AN ASSESSMENT ON THE KNOWLEDGE, FACILITATORS AND BARRIERS TO THE UPTAKE OF CERVICAL CANCER SCREENING AMONG ALLIED HEALTH SCIENCE FEMALE STUDENTS AT THE UNIVERSITY OF NAMIBIA, HAGE GEINGOB CAMPUS

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ABSTRACT

Cervical cancer is the leading cause of cancer-related deaths in the world. In Namibia, cervical cancer ranks as the second most frequent cancer following cancer. The purpose of this study was to assess and describe knowledge, facilitators, and barriers to the uptake of cervical cancer screening among female allied health science students at the University of Namibia (Hage Geingob Campus). A quantitative, cross-sectional, and analytical study was conducted with the use of a self-administered questionnaire. A sample size of 97 female allied health science was obtained using a systematic random sampling method. Binary logistic regression analysis was used to establish the relationship between the independent and dependent variables of the study. The findings of the analysis depicted an abnormal pap smear test (OR=84.056, 95% CI: 4.316-1636.911, p=0.003), age (OR=0.625, 95% CI: 0.441-0.886, p=0.008) to be statistically significant with female students having a Pap smear test. Results from the study further revealed that 12(13%) female students have had a Pap smear test in their lifetime. The most common barriers to cervical cancer screening included no signs and symptoms of cervical cancer (33%), fear of outcome (15%) and difficulty accessing screening services (15%). Facilitators to cervical cancer screening were reported as own decision to undergo screening (39%) and upon doctors' requests (6%).The findings of the study showed that there is a poor level of cervical cancer screening uptake among allied health science female students at the University of Namibia. It is recommended that the University of Namibia in consultation with the Ministry of Health and Social Services tailor cervical cancer screening programs to assist in educating female students about the risk factors of cervical cancer as well as the importance of cervical cancer screening uptake.

Keywords: Cervical cancer, female students, screening, Pap smear test

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LIST OF ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
ART	Antiretroviral Therapy
CaCx	Cervical cancer
CAN	Cancer Association of Namibia
CCS	Cervical cancer screening
DNA	Deoxyribonucleic Acid
GLOBOCAN	Global Cancer Observatory
HBM	Health Belief Model
HPV	Human Papilloma Virus
HREC	Human Research Ethical Committee
MoHSS	Ministry of Health and Social Services
NCR	Namibia Cancer Registry
NDHS	Namibia Demographic Health Survey
NGO	Non-Governmental Organization
PAP smear test	Papanicolaou smear test
SPSS	Statistical Package for the Social Sciences
SRC	Student Representative Council
UNAM	University of Namibia
VIA	Visual Inspection with Acetic acid
WHO	World Health Organization
WMA	World Medical Association

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This dissertation is dedicated to my father, the late Mr. Stephanus Kamunima, who not only raised me, but greatly contributed towards my education. The work in this dissertation is also dedicated to my late aunt, meme Emilia Ndahambelela Shikongeni, who passed away from cervical cancer. You are the reason why this topic is dear to my heart. And lastly, I dedicate this thesis to every woman battling cervical cancer.

DECLARATIONS

I, Petronela Kamunima, hereby declare that this study is my own work and is a true reflection of my research, and that this work, or any part thereof has not been submitted for a degree at any other institution.

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……	……..	……...
Name of Student	**Signature**	**Date**

CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

Cancer is the main cause of death for women in both developing and developed countries (1). Cervical cancer is a type of gynaecological cancer that affects women of childbearing age. It happens when cells in the lower part of the uterus grow out of control. The World Health Organisation (WHO) says that cervical cancer affects more than half a million women and kills more than 273,000 women each year. This makes it an undeniably big public health problem around the world (2).

The WHO further states that cervical cancer is more common in women from Sub-Saharan Africa, Malaysia, South America, and South-Eastern Asia. Cervical cancer is the second most common disease in women between the ages of 15 and 44 in Namibia (3). Cervical cancer is caused by persistent infection with the human papilloma virus (HPV). HPV is commonly transmitted through skin-to-skin contact and by sexual intercourse. Persistent chronic infection over 2-5 years may progress to pre-cancer. According to WHO, the HPV is the most effective and reliable prevention method. The vaccination prevents infections of the virus when given prior to any sexual contact. Because the vaccines are most effective when administered prior to exposure, the Ministry of Health and Social Services (MoHSS) has designated girls 9-14 years of age as the primary target population for HPV vaccination.(4). Cervical cancer is a disease that is very easy to avoid, but it has become the leading cause of death for women in Namibia between the ages of 30 and 50 (4). Even though there are programs to check for and prevent cervical cancer, girls, and women in developing countries often do not have access to these services (5).

Young women, especially those in college, have a higher chance of getting cervical cancer because they are likely to be in sexual relationships and have more sexual partners (6). A lot of college students also do not realize how vulnerable they are to some of these diseases, like the HPV virus, which is the main cause of cervical cancer. There may be a lot of HPV infections

among college students because they engage in risky sexual behaviour and do not get enough preventive care, like cervical cancer screenings. In the future, these practices could lead to cervical cancer (2) .

1.2 BACKGROUND OF THE STUDY

Cervical cancer affects 500,000 women every year, making it the fourth most common cancer in the world (1). It is the leading cause of death from cancer, killing about 270 000 people each year (1). Cervical cancer is most often caused by a long-term infection with certain types of Human Papilloma Virus (HPV). About 70% of cervical cancers in the world are caused by HPV types 16 and 18 (7). Having your first sexual experience before you turn 20 and having more than one sexual partner are also other risk factors.

There are 825 287 women in Namibia, aged 15 years and older at risk of developing cervical cancer. Current data, obtained from The National Cervical Cancer Prevention Guidelines indicates that a significant number of younger clients , usually younger than 25 are seen at health facilities with advanced cervical cancer (1). Furthermore, the data also shows that as of 2020, 214 cervical cancer deaths occurred annually in Namibia (2). These deaths could have been prevented, should appropriate screening and treatment have occurred timeously.

Cervical cancer screening in Namibia is unscrupulous, as opposed to being available to the whole eligible population and utilizes the test of Pap smear as the screening test of choice. Pap-smear tests are conducted in many private and state clinic settings, as well as through mobile outreach organized by the Cancer Association of Namibia (CAN) (3).

Now, the Cancer Association of Namibia (CAN) is the only entity providing Pap smears to students at the University of Namibia (UNAM) once a year. Even though there is a clinic on campus that offers other services for women's reproductive health, the CAN Pap smear and Breast Examination Clinic only offers cervical cancer screening for one day. This makes it less likely that students will get a test for cervical cancer. On the other hand, the Ministry of Health and Social Services (MoHSS) has a program to screen for cervical cancer that helps find precancerous cells and cervical cancer early. The Pap smear test and the VIA (Visual Inspection with Acetic Acid) are the screening tests that can be done in Namibia Because of their skilled teams of nurses, doctors, and other healthcare professionals, all clinics, district hospitals, and

national referral hospitals offer these tests for free. Even though 66% of Namibian women have heard of the Pap smear test, the 2013 Namibian Demographic Health Survey (NDHS) found that only 25% of Namibian women have been tested for cervical cancer (10). This proves beyond doubt that many women do not take advantage of the cervical cancer screening services that are available.

Most developing countries have screening programs in place which allow for pre-cancerous changes in the cervix to be found and treated early (11). But even though these screening facilities are available in these countries, there have been no reports of a significant drop in the number of people who get and die from cervical cancer.

Similar studies done at universities in Bhutan, Botswana, and Ethiopia found that female students did not do enough to check for cervical cancer. The studies showed that only 6% (Bhutan), 27.5% (Botswana), and 17.2% (Ethiopia) of the female college students who took part in the studies had ever been checked for cervical cancer. This may point to a lack of awareness and screening (12).

Screening programs for cervical cancer help find women with precancerous lesions so they can be treated or checked up on as needed. Screening could also help find invasive cancer in its early stages, when it is easier to treat, and the prognosis is better. The purpose of this study is therefore to assess the level of uptake of cervical cancer screening among female allied health science students at the University of Namibia.

1.3 PROBLEM STATEMENT

In Namibia, after breast cancer, cervical cancer is the second most common cancer among women and the second leading cause of cancer-related deaths after breast cancer (13). According to the Global Cancer Observatory (GLOBOCAN), In Namibia, 375 women were diagnosed with cervical cancer during 2020 and 2021 (14).

A study that assessed health science students' HPV awareness, knowledge, and attitudes revealed that the students had inadequate knowledge on HPV and related practices. The outcome of this study indicates that 75% of students had never undergone a Pap smear test (15). This motivated the researcher to examine the knowledge, barriers, and facilitators to cervical cancer screening among students in allied health science. As part of the CAN cervical

cancer screening campaign, the University of Namibia clinic, in collaboration with the Cancer Association of Namibia, provide students the opportunity to undergo a Pap smear. This campaign is typically held once a year for one week and costs N$50.00. The campus clinic does not offer on-site cervical cancer screening to students year-round. The lack of cervical cancer screening facilities for university students may lead to a delayed and incorrect diagnosis of cervical cancer.

This study focused on allied health university students as they were in the prime of their youth and were in the age group (18-30 years), where they were at risk of contracting the Human Papilloma Virus-that causes cervical cancer. The allied health science student population was chosen because, most allied health science courses exclude practical information on health promotion strategies such as cervical cancer screening and vaccination from their respective curriculums. Students in health sciences are more likely to know a lot than those in other fields of study, but that doesn't mean they adhere to safe and sound health practices. Studies have shown that health science students do not act on what they know about risky behaviours like having their first sexual experience at a young age, not using condoms, and having more than one sexual partner (16, 17), (18). Health science students are also expected to teach the public about health issues, which helps more people understand how dangerous cervical cancer can be.

If allied health students do not get the right information or any cervical cancer screening, they are more likely to get cervical cancer later in life. It is against this background that this study sought to assess the barriers and facilitators to the uptake of cervical cancer screening among students at the University of Namibia.

1.4 MAIN RESEARCH QUESTION

What are the barriers and facilitators to the uptake of cervical cancer screening among female allied health science students at the University of Namibia?

1.5 PURPOSE OF STUDY

The purpose of the study was to assess and describe the knowledge barriers and facilitators to the uptake of cervical cancer screening among allied health science female students at the

University of Namibia. The study also assessed and describes the association between the uptake of cervical cancer screening and the demographic characteristics of allied health science female students.

1.6 OBJECTIVES OF STUDY

The following objectives were formulated to guide the study namely to:

- To assess the level of knowledge on cervical cancer screening among female allied health science students at the University of Namibia
- To determine facilitators to the uptake of cervical cancer screening among female allied health science students at the University of Namibia
- To assess barriers to the uptake of cervical cancer screening among female allied health science students at the University of Namibia
- To determine the association between the uptake of cervical cancer screening and the demographic characteristics of female allied health science students at the University of Namibia.

1.7 SIGNIFICANCE OF THE STUDY

The study intended to provide evidence-based information to the Ministry of Health and Social Services (MoHSS) to strengthen cervical cancer screening programs and to ensure they positively impact the screening behaviours among female university students. Additionally, the results of this study may help identify any deficiencies or obstacles in the MoHSS' "screen and treat" cervical cancer program.

With the results of this study, the University of Namibia may be able to focus and change its efforts to screen for and prevent cervical cancer. The study's results are likely to persuade the institution to add information about cervical cancer to what is already in their curriculum. As

a result, the student community may learn more about cervical cancer, its risk factors, and screening.

In the end, the results of this study can be used to encourage students in universities to get cervical cancer screening. This will lower the chances of this disease showing up later in life and being more severe. This could also lower the number of deaths from cervical cancer in Namibia.

1.8 DEFINITION OF KEY CONCEPTS

Assessment- a methodical process of collecting, analysing, and using data to help improve a practice or performance (19). This study aimed to evaluate the barriers to cervical cancer screening among students in allied health sciences of the University of Namibia at Hage Geingob Campus.

Knowledge – refers to an individual's level of understanding on a specific subject that they have gotten through education or personal experiences (5). In this study, knowledge is the understanding students had on cervical cancer risk factors, prevention and treatment.

Facilitators- these are factors that help bring about health outcomes without any hindrance (1).In this study, facilitators refer to the factors that encourages cervical cancer screening.

Barriers- refers to factors that prevent an individual from achieving a specific health outcome (1). In this study, barriers refer to the factors that discourage cervical cancer screening.

Cervical cancer- is the uncontrolled proliferation of cells (cancer cells) in the cervix (9). Cervical cancer is defined in this study as any history of cervical cancer among the students that are part of the study.

Screening- refers to any medical examination carried out to identify an unknown disease, its precursors and susceptibility to disease in asymptomatic persons (1). In this study, screening referred to the examination of the cervix to help detect cervical cancer lesions.

Allied health science- the study of human health that is concerned with the prevention, diagnosis, and treatment of acute and chronic illnesses among individuals and communities (6). In this study allied health science referred to the different allied health science courses in

which the students were enrolled such as physiotherapy, occupational therapy, social work, and radiography.

Students- a term used for individuals or persons who are formally enrolled for study programs at institutions of higher education such as Technikons, colleges, and universities (5). In this study, students referred to female allied health science students registered for the specific academic year.

1.9 OUTLINE OF CHAPTERS

Chapter 1: contains a concise summary of cervical cancer and background information. This chapter also examines screening for cervical cancer among women in various regions of the world. The chapter further outlines the primary purpose and objectives of this investigation.

Chapter 2: provides a review of the literature. It gives a summary of the existing literature to help comprehend the research issue. This overview aids in the identification of knowledge gaps, establishing the significance of the study and its contribution to the current body of information. It also offers the conceptual framework that guided the research.

Chapter 3: explains the study's research methods. It comprises of the study setting, research design, sample size determination, sampling method, data gathering procedure, and data analysis approach. This chapter also discusses research ethical principles.

Chapter 4: includes the study's conclusions and statistical analysis of the data for each part in the questionnaire. This chapter also contains an analysis of the outcomes. The results of the study are presented as tables, bar graphs, and pie charts.

Chapter 5: provides an explanation of the findings. This chapter also discusses the study's conclusion, recommendations, and limitations.

1.10 SUMMARY

This chapter focused on background information about cervical cancer and related topics, such as the uptake of the cervical cancer screening globally. It summed up the effects of cervical cancer on public health on a global, regional, and national level. It also states the reasons allied health sciences students were chosen for the study. This chapter outlines the study's goal, importance, and research problem. The next chapter reviews extant related literature.

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

A literature review is an objective, thorough, and critical analysis of all the relevant and up-to-date writings on a certain topic. The fundamental purpose of the literature review is to keep the reader up to date on latest research on the topic that is being studied (22). This literature review provides background information on cervical cancer which includes the epidemiology, clinical manifestation, risk factors, screening, as well as preventative strategies. This chapter also discusses the facilitators and challenges to cervical cancer screening based on past research findings to identify knowledge gaps.

2.1 OVERVIEW: CERVICAL CANCER

2.1.1 Epidemiology

Cervical cancer has been recognised as a public health issue around the world (23) (24)(17). Estimates show that there are 527,624 new cases of cervical cancer and 265,672 deaths each year (25). Statistics show that 85 percent of all deaths from cervical cancer in the world happen in Africa (26). These death rates are especially high in the eastern, western, and southern parts of Africa (5). The fact that these are low- and middle-income areas with few or no reproductive health services, like tests for cervical cancer, could be a factor. Also, illiteracy, traditional beliefs, religion, and several other complicated factors may contribute to the high rates of contracting and dying from cervical cancer. Epidemiological research, on the other hand, show that the number of cases and deaths are low in wealthy countries like Australia and the United States (27) (28). These differences in death and illness rates may be due, among other things, to the fact that there are national cancer screening and vaccination programs, good schools, and stable economies.

Epidemiological projections from the global cervical cancer crisis card show that the disease will have killed 500,000 women by 2030. Also, it is expected that over 98% of these deaths will happen in countries with poor infrastructure (28).

2.1.2 Clinical manifestation

Cancer of the cervix is caused by the uncontrolled and abnormal growth of epithelial cells in a woman's cervix, as well as the fast spread, invasion, and damage to nearby cells, tissues, and/or organs. If cervical cancer is not found and treated quickly, it can spread to the lymphatic and local systems. In its later stages, cervical cancer can spread to other parts of a woman's body. Human Papillomavirus (HPV) is a DNA virus with 150 different strains, of which 40 can be spread sexually. There are about 13 "high-risk" strains of HPV. Types 16 and 18 are the most dangerous because they cause about 70% of cervical cancer cases around the world (9).

2.1.3 Risk factors

The most well-known risk factor is being exposed to HPV and other STDs (9)(29)(30). Multiple sexual partners, getting sexually active at a young age, using oral contraceptives, and having more than one child are all linked to a higher risk of cervical cancer.

Sexually transmitted infections

The risk of cervical cancer may be increased in women who have a sexually transmitted infection alongside HPV (6).

Human Papilloma Virus (HPV)

Several studies have indicated a significant number of HPV cases in women that are in the age group 25-30 (6)(7). This can be attributed to changes in the sexual patterns of women in this age group. The HPV16 and 18 strains that are known to cause cervical cancer are transmitted and acquired through sexual intercourse. After exposure, the infection enters the female reproductive system, usually the cervix and causes squamous intraepithelial lesions. These lesions usually disappear after a period of 6-12 months, because of the immune system’s

response to infections. In some cases, however, the lesions remain and develop into cervical cancer.

Human Immunodefiency Virus (HIV)

Women with HIV have a higher chance of getting cervical cancer (29). Between the ages of 13 and 18, HIV-positive women are more likely to get HPV. In Namibia, for example, a lot of young HIV-positive women under 25 are told in hospitals that they have advanced cervical cancer (9). This weakness could be caused by a weakened immune system. Researchers looked at how often HIV-positive women had HPV infections and how often they got cervical cancer. They found that a lot of these women had positive Pap smear test results and invasive cervical cancer. Studies comparing HIV-positive and HIV-negative women have also found that HIV-positive women are more likely to get HPV and get cervical cancer (31) (32).

Sexual behaviours and multiparity

Cervical cancer has been linked to having a lot of sexual partners and having women having their first sexual experience at a young age. According to a case-control study of risk factors for cervical cancer, having more sexual partners was linked to getting the disease (29). A study that investigated the link between sexual behaviour and the chance of getting HPV backs up this correlation. The study found that the risk of getting HPV went up with the number of sexual partners. HPV is more like to be found in women who have two or more sexual partners than to women who only have one. Other studies have shown that women are more likely to get cervical cancer if they reach sexual maturity early, have many babies, and carry them to full term (33)(34).

Use of oral contraceptive pills

Taking oral contraceptives is another thing that can put you at risk for cervical cancer. Research has shown that women who use oral contraceptives for a long time are more likely to get cervical cancer (35)(29). When oral contraceptives are used wrongly for at least five years, HPV infection can turn into cervical cancer.

Smoking

Like the use of oral contraception, smoking is another identifiable risk factor that can cause the HPV infection to advance into cervical cancer. Nicotine, a chemical found in cigarettes causes structural damage to the DNA of the squamous cells in the cervix and increases the susceptibility of these cells. A meta-analysis study by Nagelhout *et al*., suggested a positive correlation between smoking and developing carcinoma of the cervix (8). This epidemiological association was also confirmed in a study that investigated risk factors of cervical cancer in Korean women (9).

2.1.4 Cervical cancer screening

The preclusion of cervical cancer is possible if screening is done early. Screening for cervical cancer early is important for diagnosing the disease early and helping women who have it live longer. Excellent screening tools, such as Pap smears, Visual Inspection with Application of Acetic Acid (VIA), and HPV-DNA testing, prevent women from contracting cervical cancer.

Pap smear

During a Papanicolaou (Pap) smear, which is more commonly called a Pap smear, cells from the surface of the cervix are taken and looked at under a microscope for signs of precancerous or cancerous changes as well as HPV infection. The number of times a Pap smear is recommended varies from country to country, but in many, women of childbearing age are told to get one every three years. The Pap smear is used to check for cervical cancer in Namibia. It is available throughout the whole healthcare system, including antenatal (ANC) clinics, antiretroviral therapy (ART) clinics, private clinics, state clinics, and mobile outreach clinics (9). In Namibia, women of childbearing age are checked every year.

Visual inspection with acetic acid (VIA)

Visual inspection with acetic acid is the best way to check for cervical cancer when there are not enough Pap tests and there are not enough resources (38). For VIA, a nurse or doctor who has obtained the necessary VIA training, puts a cotton swab that has been dipped in a 5% acetic acid solution into the cervix. When acetic acid is smeared on cervical lesions and a bright light

is shined on them, the lesions look white. This makes it easier for the nurse or doctor to find them. Most of the time, cryotherapy is used to get rid of precancerous lesions (9).

HPV-DNA testing

The standard recommended age for starting HPV is usually at 30, however in Namibia where most women start having sex in their teens, HPV DNA screening is introduced before the age of 30(3).

2.2 CERVICAL CANCER SCREENING UPTAKE AMONG FEMALE UNIVERSITY STUDENTS AT GLOBAL LEVEL

Women's decisions to get cervical cancer screenings depend a lot on how much they know about the disease and how they feel about pre-cervical cancer screenings (20). It is important to test what health science students know so that they can develop good practices and raise awareness. This can help them learn more, which can then be shared with the rest of society to reduce cervical cancer-related illness and death. These students are the ones who will take care of people in the future. It is expected that women who know more about cervical cancer will be more likely to get screened for it. Even though women know about cervical cancer, they haven't used screening in several trials, which goes against this expectation (15) (18) (39).

For example, a study of female college students in Nigeria found that they did not get screened as often as they thought they should for cervical cancer. The results of the study showed that 86.7% of the people asked, knew anything about cervical cancer screening. Over 90% of the people who answered the survey knew that cervical cancer could hurt the cervix, and 65.3% knew how to tell if someone had it. Even though they knew about cervical cancer, only 18.7% of respondents had never been checked for it, while 81.3% had never been checked. If screening and treatment had been done on time, these deaths could have been prevented (15).

The results of this survey are like those of a study that investigated what female students at the University of Botswana knew and how they felt about cervical cancer screening. In that study, all the people who answered the questions said that they knew something about cervical cancer. Only 92 (27.5%) of the 335 students in the study had never been checked for cervical cancer (16).

A different study on cervical cancer screening among female nursing students at a university in South Nigeria found that 93.3% knew the procedure and 95.0% had never had any cervical cancer screening tests, giving a screening rate of 5%. (39). Women need to know more about health issues if they want to know how likely they are to get sick. It is very important to teach women about the risks and benefits of cervical cancer screening.

Young women will probably be more likely to get screened if they know more about cervical cancer. Multiple studies have shown that, even though more women are aware of cervical cancer, few of them get checked for it. A study done with female college students in the western part of Ethiopia backs up these results. 54.4 percent of the 438 people who responded knew about cervical cancer and the things that put people at risk for it. Only 288 people (35.6%) knew about screening procedures like Pap smears (61.1% of participants) and acetic acid ocular exams (38.2% of participants). Their main sources of information about cervical cancer were teachers (0.34 percent), teachers' classes (96.1%), and mass media, which includes TV. No one in the study (17) had gotten a cervical cancer screening in the last three years, which shows that students do not know how important and helpful screening is.

A theory-based survey of South African college students in 2014 found similar patterns of awareness and use. The results of the survey showed that 55.2% of people had heard of cervical cancer and that 53.2% of students had been sexually active. The poll showed that only 22 (15%) of the students who had ever been sexually active had ever had a Pap smear test (8).

In the United Kingdom, female students from Sub-Saharan Africa who had been screened were asked about their knowledge, attitudes, and experiences. Even though 71 students (38.2%) knew about a cervical cancer screening program, only about 50 of them (26.9%) signed up (22). This shows that not knowing enough about cervical cancer screening is not the only reason why it is not used more often.

A person's attitude has a big effect on how they act when it comes to health. People's actions toward something can be affected by how they feel about it (7). Even if there are no obvious symptoms, women may get screened for cervical cancer if they think it might be dangerous (23). A study in Botswana looked at how university students felt about cervical cancer

screening and found that those who thought they had a low chance of getting the disease were 1.8 times less likely to get a Pap smear (16).

2.3 BARRIERS TO CERVICAL CANCER SCREENING AMONG FEMALE UNIVERSITY STUDENTS

Several studies have found and classified the reasons why women do not get cervical screenings (40)(41)(42). These barriers are classified into emotional or psychological barriers, personal, health service or institutional and cultural barriers.

2.3.1 Emotional (psychological) barriers

Several studies have shown that physical pain and embarrassment are linked to the mental barriers that keep female college students from getting cervical cancer screenings. Fear of pain is another reason why women do ’not use services to check for cervical cancer. For example, female university students in Kenya who took part in a cross-sectional study by Ngetich *et al*., said that their screening was painful and uncomfortable and that they did not like it (43). These studies also found that a psychological barrier was the fear of getting a positive cervical cancer test result (outcome).

A low sense of risk is another emotional reason why female college students don't use cervical cancer screening programs. Most female students think they don't have a chance of getting cervical cancer because they are young, have no symptoms, and have a family history of it. Other barriers mentioned in the literature include the lack of screening services at colleges and universities, the unfavourable treatment of female students seeking cervical cancer screening by healthcare professionals, the fear that getting screened will expose a person to hospital-acquired infections, and long waiting times at hospitals that offer cervical cancer screening services (44).

2.3.2 Personal barriers

In research on screening barriers, low levels of knowledge and awareness were found to be the main reason why women do not go to cervical cancer screenings (14). (45). These studies also show that women who know enough about cervical cancer are more likely to go to a screening than women who do not know enough. This is different from the results of a qualitative study done in the Democratic Republic of the Congo, which showed that study participants thought

there were not enough health education programs and that they did not know much about cervical cancer. Women are often discouraged from getting health care services like cervical cancer screening because their partners and families do not back them up (46). Medical professionals must tell the public how to prevent, screen for, and treat cervical cancer. This will make students care more about cervical cancer screening and help them learn more.

2.3.3 Health service (institutional) barriers

A lack of health care facilities that offer cervical cancer screening services has been cited as a reason why women do not use these services (47). A cross-sectional study called "Knowledge and attitude towards cervical cancer screening among female students and staff in a tertiary institution in the Niger Delta" also showed this to be true. The study found that the ease of getting to healthcare facilities that offer screening services is one of the things that makes female students more likely to get screened for cervical cancer. Also, women who went to these facilities for prenatal care did not get health education about cervical cancer because the nurses did not have the right training in health education.

When researchers looked at how often female college students got cervical cancer screenings, they also found that the cost of screening at health facilities kept some students from getting them. A study by Hoque *et al*., found that female college students who did not have much money were less likely to get health services like cervical cancer screenings because they could not pay for them (25). In retrospect, it is also possible that women did not get screened because they did not have enough money. This was also shown by the results of a study by Ebu *et al*., in which women said they did not have enough money to pay for cervical cancer screening tests because they were not covered by the country's health insurance (48).

Studies have also shown that bad attitudes from healthcare workers like nurses and doctors are a reason why people do not get screened for cervical cancer (24,46,49). It is important that people who work in health care have a good attitude toward women who want to get screened, because a woman's attitude is likely to determine whether she goes to the doctor.

2.3.4 Cultural barriers

A Zimbabwean study of female students from patriarchal, religious, and culturally conservative families found that cultural practices like abstaining from sexual activity before marriage and avoiding talking about sex make female students less likely to get cervical cancer screenings

(50). This aligns with what was found in a study of female college students in Korea. This study showed that shame and stigma make it hard for young, single women who engage sexual activity to get tested (51).

In societies like the aforementioned, men often decide what is best for the health of their relationships or marriages. This could mean paying for their stay in the hospital or deciding if the woman should get medical help. This was affirmed by a study on cervical cancer practices of university students in Ghana. About 40% of the students in this survey thought that their husbands would not let them get a Pap smear because it would make them lose their virginity (52). Fear of social disgrace was another thing that students said stopped them from getting screened for cervical cancer, since it is usually linked to sexual activity. Women of childbearing age who are at risk for cervical cancer but don't get screened early because of these cultural practices. Men who take part in health prevention programs need to change how they think about their wives trying to get healthier.

2.4 FACILITATORS TO CERVICAL CANCER SCREENING AMONG FEMALE UNIVERSITY STUDENTS

A previous study looked at the factors that can motivate or help people of different ages and backgrounds to get screened for cervical cancer. These include the availability and accessibility of cervical cancer screening services, sexual habits, doctor recommendations for cervical cancer screening, and understanding and awareness of cervical cancer.

2.4.1 Knowledge, attitudes, and awareness of awareness of cervical cancer

A study on how female students at the University of Botswana thought about and knew about cervical cancer screening found that the most common reason they did not get a Pap test was that they did not think they were at risk for getting cervical cancer. Participants did not screen for cervical cancer because they did not know what the benefits were and did not think it was necessary (53). In a similar study done in Ethiopia, knowledge and access to screening services were also found to affect how many people got screened for cervical cancer (54). The main goals of the cervical cancer screenings were to protect the health of the members (59.8%) and find changes in cervical cancer early. Participants said that the disease's signs or symptoms were another reason why cervical cancer screening should be used.

Education makes people more likely to look for health care for several reasons, including the fact that highly educated people are more likely to have self-efficacy, patience, confidence, motivation, and social inclusion. Their level of understanding may also affect whether women decide to get screened for cervical cancer (54). A study of what Greek students knew, how they felt, and what they did showed that there is a link between knowing about cervical cancer and getting tested for it. The survey found that 44.8% of students had been screened for cervical cancer and that 67.3% of female students knew a lot about the disease (55). This could be because the students learned about cervical cancer and used what they learned in school. In another study about what female university students in Malaysia knew about cervical screening and what stopped them from getting it, there was no link between what they knew and how often they got it. Even though most of the people who took part (77.7%) knew that having many sexual partners was a risk factor for cervical cancer, only 6% of them had a Pap smear (56). This could be because female college students do not know enough about cervical screening and do not know how to use the information they possess.

2.4.2 Availability and accessibility of cervical cancer screening services

Women are more likely to get screened for cervical cancer if there are health centres that offer these services at a reduced or subsidized cost. A survey of Nigerian undergraduate women found that 27% of those who got screened did so because it was either free or paid for by the government (57). Participants in a different study said that they had access to medical institutions that offered cervical cancer screening services, such as Pap smear testing, and were therefore tested for the condition.

2.4.3 Sexual practices

In a study of the attitudes and behaviours of female college students from 25 countries about cervical cancer screening, the number of sexual partners was found to be a strong predictor of screening uptake (58). Cervical cancer screening practices were strongly linked to having more than one sexual partner. Students who said they had more than one sexual partner were more likely to be screened than those who did not say they had more than one. The more partners a woman has, the more likely it is that she will get HIV or HPV. It is recommended that women consult the doctor if they have signs of sexually transmitted diseases (59). It has been shown that a higher perception of the risk of getting cervical cancer is a strong predictor of getting screened.

2.4.4 Referrals by doctors or physicians

In many cases, doctor recommendations are very important because most people use them to learn about their health. More than 64% of the female undergraduate students at Makerere University who took part in a study about what helps and what gets in the way of cervical cancer screening said that recommendations from friends and family, as well as recommendations from healthcare professionals or doctors, made them more likely to go to cervical cancer screening services (44). This was also shown in a second study by Ebu *et al*., in which all the women who went for screening did so because their doctors told them to do so (48).

2.5 PREVENTATIVE STRATEGIES

The HPV vaccine is given to women during their reproductive years and is one of the best preventive treatments for cervical cancer in the world. When the HPV vaccine is given before the virus is exposed, it protects against infections caused by the HPV types in the vaccine. This means that healthy women who have never been exposed to the virus are protected by the vaccine. If you already have an infection caused by a certain strain of HPV, the vaccine will not work. A nurse or doctor scrapes the cervix with a swab or brush to collect cells, which are then screened in a lab to help find high-risk HPV strains. When women do not have any symptoms, testing for HPV-DNA can help find high-grade cervical lesions early (30). The only places in Namibia where one can get the cervical cancer vaccine are private hospitals and clinics. This is bad for women who do not have health insurance or the money to pay for the vaccine.

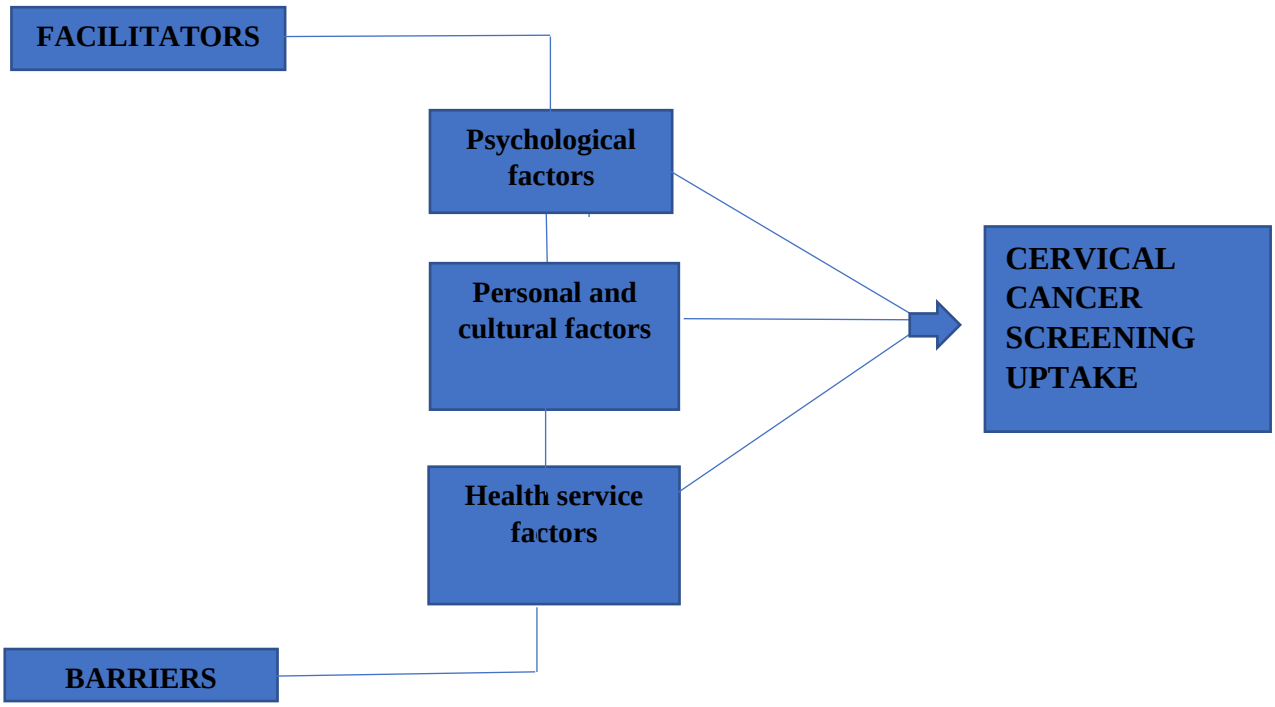
If a lot of young women get vaccinated, there is evidence that herd immunity may protect young women who have not gotten vaccinated against HPV (2). Along with immunization programs, it is recommended to take an integrated approach that includes age-appropriate sexual and reproductive education, such as how to have fewer sexual partners and use condoms correctly (9).

A keyway to reduce the number of cases and deaths from cervical cancer is to find and treat precancerous lesions in women. This is a common way that secondary prevention programs try to keep women from getting into trouble.

To help these women save their lives, it is important that women with suspicious lesions or confirmed cancers get checked out quickly and sent to the right place. Cervical cancer can be treated with surgery, radiation, or a combination of the two when it is in its early stages. Palliative care should be part of the treatment plan for women with advanced cervical cancer so that their medical needs are met.

2.6 CONCEPTUAL FRAMEWORK

A conceptual framework is an abstract structure consisting of interrelated concepts assembled in a rational scheme by their relevance to a common then and provides guidance to the development of the study (60). The study focuses on the factors that influences the uptake of cervical cancer screening. These factors are shown in a conceptual framework of factors influencing the uptake of cervical cancer screening in figure 1 below.



(Source: Author formulated)

Figure 1: Conceptual framework of the study

The framework was adopted from one of the constructs of the Health Belief Model. The Health Belief Model is a model that was formulated by psychologists comprised of five constructs to explain and predict health related behaviour (10).The researcher used the barriers and facilitators as a cue to action construct to formulate the framework. This framework suggests that facilitators and barriers to a health service are likely to influence persons on whether they will go for such services. Multifaceted factors such as emotional, personal, cultural and health-service related factors can act as barriers and facilitators. In this study, for example, female students may be encouraged to undergo cervical cancer screening services if they are motivated by factors such as having knowledge of cervical cancer (personal) and are referred by a doctor for cervical cancer screening (health service). Conversely, students may be discouraged to seek cervical cancer screening services due to factors such as fear of pain or knowing the outcome of their Pap smear result (psychological) and difficulty accessing hospitals and clinics that offer cervical cancer screening services. The main variables in this study are the facilitators (independent variable), barriers (independent variable) to cervical cancer screening, and the likelihood of cervical cancer screening uptake (dependent variable).

2.6.1 Emotional/psychological factors

The emotional parts of this study are how students feel about getting screened for cervical cancer. It shows what they think is good or bad about cervical cancer screening. This study looked at how these things help or stop students in allied health sciences at the University of Namibia from getting screened for cervical cancer.

2.6.2 Personal factors

This study looked at how personal factors affect how much students know about cervical cancer and other factors related to it. It discusses the students' past screening experiences and how they felt about cervical cancer screening. This study considered how these factors affected students at the University of Namibia who were studying allied health sciences and their ability to learn about cervical cancer.

2.6.3 Health service factors

An aspect of health services is how easily students may access facilities that provide cervical cancer screenings, how much these tests cost, and how the staff at these facilities treat the

students. This study examined the impact of these variables on University of Namibia health science students' rates of cervical cancer screening.

2.7 SUMMARY

The review of relevant literature gave a summary of the epidemiology, risk factors, and prevalence of cervical cancer in women around the world. The most recent studies on cervical cancer screening facilitators and barriers among university students was analysed. The identification and discussion of numerous categories of barriers and facilitators to cervical cancer screening. This analysis unequivocally demonstrates how complex and multifaceted the causes of cervical cancer screening barriers and facilitators are. The following chapter describes the research methodology used to conduct the study.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter presents the methods of research that were used to meet the aims of this study. Research methodology is the process of gathering and analysing data in a planned way (60). In quantitative studies, the research procedures section includes the steps taken to help solve the research problem, gathering research data, and studying the results. In this chapter's subsections on research methods, we explain the setting of the study, the research design, the research methods, the study population, the sample and sampling method, the data analysis, and the ethical considerations of the study.

3.1 STUDY SETTING

This study was conducted at the University of Namibia's Faculty of Health Sciences and Veterinary Medicine, housed at Hage Geingob Campus. The campus was established in 2009 and is located in the capital city of Namibia, Windhoek. It is located between the two state hospitals in the city, namely, Windhoek Central Hospital and the Intermediate Hospital, Katutura. The campus has a population of about 924 students enrolled in undergraduate and postgraduate courses. At present, the faculty consists of six schools, namely School of Allied Health Sciences, School of Nursing and Public Health, School of Medicine, School of Dentistry, School of Pharmacy, and School of Veterinary Medicine.

3.2 RESEARCH DESIGN

A research design is a study's entire plan for answering a research question (60). A quantitative, cross-sectional, and analytical study was conducted among approximately 97 female allied health science students studying at the University of Namibia and registered for the 2022 academic year. This sample was taken from a total population of 280 female allied health science students. In a quantitative study design, statistical tests are used to analyse data that is numeral in nature (61). An analytical cross-sectional study is a type of quantitative, non-experimental research that tries to get information from a group of people at a certain point in time (62). During the data collection process, information was gathered regarding who gets screened for cervical cancer, what helps with screening, and what gets in the way of screening.

Analytic cross-sectional designs are used in studies to find out if there is a link between an exposure and a disease, condition, or result in a participant (60).

3.3 STUDY POPULATION

A population in research is the whole set of cases that satisfy predetermined criteria (60). All health science students enrolled in the 2022 academic year at the University of Namibia (Hage Geingob Campus) comprised the study's population. Female students in study programs offered by the School of Allied Health Sciences who were at least 18 years old made up the study population. On campus, there are about 280 female students enrolled in allied health sciences. Most students enrol in educational institutions when they are 18 years old or older. Furthermore, this is the age at which most young individuals engage in sexual activity.

3.3.1 Inclusion criteria

- Allied health science female students that are 18 years and older at Hage Geingob Campus.

3.3.2 Exclusion criteria

- Allied health science female students younger than 18 years old.
- Female students registered for courses under the school of Medicine, Dentistry, Pharmacy, Nursing and Veterinary Medicine
- Allied health science students absent or sick around the time the study was conducted.

3.4 SAMPLE AND SAMPLING METHOD

In research, a sample is defined as the subset of a population, whilst the process of selecting the subset of the population that is representative of the entire population is referred to as sampling (11). A stratified systematic random sampling method was used to obtain the desired sample size. The study sample consisted of female students that were randomly selected from each Allied Health course at Hage Geingob Campus. The sample was selected from Health Science students at Hage Geingob Campus (inclusive of students registered for allied health science courses). The sample was first stratified by course and then systematic random sampling was performed. The sampling process was started by randomly selecting a student from each allied health course (social work, radiography, physiotherapy, and occupational

therapy). After this selection, every third student in each allied health course was selected until the desired sample size of 97 students was obtained. This interval was obtained by dividing the total allied health science female population (280 students) by the sample size (97 students). This sampling method is easy to use and gives each unit in the population an equal chance of being included in the sample.

3.5 DETERMINATION OF SAMPLE SIZE

The sample size was derived from using the single proportion formula

$$n = \frac{(Z\ \alpha/2)\ 2\ p\ (1-p)}{d^2}$$

Where:

- n =is the calculated sample size
- Z = 95% confidence interval
- P = percentage of female students that had prior cervical cancer screening (6.8%) taken from the findings of a university
- d^2 = 5% marginal error

$$(0.05)^2$$

$$= 97$$

The sample size was therefore 97 female allied health science students.

Table 1: *Distribution of the sample*

Course	**Number of participants**
Physiotherapy	26
Occupational Therapy	17
Radiography	39
Social Work	15
TOTAL	**97**

3.6 RESEARCH INSTRUMENT

A research instrument is a data collection tool usually in the form of a questionnaire of a series of questions intentionally designed to elicit responses from respondents for the purposes of collecting information related to the research study (12) . This study employed the use of a self-administered structured questionnaire as a data collection tool (Annexure A). The questionnaire was structured according to the objectives of the study seeking to assess the uptake of cervical cancer screening among female allied health science students at UNAM. The questionnaire had a series of questions regarding facilitators and barriers to the uptake towards cervical cancer screening. The questionnaire consisted of five sections namely: demographic information (A), knowledge of cervical cancer screening (B), and cervical cancer screening history (C), facilitators (D) and (E) barriers to cervical cancer screening uptake.

3.6.1 Reliability

Reliability refers to how consistent an instrument is in measuring what it is meant to measure (60). The study's closed-ended questions about cervical cancer showed how well the method of collecting data worked. The researcher also made sure that the study was done in a way that made it easy to get accurate results from the questionnaire (a silent lecture hall on campus). The researcher and research assistant told the students what the goals of the study were so that mistakes were avoided, and the data would be correct.

The Cronbach's alpha reliability test was done to see how consistent and reliable the instrument was on its own. Cronbach's alpha measures the internal consistency and reliability of instruments with multiple-item rating scales, with high values indicating high reliability (65). Cronbach's alpha coefficients between 0.5 and 0.6 are considered good. Values above 0.6 mean the instrument is reliable (66). With a Cronbach's alpha of 0.5, the instrument was thought to be reliable enough.

Before collecting data, a pilot study was done to find out more about how reliable the instrument was. Ten students from the University of Namibia who were studying medicine or nursing took part in the pilot study. This was done to see the order of the questions, how many questions were left unanswered, and how long it took to answer all questions. Ten copies of the questionnaires were given to female nursing and medical students at UNAM who 18 years were old and registered for the 2022 academic year.

After the pilot study was carried out, the researcher made alterations to the questionnaire based on the results of the pilot study. The researcher made a correction to section D of the questionnaire. The question in section D was referring to question 1.1 but was wrongly denoted as question 1.3. This question was changed accordingly.

3.6.2 Validity

Validity is how well an instrument measures what it is supposed to measure (67). Face validity is a measure of how well an instrument seems to measure what it claims to measure. (60). The researcher was able to do this by doing a pilot study and comparing the questionnaire with the study's goals. Content validity is the degree to which a tool has correct information to test important ideas (60). The questionnaire was also perused and accepted by the Research Committee of the School of Public Health. The questions on the questionnaire were designed based on the goals of the study. This was decided after the researcher read a lot about what makes people want to get tested for cervical cancer and what makes them opposed to do so. This was done to make sure that the questionnaire had the right questions to measure these factors.

3.7 Data collection procedure

Data collection is the process of obtaining information to answer a research topic or address a particular problem (60). After receiving approval from the Ministry of Health and Social Services and the UNAM Research Ethical Committee, the data were collected over the course of two months in June and July 2022.

Female allied health science students from the age of 18 and older, registered and attending studies at UNAM and who had given consent were included in this study. The respondent gave consent by completing a consent form (Annexure B) prior to completing the questionnaire. At the time of collecting data, all female allied health science students at the campus were informed on what the research study entailed. The students were also briefed on the ethical principles that were guiding the research study to protect those that would participate. The administration of questionnaires took place until a sample size of 97 respondents was reached.

The process of data collection was facilitated by the researcher with the help of a female nursing graduate who was trained on the purpose of the study, data collection techniques and ethical issues in research prior to the study. The female nursing graduate, who was recruited as

research assistant delivered the questionnaires to the participants. The researcher trained the research assistant on how to complete the questionnaire and reviewed the data collected to ensure quality and comparability of data between researcher and research assistant. The female nursing graduate was recruited on the basis that she might have data collection skills acquired during their research study as an undergraduate student. Other reasons the assistant was recruited, were based solely on the basis that female students were likely to be more comfortable with another female counterpart and an aspiring health professional.
Students were approached by the researcher and research assistant from lecture halls and the library during their breaks. The researcher and assistant waited with questionnaires at the entrance to lecture halls and library. The information was gathered with a standard, self-administered questionnaire that asked a series of questions about what encouraged and discouraged female students to go for cervical cancer screening. In the questionnaire, people were asked about their age, gender, sexual preferences, and screening history.

The researcher supervised the female nursing graduate to administer the questionnaires effectively, throughout the data collection process. The researcher also checked the questionnaires that were completed for completeness and any errors daily.

The questionnaires were administered to female allied health science students that were available on campus during field workdays who had consented to take part in the study. It took between 10-15 minutes to complete the questionnaire.

3.9 DATA ANALYSIS

In quantitative studies, data analysis refers to the process of extracting useful information to make decisions by collecting, transforming, processing, and analysing raw data (13). The data from the self-administered survey were cleaned before being transferred onto a computer using Microsoft Excel 2021. The data were subsequently coded, edited, cleaned, and analysed using version 25 of the Statistical Package for Social Scientists (SPSS). Utilizing descriptive statistics such as frequency distribution, percentages, and graphs, screening rates for cervical cancer were examined.

A binary and multivariate logistic regression was done to determine the frequencies and associations between each independent variable and outcome. All variables having a p value

of 0.05 in the binary logistic regression analysis were examined for confounding effect using multivariate logistic regressions. Using an odds ratio with a 95% confidence interval, the strength of the association between independent and outcome variables was assessed. At $p < 0.05$, the results of multivariate regression were regarded statistically significant.

3.10 RESEARCH ETHICS

Research ethics is a set of moral rules about how well research methods match up with the professional, legal, and social responsibilities of people who take part in studies (60). In 1964, the World Medical Associations (WMA) signed the Helsinki Declaration, which says that any medical study that involves people must follow all known scientific ethical standards to show respect for people, protect human rights, and protect privacy (68). Three fundamental ethical principles that guided this study were: the principle of respect for persons, beneficence, and justice.

3.10.1 Permission to conduct research

The University of Namibia's Decentralized Ethical Committee (DEC) and the Ministry of Health and Social Services both granted ethical authorisation because the researcher followed all ethical research standards (Annexure D and Annexure E). Following ethical approval, the researcher sought extra permission from the Associate Dean of UNAM's School of Allied Health Sciences. Following a thorough explanation of the study's goals and objectives by the researcher, each respondent gave both oral and written informed consent.

3.10.2 The principle of respect for persons

This principle denotes the respondent's right to choose for himself or herself (69). This means that respondents can make their own decisions if they have enough information. The researcher made sure this was met by making participation in the study voluntary and letting people leave the study at any time. Before getting the questionnaire, the researcher obtained informed consent from the respondents. During the debriefing process, the researcher made sure that all relevant information was given to respondents, and that they understood the topic, and agreed to take part in the study without being deceived or coerced. Respondents signed a consent form that showed that they knew what the study was about and were willing to take part.

3.10.3 Principle of beneficence

Beneficence involves the respondent's right to be protected from harm and discomfort (14). This principle ensures that the physical, mental, and social well-being of the respondent remains the responsibility of the researcher (15) .To ensure that the principle of beneficence was met, the researcher explained to the respondents that they would not benefit individually from the study, but that the findings of the study might improve cervical cancer screening services at the university. The researcher also informed the respondents of the potential of some of the questions in the questionnaire to trigger distress.

3.10.4 Principle of justice

This idea is about the right of respondents to be chosen and treated in a fair way (60). The researcher selected the participants in a manner that was fair (63). The researcher used a sampling method that was systematic in nature to make sure that this criterion was met. To get the size of the sample, every third respondent from each allied health program was chosen at random. This was done to make sure that everyone who answered the questionnaire had an equal and fair chance to do so.

The researcher ensured that the respondents' answers were treated confidentially and anonymously. Confidentiality means that the researcher took steps to make sure that the data from the study could not be used to find out who the respondents were. Anonymity is the practice of hiding the names of people who take part in a study (60). Anonymity was ensured by giving out questionnaires and asking people to send them back without any identifying information. All the information gathered from respondents was treated with confidentiality. Also, there were no personal identifiers on the questionnaire because the researcher gave each participant a unique code. The researcher saved the data on a computer with a password that only the researcher knew. Upon completion of the study, questionnaires were locked in a cabinet that was in the possession of the researcher and will only be destroyed after 5 years.

3.11 DISSEMINATION

Following the completion and approval of this study by the University of Namibia, it will be disseminated to the Ministry of Health and Social Services, UNAM, and other universities, as well as other relevant bodies. The study will be published in a scientific journal to contribute to the existing body of health science.

3.12 SUMMARY

This chapter gives an overview of how this research project was done. It gives a description of the research tool, sampling method, population, the study location, the design, and how the sample size was calculated. Quantitative, analytical, and descriptive methods were used in the study. A group of 97 female students in Allied Health Sciences was chosen at random and used as a sample. To obtain this information, a self-administered questionnaire was used. Also, the chapter explains the ethical rules that were followed before, during, and after collecting and analysing the data. The results of the study are shown in the next chapter.

CHAPTER 4

RESULTS

4.0 INTRODUCTION

This chapter presents the data collected, results of statistical analysis and interpretation of findings, presented in the form of tables and graphs. The chapter specifically presents the findings on facilitators and barriers to cervical cancer screening, uptake of cervical cancer screening, and demographic characteristics of the population studied. The data were collected from a sample size of 97 allied health science students at the University of Namibia with a 100% response rate. The last section in this chapter focused on the association between having Pap smear test and age by logistic regression analyses. All the analysis in this chapter is based on the total number of students that responded, all multiple responses are not based on total sample of participants but on the responses given.

4.1 DEMOGRAPHIC INFORMATION

Table 2: *Age of the of the students, UNAM, 2022*

Table 2: Age of the students		**Statistic**
Mean		22.24
95% Confidence Interval for Mean	Lower Bound	21.66
	Upper Bound	22.82
Median		22.00
Std. Deviation		2.842
Minimum		18
Maximum		36
Range		18

With a standard deviation of 2.84 years, the average age of the students in this study was 22.24 years. With a 95% level of confidence, the average age of the students is between 21.66 and 22.82 years old. Table 2 shows that there are 18 years between the youngest and oldest students, who were both 18.

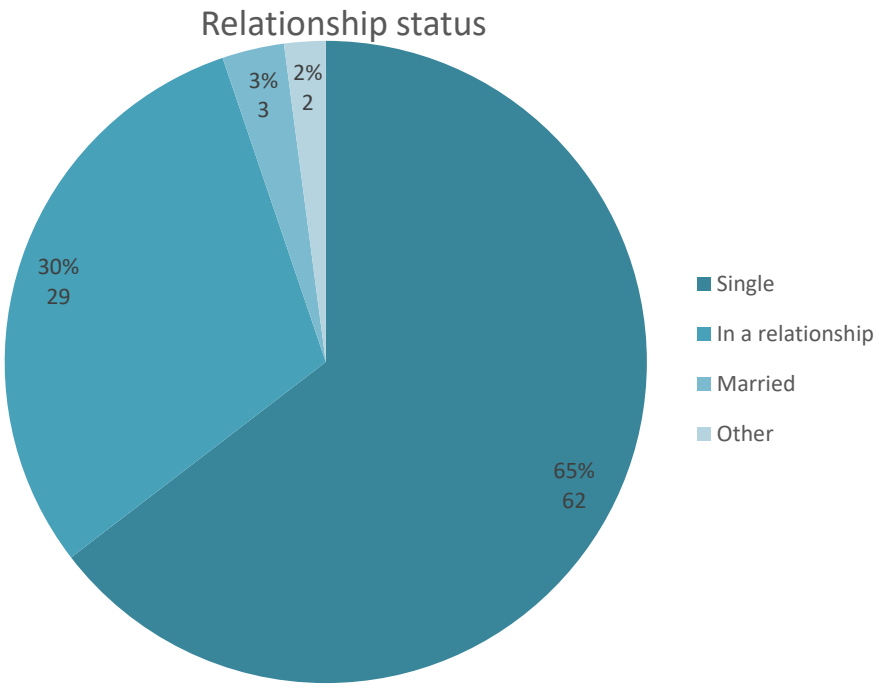


Figure 1: Relationship status of the students, UNAM, 2022.

Most 65% (62) of the students indicated that they were single, 30% (29) were in a relationship, while the other 3% (3) were married. Furthermore, some of the students, 2% (2) indicated their relationship status as 'other.'

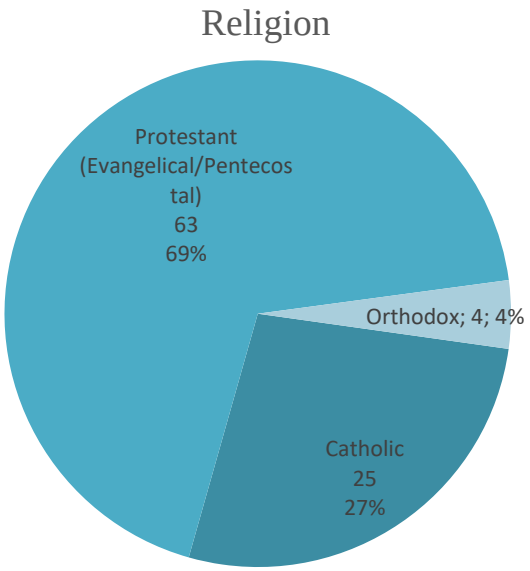


Figure 2: Religion of the students, UNAM, 2022.

Figure 2 shows that about 69% (63) were Protestant (Evangelical/ Pentecostal), 27% (25) of the participants were Catholic and the other 4% (4) were Orthodox.

Table 3 : *Age at first sex of the students, UNAM, 2022*

Age at first sex		Statistic
Mean		18.92
95% Confidence Interval for Mean	Lower Bound	18.17
	Upper Bound	19.66
Median		19.00
Variance		8.182
Standard. Deviation		2.860
Minimum		13
Maximum		29
Range		16

The mean age at which students who participated in this study had their first sex was 18.92 years, with a standard deviation of 2.860 years. At confidence interval of 95%, the mean age of the students was between 18.17 and 19.66 years. Table 3 shows that amongst the students who had sex, the youngest were 13 years of age and the oldest were 29 years of age, with an age difference of 16 years.

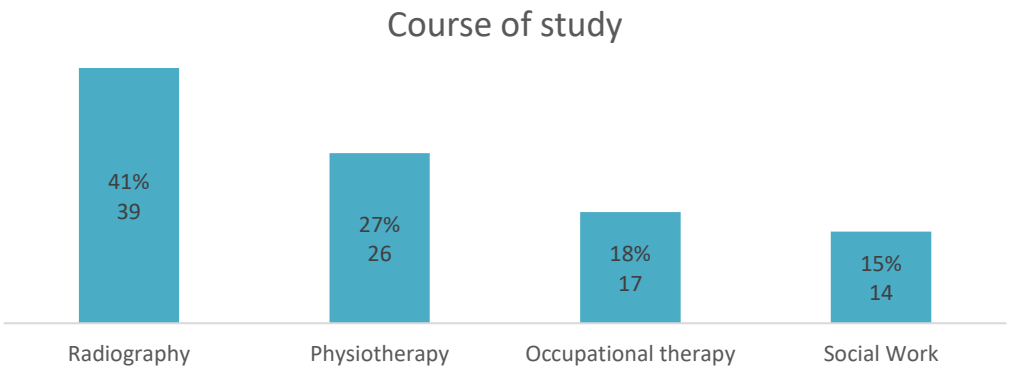


Figure 3: Course of study of the students, UNAM, 2022

About 41% (39) of the students surveyed were studying radiography, followed by 27% (26) who were studying physiotherapy and 18% (17) who were studying occupational therapy. Also, only 15% of the students polled were studying social work (15).

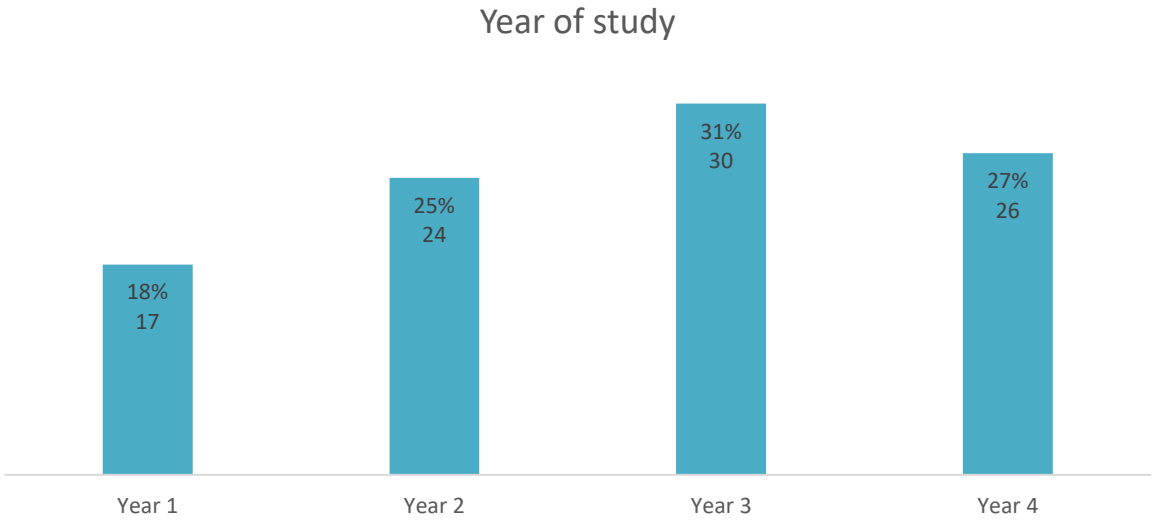


Figure 4: Year of study of the students, UNAM, 2022

From Figure 4, we can see that 31% (30) of the students were in their third year, 25% (24) were in their second year, and 18% (17) were in their first year. Also, about 27% of the people who answered (26 people) were in their fourth year of studies.

4.2 KNOWLEDGE ON CERVICAL CANCER SCREENING

4.2.1 Multiple sex partners as a risk of developing CaCx

Table 4 : *Students' responses on multiple sex partners as a risk of developing CaCx*

People with multiple sex partners at a higher risk of developing cervical cancer	Frequency	Percent
Strongly disagree	4	4%
Disagree	10	10%
Agree	40	41%
Strongly agree	43	44%
Total	**97**	**100%**

Based on the results shown in Table 4, 10% of students disagreed and 4% of students strongly disagreed that having more than one sexual partner raises the risk of cervical cancer. On the other hand, most people, 44% (43), and around 41% (40), agreed or strongly agreed that people who have more than one sexual partner were more likely to get cervical cancer.

4.2.2 Contraceptive use as a risk of developing CaCx

Table 5: *Students' responses on the use of contraceptive pills as a risk of developing CaCx*

Long- term use of contraceptive pills causes cervical cancer	Frequency	Percent
Strongly disagree	8	8%
Disagree	26	27%
Agree	44	45%
Strongly agree	19	20%
Total	**97**	**100%**

According to the Table 5 about 27% of students disagreed and 8% of the students strongly disagreed, respectively, that long-term usage of birth control tablets caused cervical cancer. Nevertheless, 45% (44) of the students and 20% (19) of them agreed and strongly agreed respectively, that long-term usage of birth control tablets caused cervical cancer.

4.2.3 Condom use in reducing the risk of developing CaCx

Table 6 : *Students' responses on condom use in reducing the risk of CaCx*

Use of condoms could reduce the risk of cervical cancer	Frequency	Percent
Strongly disagree	17	18%
Disagree	32	33%
Agree	27	28%
Strongly agree	20	21%
Total	96	100%

Table 6 shows that the use of condoms to reduce the risk of cervical cancer was strongly disagreed by 18% (17) students and 33% (32) also disagreed. About 28% (27) agreed and the other 21% (20) strongly agreed that condom use could reduce the risk of cervical cancer.

4.2.4 HPV vaccination in reducing the risk of developing CaCx

Table 7: *Students*' *responses on HPV vaccination in preventing CaCx*

HPV vaccination prevent cervical cancer	Frequency	Percent
Strongly disagree	8	8%
Disagree	21	22%
Agree	32	33%
Strongly agree	35	36%
Total	96	100%

Table 7 shows that about 8% (8) and 22% (21) of the students totally disagreed and 22% (22) disagreed that HPV vaccination prevents cervical cancer. On the contrary, 33% (32) of the students and the other 36% (35) of the students agreed or strongly agreed that HPV vaccination prevents cervical cancer.

4.2.5 Consulting a doctor when having abnormal menstrual bleeding

Table 8: *Students' responses on consulting a doctor due to abnormal menstrual bleeding*

Consult a medical doctor in case of abnormal bleeding between menstrual periods	Frequency	Percent
Strongly disagree	5	5%
Disagree	3	3%
Agree	19	20%
Strongly agree	70	72%
Total	97	100%

From Table 8, it can be noted that 5% (5) and 3% (3) of the students respectively strongly disagreed and disagreed with the statement that it is necessary to see a doctor for unusual bleeding between menstrual periods. About 20% (19) also stated students agreed, 72% (70) strongly agreed that it was necessary to see a doctor in case of abnormal intermenstrual bleeding periods.

4.2.5 Regular Pap smear test in the aiding with the diagnosis of CaCx

Table 9: *Students' responses on a regular Pap smear test aiding with the early diagnosis of CaCx*

Regular pap smear test help with the early detection of cervical cancer	Frequency	Percent
Disagree	4	4%
Agree	10	10%

Strongly agree	83	86%
Total	97	100%

Based on the information in Table 9, about 4% of the students (4) disagreed that regular pap smears helped to detect cervical cancer early. A small number of students (10%) thought that regular pap smear tests helped to detect cervical cancer early, and about 86% (83) of the students strongly agreed with this claim.

4.2.6 Sexually active women to be screened for cervical cancer of CaCx

Table 10: *Students' responses all on sexually active women to be screened for CaCx*

All women that are sexually active should undergo cervical cancer screening	Frequency	Percent
Strongly disagree	1	1%
Disagree	6	6%
Agree	25	26%
Strongly agree	65	67%
Total	97	100%

In Table 10, only 1% (1) of the students strongly disagreed that all women who were sexually active should undergo cervical cancer screening, the other 6% (6) also disagreed that all sexually active women should undergo cervical cancer screening. However, approximately 26% (25) of the students agreed that all sexually active women should undergo cervical cancer screening, and 67% (65) also strongly agreed that all sexually active women should undergo cervical cancer screening

4.2.7 Students' own risk of getting cervical cancer

Table 11: *Students' responses on their risk of getting cervical cancer*

At risk of getting cervical cancer	Frequency	Percent
Strongly disagree	14	15%
Disagree	37	39%

Agree	29	30%
Strongly agree	16	17%
Total	96	100%

Table 11 shows that 15% (14) strongly disagreed with the risk of developing cervical cancer, 39% (37) disagreed that they were at risk for cervical cancer. A total of 30% (29) of students agreed that they were at risk of contracting cervical cancer. In addition, 17% (16) also strongly agreed that they were at risk of contracting cervical cancer.

4.2.8 Necessity of cervical cancer screening for all women

Table 12: *Students' responses on the necessity of cervical cancer screening for all women*

Cervical cancer screening valuable and necessary for all women	Frequency	Percent
Strongly disagree	6	6%
Disagree	7	7%
Agree	14	14%
Strongly agree	70	72%
Total	97	100%

Table 12 shows that 6% (6) of the students surveyed strongly disagreed with the view that screening was valuable and essential for all women, the other 7% (7) also disagree that cervical cancer screening was valuable and essential for all women. However, approximately 14% (14) of the students surveyed agreed and 72% (70) strongly agreed that cervical cancer screening was valuable and necessary for all women.

4.3 CERVICAL CANCER SCREENING HISTORY

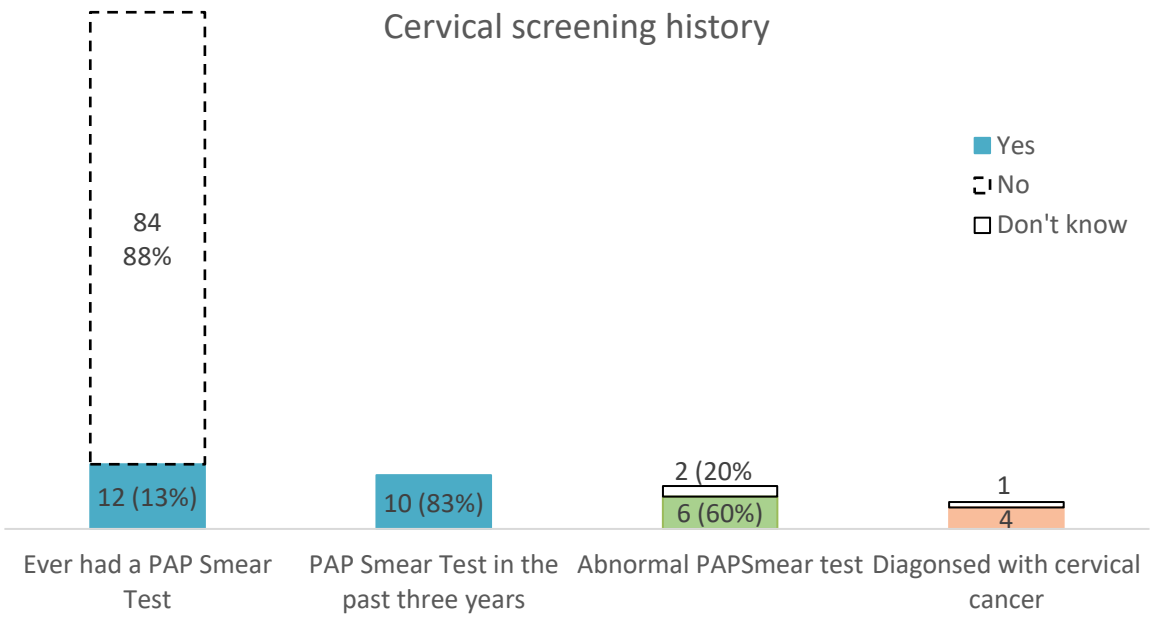


Figure 5: Distribution of the students' cervical cancer screening history

As shown in Figure 5, of the 97 female students who participated in this study, 96 responded to questions about cervical cancer, with 13% (12) reporting that they had a Pap smear test in their lifetime. Of the students who had a Pap smear screening, 83% (10) had it within the past three years and 60% (6) had an abnormal Pap smear test. The cascade also indicates that 4 of the students were diagnosed with cervical cancer.

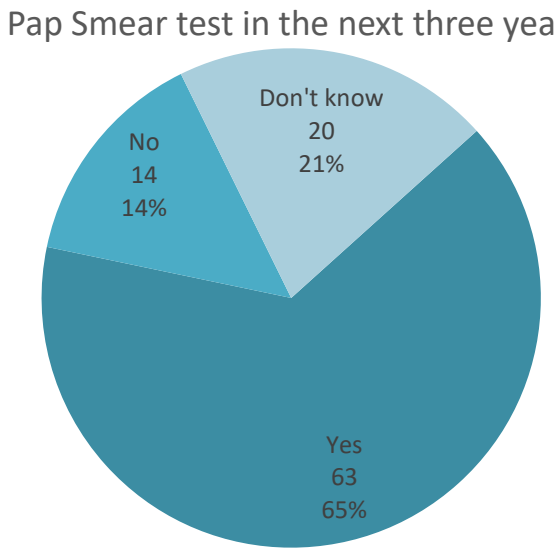


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Figure 6: Distribution of the students' willingness to have a Pap smear test in the next three years

Figure 6 shows that 65% (63) of the students intended to have a Pap test in the next three years, 14% (14) said 'no' and the other 21% (20) said they did not know whether they would have a Pap smear in the next three years.

4.4 FACILITATORS TO UPTAKE OF CERVICAL CANCER SCREENING

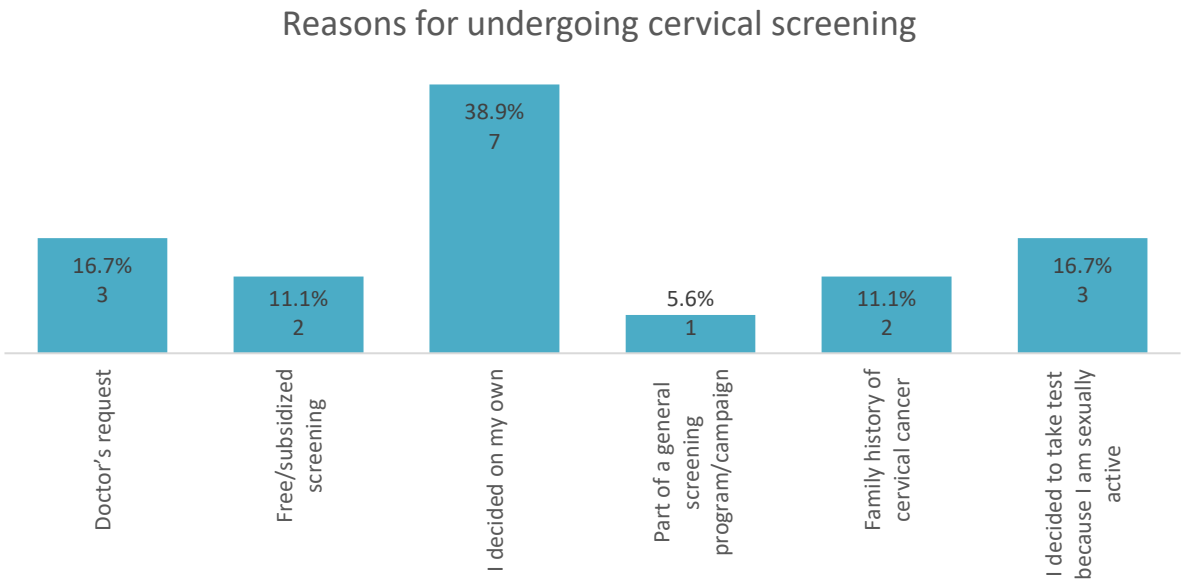

Figure 7: Distribution of facilitators to cervical cancer screening among the students

Figure 7 shows the reasons for students to undergo cervical cancer screening. This figure shows that, most students, 39% (7), opted for cervical cancer screening as a personal choice. The second most common reason given by students for cervical cancer screening was that it was requested for by a medical doctor (16.7%) and students who chose to have a Pap smear because they were sexually active (16, 7%). In addition, only 6% (1) of the students indicated that the reason they were screened for cervical cancer was that it was part of a screening program.

4.5 BARRIERS TO THE UPTAKE OF CERVICAL CANCER SCREENING

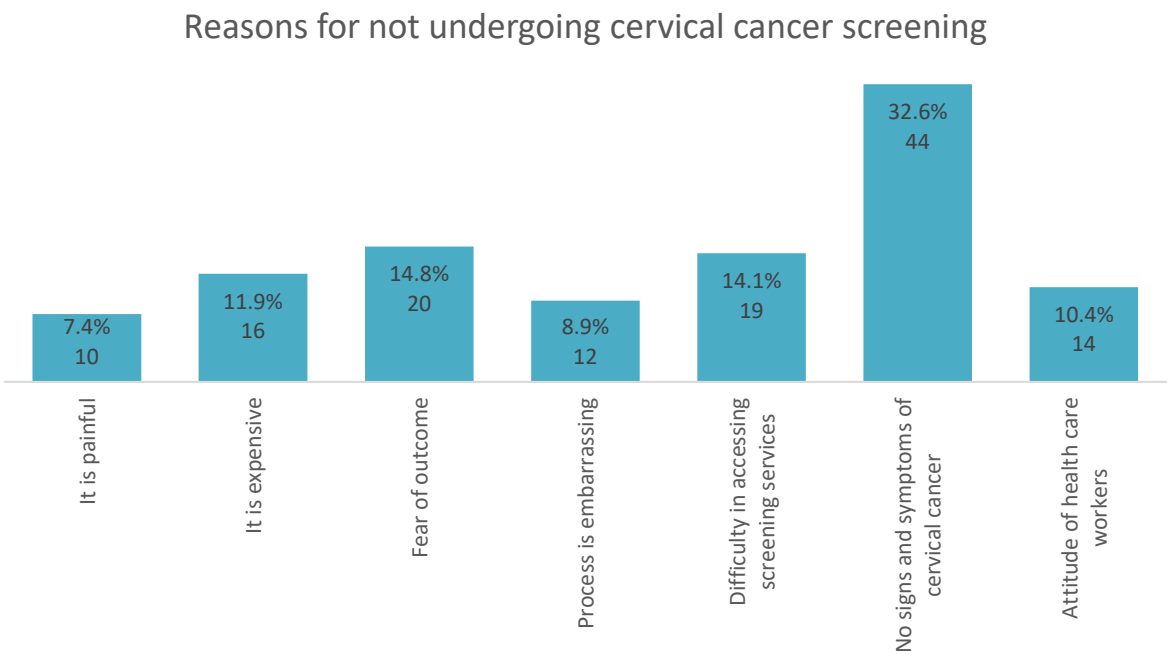

Figure 8: Distribution of barriers to cervical cancer screening among the students

Figure 8 shows the reasons why students under study had not been screened for cervical cancer. Approximately 33% (44) of the female students did not attend cervical cancer screening because they had no signs and symptoms of cervical cancer. The students gave 'fear' of the outcome (a positive test result) at 14.8% (20) and difficult access to cervical cancer screening services at 14.1% (19) as further reasons for not screening for cervical cancer. Other distinguished reasons for not participating in cervical cancer screening were that cervical

cancer screening was expensive (11.9%) and that they did not want to undergo the procedure because of fear of pain (7.4%).

4.6 ASSOCIATION BETWEEN HAVING A PAP SMEAR, DEMOGRAPHIC FACTORS, AND ABNORMAL PAP SMEAR

Table 13: *Logistic regression of demographic factors, ever had a Pap smear test and abnormal Pap smear test*

Lifetime PAP Smear screening								
	B	**S.E.**	**Wald**	**df**	**Sig.**	**odd ratio**	**95% C.I. for EXP(B)**	
							Lower	Upper
Age	-0.470	0.178	6.973	1	**0.008***	0.625	0.441	0.886
Relationship	0.670	0.869	0.594	1	0.440	1.954	0.356	10.742
Religion	0.728	0.562	1.677	1	0.195	2.071	0.688	6.233
Age first sex	0.040	0.146	0.075	1	0.785	1.041	0.781	1.387
Abnormal PAP Smear	4.431	1.515	8.558	1	**0.003***	84.056	4.316	1636.911
Constant	1.406	4.465	0.099	1	0.753	4.079		

Dependent variable = Lifetime PAP Smear Screening | Significant level = 0.05 |*=Significant

Table 13 shows Binary logistic regression between never had a Pap smear test in their lifetime and demographic factors as well as abnormal results. At 5% significant level it is shown that there was a statistical significance between never had a Pap smear test in their lifetime and age with abnormal Pap smear. This means that, one unit decreases in age reduces the odd of PAP Smear test with 0.625. Also, one unit increase in abnormal Pap smear tests increases the odd of being tested with 84.056.

Table 14: *Logistic regression of demographic factors, Pap smear test in the last three years and abnormal Pap smear test*

PAP Smear screening in the past three years								
	B	**S.E.**	**Wald**	**df**	**Sig.**	**odd ratio**	**95% C.I. for EXP(B)**	
							Lower	Upper
Age	-0.242	0.152	2.542	1	**0.011***	0.785	0.583	1.057
Relationship	0.791	0.725	1.192	1	0.275	2.205	0.533	9.126
Religion	0.661	0.446	2.196	1	0.138	1.937	0.808	4.643
Age first sex	0.046	0.127	0.130	1	0.718	1.047	0.816	1.344
Abnormal PAP Smear	3.248	1.183	7.537	1	**0.006***	25.741	2.533	261.630
Constant	-2.103	3.921	0.288	1	0.592	0.122		

Dependent variable = PAP Smear Screening in the past three years | Significant level = 0.05 |*****=Significant

Table 14 shows a Binary logistic regression between Pap smear test in the past three years and demographic factors as well as abnormal results. At 5% significant level it is shown that there was a statistical significance between having Pap smear test in the past three years and age with abnormal Pap smear. This means that, one unit decreases in age reduces the odd of Pap smear test within three years with 0.785. Also, one unit increase in abnormal PAP Smear tests increases the odd of being tested within three years with 25.741.

4.7 SUMMARY

In this chapter, the results of the study were presented graphically as tables, bar charts, and pie charts. The findings will be discussed further in the following chapter. In the chapter we discuss and explain the rationale of the results and relate the results of this study to previous studies.

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION

The findings of this study are discussed in this chapter. These findings are integrated and compared with previous literature in order to have a better understanding of the facilities and barriers to the uptake of cervical cancer among the health science student population. The conclusions, recommendations and limitations of the study are also included in this chapter.
The objectives of the study were to assess the level of knowledge and identify the facilitators and barriers to cervical cancer screening among allied health science female students at the University of Namibia (Hage Geingob Campus). The discussion was thus based on knowledge of cervical cancer screening, screening history as well as the barriers and facilitators to cervical cancer screening.

5.2 DISCUSSION OF FINDINGS

5.2.1 *Demographic characteristics*

The socio-demographic factors associated with cervical cancer screening uptake in this study are age, age at first sex, marital status and year of study. The demographic characteristics obtained from the female allied health science students included, age, relationship status, religion, age at first sex, course of study as well as the year of study. Many the respondents (65%) were single and from a Christian background (69%). In this study, the average age of the respondents was 22 years of age. This is in line with the fact that the respondents were university students. Furthermore, findings of the study revealed that the average age of first sex of the female students was 18.92 years. This age is slightly above the national first sex average of 16.3 years reported by the Namibia Demographic Survey (10). This difference in age at first sex between the general and student population can be attributed to the female students delaying engaging in sexual activities to focus on their studies. The study shows a positive association by logistic regression between having Pap smear test and Pap smear test in the past three years, age and with having abnormal Pap smear test result.

Most of the female students 39 (41%) were reported to be studying radiography, followed by 26 (27%) who were studying physiotherapy, 17 (18%) pursuing their studies in occupational therapy and 14 (15%) studying social work. Most of the students 30 (31%) were in their third year of study, followed by 26 (27%) who were doing their fourth year, 24 (25%) in second year and 17 (18%) in their first year, respectively.

5.2.2 Knowledge towards cervical cancer screening

The personal factors that associated with cervical cancer screening uptake include students' knowledge on cervical cancer. In this study, the researcher assessed the students 'level of knowledge related to cervical cancer. In relation to students' knowledge on the diagnosis of cervical cancer. Most of the students (96%) knew that the Pap smear test aids in the early detection of the cervical cancer. However, a dissimilarity is noted in the findings of a study assessing knowledge of cervical cancer by Hoque *et al*., in which only 38% of the female students knew that a Pap smear test is used to detect for cancer at an early stage (71).

Several studies of have established several risk factors that are likely to increase women's chances of developing cervical cancer. These factors include HPV infection, starting sexual activities at a young age, being in non-monogamous relationships, long-term use of oral contraception and not always using a condom (16) (72). With regards to the disease's risk factors, 93% of the students thought that all sexually active women should get screened for cervical cancer. The findings of this study further indicated that about 86% of the students considered the screening to be necessary for all women. Based on questions that examined the relationship between the number of sexual partners and the chance of getting the disease, 85% of the students knew that having more than one sexual partner is a risk factor for cervical cancer.

When asked about the HPV vaccine, the students were asked if they thought it could protect women against cervical cancer. The HPV vaccine is well-known for making it much less likely for women to get cervical cancer (73). Most students (69%) thought that getting the HPV vaccine lowered the chance of getting cervical cancer. In a study by Ali *et al*., 91% of the female health care students asked, knew that the HPV vaccine makes it less likely to get cervical cancer (74). This level of knowledge can be explained because the people who took

part in the study were university students who were studying health sciences and know what cervical cancer is.

The study also looked at how much the students knew about whether being on birth control pills for a long time causes cervical cancer. More than half of the students knew that taking birth control pills for a long time can make you more likely to get cervical cancer. This conclusion is contrary to that found in a study by Mruts *et al*., among health sciences students. Only 7.3% of the students knew that using oral contraceptives for a long time was a risk factor for cervical cancer (75). Unpredictably, more than fifty percent of the students indicated that condom use does not reduce the risk of contracting cervical cancer. This finding could be because the students involved in this study only knew condom use to be effective in the prevention of some sexually transmitted infections such as HIV and not in the prevention of HPV.

Although the findings of the study showed a good level of knowledge on the risk factors of cervical cancer, more than half of the students (54%) indicated that they were not at risk of contracting cervical cancer. These specific findings demonstrate very poor knowledge among the students and predisposes them to contracting HPV, which can result in cervical cancer.

5.2.3 Screening history

Other personal such as factors such as the students' cervical cancer screening history also encourages the students to be screened as they are familiar to the practice of screening. The study revealed that 13% (12) of the students who were part of the study had a Pap smear test for cervical cancer at some point in their lives. This low rate of cervical cancer screening is like what researchers have found with other health science majoring students. Less than 1%, 21.1%, and 2.5%, of university health science students in Ethiopia and Uganda had been screened for cervical cancer respectively (17)(18)(19).

The study also showed that 60% (6) of the female students were interested in having a Pap smear test within the next three years. A total of 20 (21%) of students indicated that they did not want to get a Pap smear test whilst 14 (14%) indicated that they did not know whether they would be screened. This finding shows a positive attitude towards cervical cancer screening among allied health science students at the University of Namibia. This result was also found

to be higher than that of studies conducted among students at University of Nigeria and which was at 52.8%. Findings of a study from Adama Science and Technology University yielded a slightly higher willingness (68.9%) to screen for cervical cancer among female students compared to the findings of the students at UNAM (20). The students' willingness to be screened within the next three years is owed to their high level of education in health.

5.2.4 Facilitators to cervical cancer screening

The study highlighted factors that encouraged allied health science female students to seek cervical cancer screening services, and these included, their own choice to be screened for cervical cancer, a doctor's request, being sexually active and screening services being offered by cervical cancer screening campaigns. Most of the students that decided to be screened for cervical cancer did so at their own volition and because they were in sexual relationships. More female students (17%, n=13), on the advice of their doctors, went for cervical cancer screening to get a diagnosis. This study affirms what was already known: that women are most likely to get screened because their doctor told them to do so (80).

In this study, there was no association between students' sexual activity, their doctors' suggestions that they be checked out, and their participation in a program to screen for cervical cancer. Screening services provided by cervical cancer screening programs have also been identified as a factor that encouraged female students to get screened for cervical cancer. In line with the results of a study on cervical cancer awareness and screening among female students at the University of Benin, the most common reason for screening (27.3% of participants) was that it was free and part of a larger screening campaign (81).

5.2.5 Barriers to cervical cancer screening

Cervical cancer screening uptake is also associated with perceived barriers to screening, perceived susceptibility to cervical cancer, and seriousness regarding the severity of cervical cancer, all of which is likely to encourage a student to engage in cervical cancer screening practices. This study revealed that there are many things that make it hard for college women to get cervical cancer screenings. Some of these were the lack of symptoms for cervical cancer, the fear of a positive result, the trouble getting to screening centres, the cost of the screening test, and the fear of pain.

A third of the students who were offered cervical cancer screening turned it down because they had no signs of the disease. Students will not take part in screening programs for cervical cancer unless they have symptoms. This finding supports the notion that students will put off cervical cancer screening and wait to get treatment until the disease has progressed. Fear of getting a positive test result may also be a reason why university students do not get screened for cervical cancer as often as they should.

Like the last psychological barrier, fear of pain caused by screening was linked to dread. Similar research (44) found that Pap smear tests made female university students feel pain and discomfort (56). Multiple studies have shown that psychological factors such as discomfort from screening and anxiety from fear of getting a positive result keep students from being screened for cervical cancer. However, these barriers can be overcome with extra help, like pre-counseling services from social workers. Health service factors influence cervical cancer screening practices. These factors include the cost of screening, preference of a female health worker, doctors' referrals and the availability and accessibility of cervical cancer screening services. Students in this study revealed that the cost of cervical cancer screening was one reason they did not get screened. This shows that health science students who get their clinical training at public hospitals and clinics either do not know enough or are giving out wrong information. A study by Al-Naggar *et al*., that confirmed this finding, pointed out that more than half of the students agreed that the cost of cervical cancer screening kept them from being screened. About 15% of students thought it was hard to get services for screening for cervical cancer. The most likely reason for this result is that the people who participated in the survey were students who may not be able to afford transportation to places that tested for cervical cancer. This could also be because there are not any facilities offering free cervical cancer screening near the university. These results show how important it is for universities to have facilities on campus where all students can get screened for cervical cancer.

5.2.5 Association between cervical cancer history and uptake of cervical cancer screening

A positive association was found between cervical cancer history and being screened for cervical cancer. Using binary logistic regression, a level of statistical significance was established between having Pap smear test in the past three years. Age was also found to be statistically significant to having a Pap smear test. Furthermore, the results of the binary logistic

research revealed that students who had an abnormal Pap smear (0.006) never got a Pap smear. This association may be due to the fact that students have knowledge on how the disease progresses and problems that may come from not being screened as necessary.

Despite the importance of these associations, many other studies that are similar have identified much more associations between screening for cervical cancer and other independent variables. For example, studies conducted in Ethiopia and Eritrea, revealed associations of statistical significance between getting a Pap smear and factors such as students' places of birth and the number of people they had sex with (21,22). These findings can be ascribed to the fact that this study had minimal factors to be correlated to, thus future studies should be exploratory or investigate more factors related to screening.

5.3 CONCLUSION

The aim of this study was to assess the knowledge, facilitators, and barriers to the uptake of cervical cancer screening among allied health science students at UNAM. The study further established the association between students being tested for cervical cancer and other variables. The conclusions made herein are based on the study objectives as indicated in Chapter 1. The recommendations herewith are made to guide policy and improve practice.
In this study, the fact that the test is uncomfortable, expensive, and embarrassing, the fear of a positive results, the lack of symptoms, the difficulty of getting to screening facilities, and the negative attitude of health care professionals were all seen as barriers to cervical cancer screening. Some of the facilitators that made it easier to get screened for cervical cancer were decisions to do so, requests from doctors, sexual activity, and programs or campaigns that offered screening services.

The findings of the study also showed that there is a poor level of cervical cancer screening uptake among allied health science female students at the University of Namibia. However, although the students had sufficient knowledge about cervical cancer and its practices, this was not put into practice.

Allied health science students are aspiring professionals who play an important role to improve health and prevent illness in general, as well as prevent diseases like cervical cancer. So, it's

important that they have the right information and a positive attitude towards cervical cancer and related practices.

5.4 RECOMMENDATIONS

5.4.1 Recommendations for Ministry of Health and Social Services

At national level the Ministry of Health and Social Services should review the existing policies guiding cervical cancer screening practices and put concerted efforts into such policies, for example by procuring HPV vaccines in public health facilities. In addition, the Ministry of Health and Social Services should leverage resources with civil society organisations and NGO's (non-governmental organisations) in the prioritisation and allocation of funds or support in the delivery of cervical cancer screening services. It is further recommended that gatekeepers such as community leaders and religious groups facilitate and conduct community dialogue with students and other young women at community level on the importance of cervical cancer screening.

The Ministry of Health and Social Services in alliance with the University of Namibia should launch cervical cancer screening services in state hospitals and clinics tailor made for female students and other young people to increase the level of cervical cancer screening uptake among the young population.

5.4.2 Recommendations for University of Namibia

At university level, the University of Namibia should host cervical cancer screening camps to help students to have increased access to cervical cancer screening services. The university's student representative council (SRC) can develop a cervical cancer campaign to help raise awareness among students. The university can integrate cervical cancer and its practices in core modules such as Contemporary Social Issues to increase students' knowledge and awareness related to cervical cancer. Additionally, to strengthen cervical cancer health education among the students, it is recommended that the university undertakes a curriculum review on specific modules where cervical cancer is covered and integrate it with health education.

5.4.3 Future research

The researcher has identified the need for facilitators and barriers to the uptake of cervical cancer screening among students not limited to health science, to be assessed in an explorative manner to gain better understanding into the identified barriers and facilitators. This will also help identify other factors that are likely to influence students' uptake of cervical cancer screening.

5.5 LIMITATIONS OF THE STUDY

The results of this study cannot be generalised to the entire female student population at the University of Namibia, as the target population was only female Allied Health Science students. The conclusions drawn from the study are therefore limited to health science students. Selection bias cannot be ruled out as the study contained sensitive questions to which the students may not have provided honest answers for fear of providing the researcher with answers deemed unfavourable. Finally, it is recommended that future studies use other study designs such as qualitative studies to identify more facilitators and barriers**.**

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APPENDICES

APPENDIX A: RESEARCH QUESTIONNAIRE

ANNEXURE A

An assessment on the uptake of cervical cancer screening among allied health science female students at the University of Namibia

Questionnaire **CODE** ☐

Please complete the questionnaire by ticking the relevant box for each section.

SECTION A

Demographic information

1. **Age:** _____

2. **Relationship status**

Single	In a relationship	Married	Other

3. **Religion**

Catholic	**Muslim**	**Protestant (Evangelical/Pentecostal)**	**Orthodox**

4. **Age at first sex**

5. **Course of study**

Radiography	

Physiotherapy	
Occupational therapy	
Social Work	

6. **Year of study**

Year 1	Year 2	Year 3	Year 4

SECTION B

KNOWLEDGE AND ATTIUDES TOWARDS CERVICAL CANCER SCREENING

In the table below, indicate the most appropriate response by ticking in the relevant box, where:

1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree

No	STATEMENT	SCALE			
1.	Are you willing to regularly consult a medical doctor for cervical cancer screening?	1	2	3	4
2.	Are people with multiple sex partners at a higher risk of developing cervical cancer?	1	2	3	4
3.	Can the long- term use of contraceptive pills cause cervical cancer?	1	2	3	4
4.	Does the use of condoms could reduce the risk of cervical cancer?	1	2	3	4
5.	Can HPV vaccination prevent cervical cancers?	1	2	3	4
6.	Will you consult a medical doctor in case of abnormal bleeding between menstrual periods?	1	2	3	4
7.	Does regular pap smear test help with the early detection of cervical cancer?	1	2	3	4
8.	Are you willing to get a Pap smear test or any other cervical cancer screening test?	1	2	3	4
9.	Are you willing to pay for a Pap smear or any other cervical cancer screening test?	1	2	3	4

10.	Do you think that all women that are sexually should undergo cervical cancer screening?	1	2	3	4
11.	Do you think you are at risk of getting cervical cancer?	1	2	3	4
12.	Is cervical cancer screening valuable and necessary for all women?	1	2	3	4

SECTION C

CERVICAL CANCER SCREENING UPTAKE

1. CERVICAL CANCER SCREENING HISTORY

1.1 Have you ever had a Pap smear test in your lifetime?

Yes ☐

No ☐

Don't know ☐

Refuse to answer ☐

1.2 Have you had a Pap Smear test in the past three years?

Yes ☐

No ☐

Don't know ☐

Refuse to answer ☐

1.3 Have you ever had an abnormal Pap Smear test?

Yes ☐

No ☐

Don't know ☐

SECTION D

2. FACILITATORS TO UPTAKE OF CERVICAL CANCER SCREENING

This section is only applicable if you have been screened for cervical cancer.

If your answer to **Question 1.1** is Yes, what were your reasons for undergoing cervical screening? Indicate the response (s) that pertains to you by ticking. You can tick more than one box.

a. Doctor's request ☐

b. Free/subsidized screening ☐

c. I decided on my own ☐

d. Part of a general screening program/campaign ☐

e. Family history of cervical cancer ☐

f. Signs and symptoms of cervical cancer☐

g. I decided to take test because I am sexually active☐

SECTION E

BARRIERS TO UPTAKE OF CERVICAL CANCER SCREENING

This section is only applicable if you have NEVER been screened for cervical cancer.

If your answer to **Question 13** is No, what are your reasons for not undergoing cervical cancer screening? Indicate the response (s) that pertains to you by ticking. You can tick more than one box.

a. It is painful ☐

b. It is expensive ☐

c. Fear of outcome☐

d. Process is embarrassing ☐

e. Difficulty in accessing screening services☐

f. No signs and symptoms of cervical cancer☐

g. Attitude of health care workers ☐

THANK YOU!!!

APPENDIX B: INFORMED CONSENT FORM

ANNEXURE B

CONSENT FORM

TITLE: AN ASSESMENT ON FACILITATORS AND BARRIERS TO CERVICAL CANCER SCREENING AMONG ALLIED HEALTH SCIENCE FEMALE STUDENTS AT THE UNIVERSITY OF NAMIBIA

Investigator: Petronela Kamunima

Address: P O Box 7064, Walvis Bay

Contact number: 0816427617

You are cordially being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the investigator any questions about any part of this project that you do not fully understand. It is important that you are fully and clearly understand what this research entails and how you could be involved. Your participation is **entirely voluntary,** and you are free to withdraw at any point. If you do not agree to take part, this will not affect you negatively in any way. You are also free to withdraw from the study at any point, even if you do agree to take part.

The research study has been approved by the Ministry of Health and Social Services' Ethical Committee as well as the University of Namibia's Research Ethical Committee.

The purpose of this study is to assess the uptake of cervical cancer screening among allied health science female students at the University of Namibia.Your participation will provide information that might enable relevant stakeholders to assist in this regard. Participation in this study will take approximately 10-15 minutes. You will receive the questionnaire that you will complete on your own during the most convenient time to you. Once completed you will hand it back to the researcher. Your identity will remain confidential and your responses will be

reported in aggregate. No personal identification information will be collected. If you have any questions or concerns about the study, please do not hesitate to contact Ms. P. Kamunima on 0816427617 or email pkamunima@gmail.com

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims or rights because of your participation in this research study.

Declaration by participant

By signing below, I agree to take part in a research study entitled: TITLE: AN ASSESMENT ON THE UPTAKE OF CERVICAL CANCER SCREENING AMONG ALLIED HEALTH SCIENCE FEMALE STUDENTS AT THE UNIVERSITY OF NAMIBIA

I declare that:

a) I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.

b) I have had a chance to ask questions and all my questions have been adequately answered.

c) I understand that taking part in this study is voluntary and I have not been pressurized to take part.

d) I may choose to leave the study at any time and will not be penalized or prejudiced in any way.

e) I may be asked to leave the study before it has finished, if the study doctor or researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (place) ..... on (date) 2021

---------- ----------

Signature of participant Signature of witness

Declaration by investigator

I, ... declare that:

• I explained the information in this document to .....

• I encouraged him/her to ask questions and took adequate time to answer them.

• I am satisfied that he/she adequately understands all aspects of the research, as discussed above

• I did/did not use an interpreter.

Signed at (place) ..... on (date) 2022

....

Signature of investigator Signature of witness

APPENDIX C: ETHICAL CLEARANCE CERTIFICATE FROM THE UNIVERSITY OF NAMIBIA

ANNEXURE C

UNAM
UNIVERSITY OF NAMIBIA

ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: DEC OSH 0014 Date: 04/04/2022

This Ethical Clearance Certificate is issued by the University of Namibia Ethics Committee (REC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the ethics committee.

Title of Project: AN ASSESSMENT ON THE UPTAKE OF CERVICAL CANCER SCREENING AMONG ALLIED HEALTH SCIENCE FEMALE STUDENTS AT THE UNIVERSITY OF NAMIBIA

Principal researchers: PETRONELA KAMUNIMA STUDENT NO:

Staff Number/ Student number: 200916394

Remarks: Low Risk – Approved

Centre for Research Services

Take note of the following:

1. Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the ethics committee. An application to make amendments may be necessary.
2. Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the ethics committee
3. The Principal Researcher must report issues of ethical compliance to the ethics committee (through the Chairperson) at the end of the Project or as may be requested by the ethics committee
4. The ethics committee retains the right to:

i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected.

ii) Request for an ethical compliance report at any point during the course of the research.

The ethics committee wishes you the best in your research.

Prof Hans J Amukugo (Oshakati Campus Chairperson Decentralized Ethics Committee)

Prof. Davis Mumbengegwi (Head, Multidisciplinary Research)

APPENDIX D: RESEARCH PERMISSION LETTER FROM THE UNIVERSITY OF NAMIBIA

ANNEXURE D

CENTRE FOR RESEARCH SERVICES
Office of the Pro-Vice Chancellor: Research, Innovation & Development
University of Namibia, Private Bag 13301, Windhoek, Namibia
340 Mandume Ndemufayo Avenue, Pioneers Park, Office F223 - F-block, Second Floor
☎ +264 61 206 4623; E-mail:lembulu@unam.na; URL: http://www.unam.edu.na

UNAM
UNIVERSITY OF NAMIBIA

RESEARCH PERMISSION LETTER

Date: 22/04/2022

Student Name: PETRONELA KAMUNIMA

Student Number: 200916394

Programme: MASTER'S DEGREES IN PUBLIC HEALTH

Approved Research Title: An Assessment on The Uptake of Cervical Cancer Screening Among Allied Health Science Female Students at The University of Namibia.

TO WHOM IT MAY CONCERN

I hereby confirm that the above-mentioned student is registered at the University of Namibia for the programme indicated. The proposed study met all the requirements as stipulated in the University guidelines and has been approved by the relevant committees.

The proposal adheres to ethical principles as per attached Ethical Clearance Certificate. Permission is hereby granted to carry out the research as described in the approved proposal.

Best Regards

Dr. AEE Shikongo
Head: Postgraduate Support Services
Tel: +264 61 206 3129
E-mail: aeshikongo@unam.na

CENTRE FOR RESEARCH SERVICES
Office of the Director
2022 -04- 22
University of Namibia
UNAM

APPENDIX E: PERMISSION LETTER TO CONDUCT STUDY FROM THE MINISTRY OF HEALTH AND SOCIAL SERVICES

Annexure E

REPUBLIC OF NAMIBIA

MINISTRY OF HEALTH AND SOCIAL SERVICES

OFFICE OF THE EXECUTIVE DIRECTOR

Ministerial Building
Harvey Street
Private Bag 13198, Windhoek

Tel: No: 061 -203 2507
Fax No: 061-222 558
Andreas.Shipanga@mhss.gov.na

Ref: PK2022
Enquiries: Mr. A. Shipanga

Date: 20 May 2022

Ms. Petronela Kamunima
P.O. Box 7064
Walvisbay

Dear Ms. Kamunima

Re: Academic Research Proposals Approval – UNAM – Masters in Public Health

Title: An assessment on the uptake of cervical cancer screening among allied health science female students at the University of Namibia.

1. Reference is made to your application to conduct the above-mentioned study.
2. The proposal has been evaluated and found to have merit.
3. **Kindly be informed that permission to conduct the study has been granted under the following conditions:**
   - 3.1 The data to be collected must only be used for completion of Masters in Public Health;
   - 3.2 No other data should be collected other than the data stated in the proposal;
   - 3.3 No any specimen should be collected from Human Subjects;
   - 3.4 Stipulated ethical considerations in the protocol related to the protection of Human Subjects' information should be observed and adhered to; any violation thereof will lead to termination of the study at any stage;
   - 3.5 A quarterly report to be submitted to the Ministry's Research Unit;
   - 3.6 Preliminary findings to be submitted upon completion of the study;
   - 3.7 Final report to be submitted upon completion of the study;
   - 3.8 Separate permission should be sought from the Ministry for the publication of the findings.
4. All the cost implications that will result from this study will be the responsibility of the applicant and **not** of the MoHSS.

Yours sincerely,

BEN NANGOMBE
EXECUTIVE DIRECTOR

All official correspondence must be addressed to the Executive Director

APPENDIX F: SIMILARITY REPORT

Ouriginal

Document Information

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Sources included in the report

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