification from the IRB to do so. Once you have received this notification by email, you may begin your data collection. Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application materials that have been submitted as of this date. This includes maintaining your current status with the university. Your IRB approval is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled, your IRB approval is suspended. Absolutely NO participant recruitment or data collection may occur while a student is not actively enrolled.

If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research. When you submitted your IRB application, you a made commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their

occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.
Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained at the IRB section of the Walden
website:http://academicguides.waldenu.edu/researchcenter/orec

Researchers are expected to keep detailed records of their research activities (i.e., participant log sheets, completed consent forms, etc.) for the same period of time they retain the original data. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

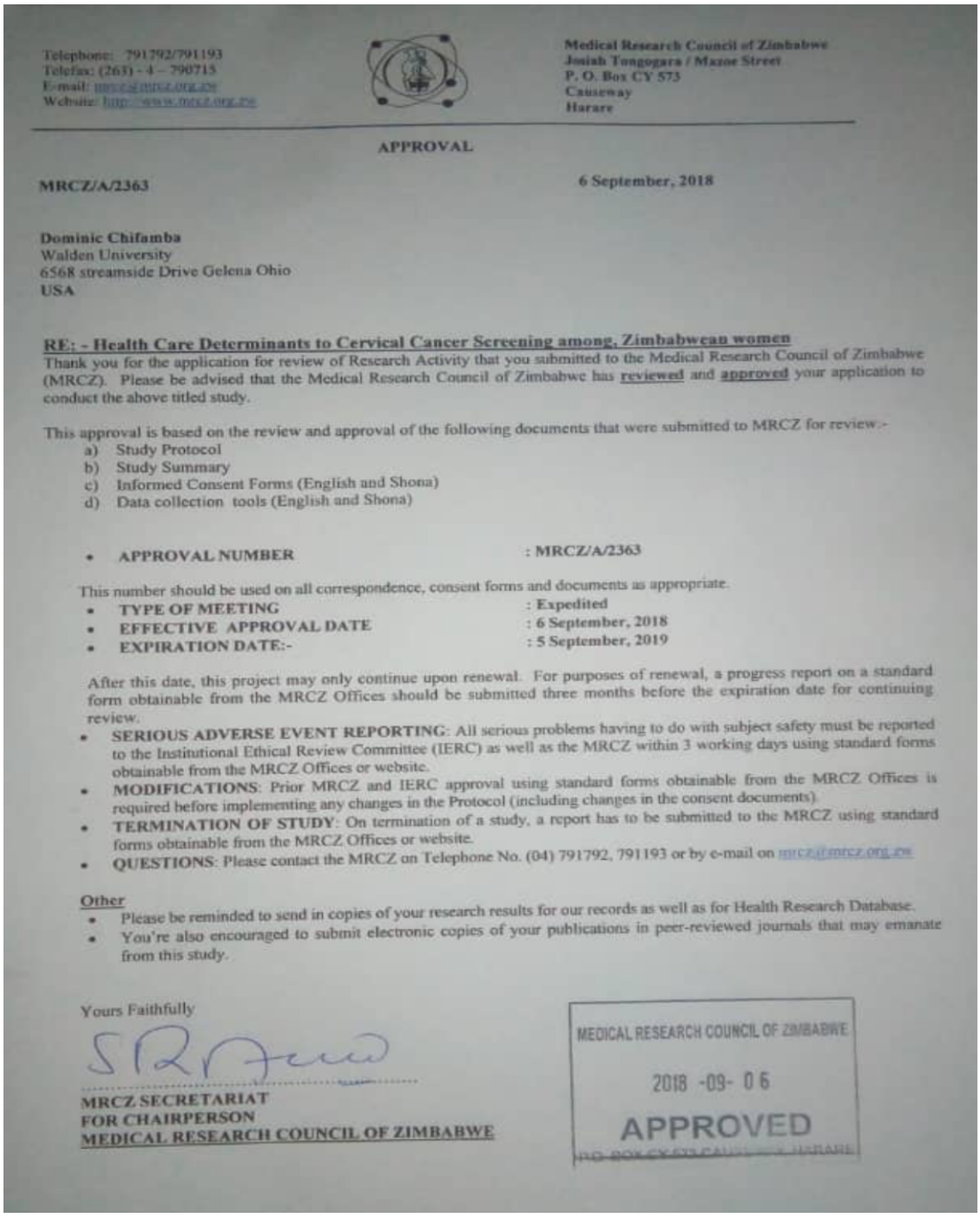
Both students and faculty are invited to provide feedback on this IRB experience at the link below: **http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKlmdiQ_3d_3d**

Sincerely,

Libby Munson
Research Ethics Support Specialist
Office of Research Ethics and Compliance
Walden University
100 Washington Avenue South, Suite 900
Minneapolis, MN 55401
Email: irb@mail.waldenu.edu
Phone: (612) 312-1283
Fax: (626) 605-0472

Information about the Walden University Institutional Review Board, including instructions for application, may be found at this link:http://academicguides.waldenu.edu/researchcenter/orec

Appendix E: Medical Research Council of Zimbabwe Approval



Telephone: 791792/791193
Telefax: (263) - 4 – 790715
E-mail: mrcz@mrcz.org.zw
Website: http://www.mrcz.org.zw

Medical Research Council of Zimbabwe
Josiah Tongogara / Mazoe Street
P. O. Box CY 573
Causeway
Harare

APPROVAL

MRCZ/A/2363 **6 September, 2018**

Dominic Chifamba
Walden University
6568 streamside Drive Gelena Ohio
USA

RE: - Health Care Determinants to Cervical Cancer Screening among, Zimbabwean women

Thank you for the application for review of Research Activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to conduct the above titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review.-

a) Study Protocol
b) Study Summary
c) Informed Consent Forms (English and Shona)
d) Data collection tools (English and Shona)

- **APPROVAL NUMBER** : **MRCZ/A/2363**

This number should be used on all correspondence, consent forms and documents as appropriate.

- **TYPE OF MEETING** : **Expedited**
- **EFFECTIVE APPROVAL DATE** : **6 September, 2018**
- **EXPIRATION DATE:-** : **5 September, 2019**

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted three months 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 Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.
- **MODIFICATIONS**: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.
- **QUESTIONS**: Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw

Other

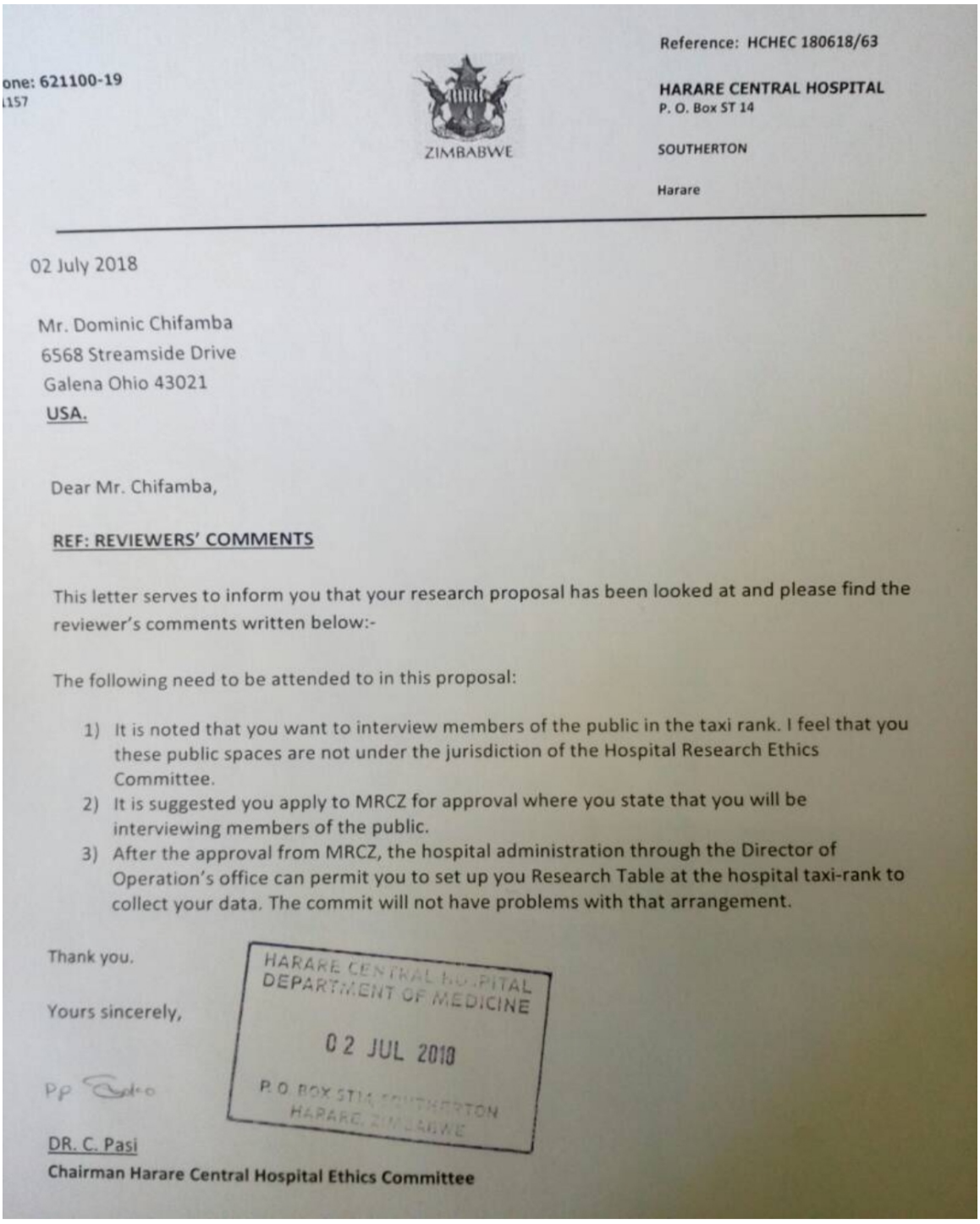
- Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.

Yours Faithfully

MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
2018 -09- 06
APPROVED
P.O. BOX CY 573 CAUSEWAY HARARE

Appendix F: Harare Hospital Approval



one: 621100-19
157

ZIMBABWE

Reference: HCHEC 180618/63

HARARE CENTRAL HOSPITAL
P. O. Box ST 14
SOUTHERTON
Harare

02 July 2018

Mr. Dominic Chifamba
6568 Streamside Drive
Galena Ohio 43021
USA.

Dear Mr. Chifamba,

REF: REVIEWERS' COMMENTS

This letter serves to inform you that your research proposal has been looked at and please find the reviewer's comments written below:-

The following need to be attended to in this proposal:

1) It is noted that you want to interview members of the public in the taxi rank. I feel that you these public spaces are not under the jurisdiction of the Hospital Research Ethics Committee.
2) It is suggested you apply to MRCZ for approval where you state that you will be interviewing members of the public.
3) After the approval from MRCZ, the hospital administration through the Director of Operation's office can permit you to set up you Research Table at the hospital taxi-rank to collect your data. The commit will not have problems with that arrangement.

Thank you.

Yours sincerely,

HARARE CENTRAL HOSPITAL
DEPARTMENT OF MEDICINE
02 JUL 2018
P.O. BOX ST14 SOUTHERTON
HARARE, ZIMBABWE

Pp

DR. C. Pasi
Chairman Harare Central Hospital Ethics Committee