

**KNOWLEDGE OF FEMALE STUDENTS REGARDING THE HUMAN PAPILLOMA VIRUS
(HPV) AND VACCINES AT A SELECTED UNIVERSITY IN THE LIMPOPO PROVINCE,
SOUTH AFRICA.**

BY

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DECLARATION

I MUSHASHA MATODZI PERTUNIA (11611153), hereby declare that the mini-dissertation proposal titled “***Knowledge of female students regarding the Human Papilloma Virus (HPV) and vaccines at a selected University in the Limpopo Province, South Africa***” submitted by me, has not been submitted previously for a degree at this or any other University, that it is my own work in design and in execution, and that all reference material contained therein have been duly acknowledged.

Signature



Date 24/02/2020

DEDICATION

This research project is dedicated to my daughter, Lerato and my mother, Agnes Mushasha who always believe that the purpose of education is to replace an empty mind with an open one and my sisters, Konanani, Tendani, Elelwani, Livhuwani and my brother Azwifaneli who always believe in me and are always there for me when I need them. I'd like to appreciate you for all the love, assistance and hope to me. To Lerato my daughter, my nephews and nieces Pfunzo, Sunitha, Mulisa, Tondani, Rolindwa, Londani, Olunga and Vhuthuhawe, please follow my foot steps and allow your aunt to be your role model when it comes to education and make me proud.

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I'd like to thank God for giving me power, faith and courage at all times. Education is more important than material things. Proverbs 16:16 emphasizes that Having wisdom and understanding is better than having silver or gold one can have beautiful and expensive things but there are a lot of things in life that cannot be taken away from, that make you a better person and education is one of them.

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ABBREVIATIONS AND ACRONYMS

DNA	Deoxyribonucleic Acid
HPV	Human Papilloma Virus
HIV	Human Immune Virus
PAP SMEAR	Papanicolaou test
SPSS	Statistical Package for Social Sciences
STIs	Sexual Transmitted Infections
WHO	World Health Organization

ABSTRACT

Background: The Human papillomavirus (HPV) is the virus that is transmitted sexually. It can be spread through genital contact and can also be transmitted through skin to skin contact. HPV if not detected and treated early may lead to fatal complications such as cervical cancer and breast cancer.

Purpose: The purpose of the study was to determine the knowledge of female students regarding HPV and vaccines at a selected University, in the Limpopo Province South Africa.

Methodology: A quantitative approach using cross sectional descriptive design was used to determine the knowledge of female students regarding the HPV and vaccines. A probability sampling method was used to sample the 310 respondents by means of systematic sampling. Data was collected by means of a self- administered questionnaire. Validity was ensured through face and content validity. The Test-retest method of reliability was ensured and the Cronbach Alpha test was 0.839. Data collected was analyzed using the Statistical Package for Social Sciences (SPSS) version: 26. Descriptive statistics were used to summarize collected data and results was presented in forms of tables and charts. The Chi square was used to determine the relationship between marital status, school or faculty and knowledge regarding HPV and vaccine.

Results: The study comprised of 310 (100%) respondents and out of that sample, 176 (56.8%) of the respondents had never heard about the HPV whilst 134 (43.2%) have heard about the HPV and vaccines. Only 6 (1.9%) of the respondents knew that anal cancer is one of the health problems related to the HPV. Out of 310 respondents 48 (15.5%) heard about HPV and vaccines from their school or faculty. Furthermore, results of the study indicate that there is a positive relationship between school or faculty and source of information regarding HPV (P value= 0.001).

Conclusion: The study concludes that the female students at the selected University lack knowledge regarding the HPV and vaccines.

Recommendation: Higher education and training institutions should revise their curriculum, the National Department of Health should modify their guidelines, policies and programmes regarding HPV management.

Keywords: Female students, Human papilloma virus, Knowledge and Vaccine.

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CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The human papillomavirus (HPV) is a sexually transmitted virus, it spreads through genital contact. The virus can also be spread through anal, vagina, and skin to skin contact (Rashid & Das, 2016). HPV comes from the human papilloma virus family that consists of different genes (16 in number), it has 118 types and it has the alpha gene that is responsible for the development of mucosal tumors in human being. HPV affects women who are active sexually from the age of 13 years and above. Women who have been on oral contraceptives for 2-5 years and those who are smoke tobacco or who previously smoked tobacco are at high risk of developing HPV infections (Kamimura et al., 2018).

The HPV vaccine is the substance that is used to help in stimulating the production of antibodies and provide immunity from HPV infection. There are two types of HPV, namely, Gardasil and Cervarix, which are given to young girls to protect them from dangerous HPV types that can progress into cancer (National Department of Health, 2017).

1.2 BACKGROUND OF THE STUDY

The HPV is a leading cause of death among females worldwide in both middle and high income countries. Moreover the HPV burden is increasing in all countries due to development of the population. The HPV burden is expected to increase more due to the prevalence of HPV risk factors as the countries experience transition in the economy. In 2012 there were 6.7 million cases caused by HPV worldwide with 3.5 million deaths among females. The HPV cases are expected to escalate to 9.9 million with 5.5 million deaths annually by 2030, because of development of the population (Torre et al., 2017).

In 2019 study about knowledge and awareness of HPV and HPV vaccines among college students in South Carolina in the United States of America revealed that many of the students reported that they knew about HPV and vaccines just a few days before the study was conducted. There was a link between gender and HPV awareness; the majority of females were aware of HPV but few of the male students knew about it. More than half of females knew about the HPV vaccine and very few of the male students knew about it. About half of the students

reported that they had received only one dose of the vaccination and many students indicated that they knew about HPV and the vaccine from healthcare workers (Kasymova et al., 2019).

Cinar et al. (2019) in their study which was conducted at a University in Turkey, found that the majority of students at non-health related schools (faculty) reported that they did not know anything about HPV and the HPV vaccines previously. Half of the students did not know the route of HPV transmission and more than half of the students did not know about the risk factors of HPV. Many students were not aware of HPV preventative measures and the diagnostic tests. The findings in the same study further revealed that few students were knowledgeable about HPV and the HPV vaccines, that it is the vaccine to prevent HPV related infections and majority of students did not know how and where to get the vaccine. Half of the students did not know the age group to be vaccinated and out of all the students who were part of the study very few students were vaccinated against HPV.

Adejuyigbe et al. (2015) revealed that majority of Nigerian students have heard about HPV and HPV the vaccines as well as HPV related infections but they only heard about it from school. More than half of the students knew that HPV is sexually transmitted and the HPV vaccines are the prevention. An overall assessment in the same study showed that more than three quarters of students did not know much about the HPV vaccines and half of the students had little information about HPV.

Muhammad and Hal Guido (2015) revealed that the knowledge regarding HPV is very low and students show negative attitudes towards it. In the same study, the findings revealed that first and second year medical students had little knowledge of HPV compared to older students doing third year and above. In the same study, findings were compared to the findings that were done in Malaysia among medical and pharmacology students, where the students showed good signs of knowledge regarding HPV and a positive attitude towards it. The reason for Malaysian students being more knowledgeable was because they included third year students in the study. It was also recommended in the same study that the medical school curriculum should include serious health issues such as the HPV infection.

At the University of Free State in South Africa, the majority of first year students had knowledge that cervical cancer comes from the cervix and a few students knew that this cancer is caused by a virus, but did not know which virus. A few students who knew that HPV causes cervical

cancer, they knew that there is a vaccine that protects one from the virus. Less than half of the students knew that the vaccine is provided by the government for free in South Africa (Mofolo et al., 2018).

Acquiring knowledge is the first step to success. Knowledge regarding HPV and the HPV vaccines may influence one to take a decision to be vaccinated. Once people understand what HPV is, its complications, it would also benefit society because loved ones will be saved from deadly the diseases caused by HPV. Furthermore, it would also help the government to spend its budget in other area like improving the health service rather than treating HPV related disease such as cervical cancer (Grandahl et al., 2018).

1.3 PROBLEM STATEMENT

The selected University engages in programmes such as ‘First Thing First campaign’, ‘HIV/AIDS campaign’, ‘Zazi she conquers campaign’, ‘Cervical cancer campaign’, ‘Still/ condom/ pregnancy week campaign’ and free condoms that are being distributed in each residence. The University Radio also offers programmes related to reproductive health. Despite these efforts, students are still engaging themselves in risky sexual behavior that lead them being infected with sexually transmitted infections. University female students are also engaged in cohabitation relationships and transactional sex which influences risky sexual behavior, leading to contracting of the human papilloma virus. Alcohol use by the students leads to them engaging in unprotected sexual intercourse which results in STIs and unplanned pregnancies (Kheswa & Hoho, 2017).

According to the District health barometer of 2016/2017 and 2017/2018, the Limpopo Province was not performing well when it came to teenage/young adult pregnancies, which have increased from 2016/2017 and 2017/2018, this simply means that young females are engaging in unprotected sex which may result in STIs. From 2016/2017 to 2017/2018 there was a decrease in male condom distribution, which only indicates that the risk of sexual partners engaging in unprotected sex and being infected by STIs would increase. The percentage of HIV positive tests have also increased and are above the national target. Table 1 attests these facts.

Table 1: pregnancies, male condom distribution and HIV positive tests statistics

	2016/2017		2017/2018	
Teenage and young adults pregnancies	Target rate	=6.8%	Target rate	=12.7%
	Limpopo province	=6.3%	Limpopo province	=13.5%
Male condom distribution	Target rate	=47.5%	Target rate	=44.5%
	Limpopo province	=68.4%	Limpopo province	=49.9%
HIV positive tests	Target rate	=47.5%	Target rate	=58.9%
	Limpopo province	=68.6%	Limpopo province	=72.6%

Source: District Health Barometer 2016/2017 and 2017/2018

1.4 RATIONALE OF THE STUDY

Few studies have been conducted in South Africa regarding the HPV. One a study was conducted by Muhammad and Guido (2015), which focused on the knowledge, beliefs and attitudes of female students regarding vaccination against the Human Papilloma Virus. Mbulawa et al. (2018) looked at high HPV prevalence in South African adolescents and young women and as a result, encouraged expanded HPV vaccination campaigns. Ramathuba and Ngambi (2018) investigated the knowledge and attitude of women towards the HPV vaccines in the Thulamela Municipality. Their studies focused on women with risky sexual behaviours among adolescent girls and this study intends to focus on knowledge of female university students regarding the Human Papilloma Virus (HPV) and vaccines at a selected University in Limpopo Province, South Africa.

1.5 SIGNIFICANCE OF THE STUDY

This study may assist the Department of Health to modify policies and guidelines regarding the HPV prevention. Institutions of Higher Education and Training may use the findings from this study to modify their health promotion policies and guidelines. Communities may benefit from the programs that may be designed by the National Department of Health regarding the HPV and vaccines. Young women may be aware of the HPV and vaccines and change their attitudes towards healthy sexuality.

1.6 PURPOSE OF THE STUDY

The purpose of the study was to determine the knowledge of female students regarding the Human Papilloma Virus (HPV) and vaccines at a selected University in the Limpopo Province, South Africa.

1.7 OBJECTIVES OF THE STUDY

The objectives of the study were to:

- Assess the knowledge of female students regarding the Human Papilloma Virus (HPV) and vaccine at a selected University in the Limpopo Province, South Africa.
- Describe the sexual history of female students at a selected University in the Limpopo Province, South Africa.

1.8 THEORETICAL FRAMEWORK

Theory is a related concept that gives a systematic view of the phenomenon. A framework of the study assists the researcher to organize the research study and provide a context within which one examines a problem and gather and analyze data. A theoretical framework is based on the propositional statements resulting from theory that already exists (Maree, 2016).

The researcher used a health belief model as a theoretical framework for the study. This model explains people's health related behavior. A Health model belief implies that health seeking behavior is influenced by the perception of a person of a threat posed by the health problem and the aim of health model belief is toward reduction or avoiding of disease condition (Tarkang & Zotor, 2015). This model is based on the following constructs.

1.8.1 Perceived susceptibility

This is the person's belief about chances of being affected by health related problems. A person's knowledge that a health condition is serious will help in influencing a person's decision to take appropriate action in prevention of the health condition (Sheeran et al., 2016). People who see themselves to be at high risk of being infected by HPV will always protect themselves from being infected by sexually transmitted infections by using a condom.

1.8.2 Perceived severity

This refers to the belief of on seriousness of the disease can be and its complications. When a person recognizes their chances of being affected by a certain disease, it does not encourage them to take preventative measures unless they realize that being affected by a certain disease may cause physical and social consequences (Skinner et al., 2015). A person must see HPV as a serious sexually transmitted condition with severe complications on their physical and social life before taking preventative measures (such as use of condom) against HPV, once a person is infected by HPV and it also causes other diseases.

1.8.3 Perceived benefits

This is the person's beliefs in the efficacy of the advised measure to reduce the risk of being affected by the disease. A person must believe that through some preventative measures, they can reduce the risk of the disease from occurring. This belief gives a person confidence to take preventative actions because of the outcome expected (Amin et al., 2018). The health belief model proposes that beliefs of the person about the effectiveness of use of condoms in HPV prevention must correlate positively with their consistent use. Perceived benefits are beliefs about the effectiveness of the advised preventative health action like consistency the use of a condom whenever doing sexual intercourse to prevent HPV and a person who uses condoms has low chances of being affected by HPV.

1.8.4 Perceived barrier

This is the person's beliefs and the costs of the advised behaviors that can affect them psychologically. There may be many obstacles that can impact on the person to take preventative action. Perceived barriers may include costs, duration, and accessibility to services that may support and maintain the required action (Kim & Zane, 2016). Perceived barriers that can affect person's decision to take action may be the cost of HPV vaccine because for adults the vaccine is only available in private sector at high cost and others believe that opening and wearing a condom during sexual intercourse takes time

1.8.5 Cues to action

Cues of action refer to the experiences or events that can drive a person to change their behavior (Skinner et al., 2015). A family member suffering from disease caused by HPV may

influence other family members to take action to prevent the disease from occurring, HPV infection statistics in the media may drive one to take action to prevent the disease

1.8.6 Self-efficacy

This is the person's ability to take action, add strength of a person's belief in one's ability to take action to a difficult situation and overcome any associated obstacles. A person should see a need of taking necessary action correctly because it is the confidence that will influence one to start the action and maintain it (Dodel & Mesch, 2017). It is one's ability to use condoms to prevent HPV although people believe that wearing a condom during sexual intercourse makes them not to enjoy.

1.8.7 Application of the health belief model

The health belief model was used as a theoretical framework for the study because of its focus on individual perception about disease and their belief about actions in prevention of the disease and how their behavior affects their health. Several health belief model variables are believed to influence HPV prevention behavior beliefs and practices such as perception of susceptibility, benefit and barriers (Amin et al., 2018).

The model assumes that female students are more likely to take part in the health promoting behavior if they believe that they are more susceptible to disease and that the disease is more serious. An increase in perceived susceptibility and severity has been associated with increase in good health behavior towards the disease for example: the use of condom to prevent HPV if the individual knows the seriousness of the disease and that they are at high risk of being affected by the disease. Although knowledge is not a direct predictor of health behavior, this theory hypothesizes that it is a distal factor mediated by attitude, risk perceptions, social influence and self-efficacy. The model focuses on preventing asymptomatic diseases such as HPV early detection (Dodel & Mesch, 2017).

1.9 DEFINITION OF CONCEPTS

- **Knowledge**

Skills, facts and information gained through education or experience and the theoretical understanding of the subject (Horny, 2015).

In this study, knowledge would mean facts, information that female students have regarding HPV prevention.

- **Female Students**

Denoting sex that can bear offspring or produce eggs in human beings (Horney, 2015). In this study, female students would be women from different residence at the selected University from the ages of 17 years and above.

- **Human Papilloma Virus**

A virus with subtypes that cause diseases in human ranging from common to cervical cancer (Horney, 2010). In this study, Human Papillomavirus would mean the virus that causes infection in women which results in diseases like cervical cancer, anal cancer and many more

- **Vaccine**

This is the substance that is used in stimulation of the antibodies and that protect a person from infectious diseases (Horny, 2015). In this study, the HPV vaccine would mean a substance (Gardasil and Cervarix) that provide immunity against human papilloma virus.

1.10 CHAPTER OUT LINE

Chapter 1: Introduction and background of the study, problem statement, rationale, significance, purpose, objectives of the study, theoretical framework, and definition of the concepts

Chapter 2: Literature review which highlights biological history of HPV, risk factors of HPV, prevention of HPV, knowledge regarding HPV, risky sexual behavior of female students and HPV vaccines in South Africa.

Chapter 3: Outline research methods that were used in data gathering, collection presentation and analysis

Chapter 4: Presentation of the results

Chapter 5: Discussion of results

Chapter 6: Summary, Conclusion and Recommendations

1.11 CONCLUSION

In this chapter, the introduction and the background of the study were provided. This chapter presented the problem statement, significance, rationale, purpose and objectives of the study. The constructs of theoretical framework were discussed. It also covered the definition of the concepts. Chapter 2 will describe the literature review.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Literature review assists researchers to understand the meaning and the origin of the identified problem. The purpose of the literature review is to find out what other researchers have reported about the topic of interest and it also helps the researcher to gain more knowledge about the phenomenon under the study (Maree, 2016). The literature review covers the biological history of HPV, risk factors for HPV, prevention of HPV and knowledge regarding HPV, risky sexual behavior of female students and HPV vaccines in South Africa.

2.2 BIOLOGICAL HISTORY OF THE HUMAN PAPILLOMA VIRUS

De Sanjosé et al., 2018 submit that the Human Papilloma Virus is a tiny double stranded virus that is mostly found in human beings. This virus has a diameter of about 52-55 nm. All the types of HPV have got eight open reading frames. These open reading frames are divided into different regions which are responsible for viral replication, encoding of structural protein, transcription and replication of DNA that is viral. HPV consists of many types but there are a few of them that put one at risk of being infected by cancer namely: 16,18,31,33,35,39,45,51,52,56,58,59; these are the most dangerous types and if not treated early, they may progress to cancer (Sontakke et al., 2019).

The production of HPV starts when the stem cells are infected in the basal layer of epithelium. The HPV starts to replicate when the host cells interact with long control region of viral genome and then begin with the transcription of early genes namely: E6 and E7. HPV is diagnosed by detecting viral DNA. The HPV prevalence rate differs between geographical regions in terms of level of development and characteristics of the population (Deverakonda & Gupta, 2016).

2.3 RISK FACTORS OF THE HUMAN PAPILLOMA VIRUS

There are a several of factors that puts women at risk of contracting HPV and infections related to it. Factors that contribute to HPV infections include poverty, smoking, oral contraceptives, multiple pregnancies, age, multiple sexual partners and human immune virus infections.

2.3.1 Poverty

In Sub-Saharan Africa, poverty puts women at risk of HPV because of poor services provided by the healthcare system, for example, unavailability and inadequate resources for HPV screening, hence a cervical cancer death rate of 80% is found to be in countries that are still developing. Poor access to effective HPV screening in developing countries results in late detection of HPV and late detection of HPV may cause HPV infections to be diagnosed at an advanced stage (Kangmennaang et al., 2018).

2.3.2 Smoking

Women who previously or presently smoke cigarettes and tobacco are more at risk of being diagnosed with cervical cancer as one of the disease caused by HPV, compared to non-smokers. The high level of nicotine concentration in the mucus of the cervix is said to cause the persistence of HPV in the cervix and inhaled/sniffed tobacco is also believed to cause the development of abnormal cells in the cervix, which causes diseases such as cervical cancer (Mukama et al., 2017).

2.3.3 Oral Contraceptives

The use of oral contraceptives is associated with a high chance of developing cancerous cells; especially among those women who have used the method for 2-5 years. Such women have three times the chances of developing an HPV infection, as compared to those who are not using oral contraceptives. Progesterone and estrogen stimulate the growth of cancer cells because oral contraceptives contain synthetic versions of female hormones and may put one at risk of developing cervical or breast cancer (Deverakonda & Gupta, 2016).

2.3.4 Multiple pregnancies

Having more than one pregnancy with normal vertex delivery puts women at risk of developing cervical tumor because during delivery the fetus put more pressure on the cervix. A woman who had her first pregnancy before the age of 17 years doubles the risk of developing the HPV infection due to poor maturity of the cervix, compared to a woman who had her first pregnancy after or at the age of 25 years (Mukama et al., 2017).

2.3.5 Age

Sexual intercourse at before the age of 15years puts a woman at risk of developing the HPV infection in the future because of the pressure that contracts the poorly matured cervix. The sexual trauma to the cervix at an early stage damages the cells in the vagina and cervix and these may create a conducive environment for infectious viruses such as HPV (Habtu et al., 2018).

2.3.6 Multiple sexual partners

Having more than one sexual partner/polygamous relationships puts one at risk of being infected by HPV, especially if they are involved in sexual intercourse without condoms because if one is infected the infection is going to spread and everyone may be infected by the HPV (Grandahl et al., 2018).

2.3.7 Human Immune Virus infection (HIV)

Women with HIV have a high risk of contracting the HPV because of their compromised immune system; the weaker the immune system the more the system gets infected by many infections. People with HIV are at the risk developing the HPV infection due to their weak immune system especially those who are not on treatment or those who have defaulted on treatment (Deverakonda & Gupta, 2016).

2.4 PREVENTION OF THE HUMAN PAPILLOMA VIRUS

Prevention of the HPV virus consists of primary and secondary prevention which are discussed as follows:

2.4.1 Primary prevention

Primary preventions involve activities which are performed in the prevention of the occurrence of the HPV infection and includes the HPV Vaccination and Lifestyle modification.

2.4.1.1 HPV Vaccination

In South Africa primary prevention includes giving of HPV vaccination to young girls at primary schools from the ages of 9-15 years before they become sexually active. This programme is called the Intergraded School Health Programme and involves the Department of Health,

working hand in hand with the Department of Basic Education and of Social Development. HPV vaccines that are being used are Cervarix and Gardasil, both vaccine seem not to have any adverse effects. The two vaccines are recommended to be given six months apart due to their dosage level (National Department of Health, 2017).

2.4.1.2 Lifestyle modification

A good and strong immune system keeps infection away, exercising keeps one's immune system strong and the body is rarely attacked by infections. Consuming of nutritious food with zinc, vitamin A and other Vitamins plays a role in keeping the immune system strong. Reducing or stopping smoking plays a role in the prevention of HPV, as smoking is one of the risk factors that may result in HPV infections because of the nicotine in the cigarettes that increase the growth of abnormal or cancerous cell in the body. Using of condoms during sexual intercourse and avoiding or abstaining from sex before the age of 21 years to allow good maturity of sexual organs reduces the risk of infection (Kim & Hmielowski, 2017).

2.4.2 Secondary prevention

Secondary preventions includes screening for early detection of the virus and treatment of detected viral infection.

2.4.2.1 Screening

Screening may be done using a Pap smear, where the device collect cells from the cervical face. A cytology (liquid) method may be used where a speculum or brush collects cells and those cells are placed in the liquid then taken to a laboratory for analysis. The HPV DNA testing may be done; this is where the woman is being tested to determine if type 16 and 18 are present in her DNA. A Visual Inspection with Acetic Acid may also be done in health settings with low resources; the healthcare provider paints the cervix with Acetic Acid and if there are lesions they will appear white (Origoni et al., 2015).

Screening of HPV infection depends on the risks that one is exposed to. There are high and low risk people where high risk refers to people with other sexually transmitted diseases (STIs) and low risk refers to people without STIs. High risk woman get screened at the age of 30 or any time after being diagnosed with STIs. If results are negative they get re-test at 3 yearly intervals and if results are positive, they get re-tested after 1 year while going for treatment services. Low

risk women get tested at the age of 30 years; if results are negative, they get a re-tested after 10 years and if results are positive, they get a re-test after 3 years (National Department of Health, 2017).

2.5 KNOWLEDGE REGARDING THE HUMAN PAPILLOMA VIRUS

In Ethiopia, lack of knowledge is the primary cause of many women not going for the HPV screening. Women living in deep rural areas with high levels of poverty with not enough access to media, where they can get information regarding the HPV, will never have a thought of going for the HPV screening until they start to develop the HPV infections that can send them to hospitals/clinics. They will get screened and their only source of information is friends and relatives (Chaka et al., 2018).

According to a study that was conducted in Northwest Ethiopia by Geremew et al. (2018) the only source of information about the HPV and its infections was through media or family, friends and neighbours. Many women are not aware of the HPV, its symptoms, risk factors, complications and its prevention; a common symptom that most women are aware of is inter-menstrual bleeding. Multiple sexual partners have been found to be one of the risk factors for the HPV. Avoiding multiple sex partners and avoiding sexual intercourse are the HPV preventative measures that most women know. Surgery and chemotherapy are the only treatment that women are familiar with for the HPV infection such as cervical cancer.

According to a study that was conducted in Nigeria by Bisi-Onyemaechi et al. (2018) the findings revealed that some parents were aware of the HPV vaccination that it should be given to young girls. However in the same study parents were not sure at what age it should be given. Furthermore, parents were also not aware that those two doses should be given at an interval of 6 months.

In Nigeria (Ekiti State) socio demographic variables have a significant effect on the knowledge of the people regarding the HPV. Women with higher and tertiary education have more understanding and knowledge about the HPV, its risk factors, prevention and treatment compared to illiterate and people with primary level qualifications. A person with a history of sexually transmitted diseases (STIs) or who knows someone who had an HPV infection may have better knowledge about HPV (Obalase et al., 2017).

In East Africa (Uganda), women living in urban areas have a better understanding regarding HPV compared to women living in rural area because they have all sources of information and the majority of them are educated, have higher education and tertiary qualification, they know about the HPV and they do not only wait for symptoms to go for consultation/screening. As soon they reach 30 years of age they know they must go for the HPV screening for early diagnoses of HPV infections and early treatment to avoid complications (Mukama et al., 2017).

Rwamugira et al. (2017) conducted a study in South Africa which revealed that majority of women did not know about the HPV and very few knew about it through the media. Women with HIV know about HPV and they get information from health care facilities. Whenever they go for their treatment they get health education about all diseases related to their condition as well as the preventative measures. However, some of these women do not know that the HPV is transmitted sexually and HIV is one of the risk factors of the HPV. Some women believe that one should only go for the HPV screening after seeing the symptoms

In the Limpopo Province of South Africa, Ramathuba and Ngambi (2018), revealed that many women have never heard about the HPV and its prevention and a few of them have heard about it, this includes the HPV prevention and causes. Women lacked knowledge on who can be infected with the HPV and few of them were aware that both sexes can be infected. Women were aware of vaccines that are available, who can receive the vaccines and at what age the vaccine can be given.

2.6 RISKY SEXUAL BEHAVIOR OF FEMALE STUDENTS

Mac Phail et al. (2017) conducted a study among tertiary students in Australia. Their findings indicate that many students reported that they had been sexually active for the past twelve months, although there were less than half of the students who chose not to respond to the question and only a few students reported that they have not been sexually active for the past 12 months. The majority of the students who reported not using condoms were the ones with multiples sexual partners.

According to a study that was conducted in Nigeria, few students who were active sexually were not on any contraceptive method and more than a quarter of the students were on a contraceptive method. More than half of the students were engaged in multiple sexual partners and very few of them reported to be on contraceptives. The majority of students who were found

to be engaged in sexual intercourse for the 1st time were on contraceptives, compared to those who had been engaged in sexual intercourse for more than a year. Very few students who were found to be married were on contraceptives (Akinsoji et al., 2015).

A study about sexual and reproductive health risk behavior among South African university students revealed that the majority of students at tertiary level were sexually active and most of them used single protection; either a hormonal contraceptive or condoms. Students who were found to be having more than two sexual partners rarely used condoms during sexual intercourse. The majority of students did not disclose their STIs history, although a few stated that they had genital herpes, Chlamydia and Syphilis (Murudi et al., 2018).

An increased rate of sexual activity among adolescents and youth is a public health issue worldwide. Female youth are more engaged in unsafe sexual behaviors that is causing reproductive health problems such as pregnancies that are not planned and diseases that are transmitted sexually such as HPV. In Nigeria risky sexual behavior is a lifestyle that put females at high risk of being infected by STIs. These risky sexual behaviours include having many sexual partners, unprotected sex and early engagement in sexual intercourse and having sex under the influence of drugs and alcohol. Approximately 1 million young women fall pregnant each year and the majority of them are unplanned pregnancies (Akinsoji et al., 2015).

Risky sexual behavior is a lifestyle that increases the risk of reproductive health problems, for example, development of the HPV that causes cervical cancer and which may result in failure to conceive and a hysterectomy. A study was conducted in south Ethiopia on 466 college students about disparities in risky sexual behavior among khat chewer and non- chewers and it was found that 266 students were already engaged in sexual intercourse and it was before they joined college. The age range of students who had sexual intercourse for the first was from 14 to 24 years. The reason for engaging in early sexual intercourse was peer pressure, sexual desire and the need for money (Ware et al., 2018).

Perera and Abeysena (2018) state that having good knowledge about the correct use of condoms prevents risky behavior which may result in contracting STIs such as HIV/AIDS and many others. An HIV infected individual is at high risk of being infected with the HPV because their immune system is already weakened by the virus. This means that a person who is HIV infected and not using a condom is at high risk of contracting the HPV. Failure of an individual to

use protective measures against risky behavior may not be due to ignorance but failure to perceive the risk.

In South Africa, risky sexual behavior is found at a high rate among higher learning institution students and many studies indicated that having many sexual partners, unprotected sexual intercourse and engaging in transactional sexual intercourse are reported to be most risky behaviors worldwide (Roone et al., 2015; ; Moore et al., 2017; Vegenas et al., 2017; Kilwein & Looby, 2018). Students engage in risky sexual behavior because for reasons which include gifts, money, to be assisted in school related issues and many others. A study that was conducted among students at a College of further Education and Training in the Limpopo Province, regarding risky sexual behavior, revealed that 84% of the participants reported not using condoms during sexual intercourse. The majority of them were female students and of the 66% that reported using condoms, the majority of them were male students. This indicates that more female students are found to engage in risky sexual behavior, compared to male students which also expose them to STIs (Murudi et al., 2018).

2.7 HPV VACCINES IN SOUTH AFRICA

The HPV vaccine was first approved in 2006 from the United States food and drug administration, only two HPV vaccines were available worldwide namely: Gardasil (Quadrivalent) and Cervarix (bivalent), Cevaxix vaccine immunization was scheduled for girls from the age of 11 to 12 years which aimed at protecting them from variants 16 and 18 meanwhile Gardasil was given to males protecting them from genital warts (Khan et al., 2016). The HPV vaccine was approved in South Africa in 2008 but it was only available at private healthcare centers. However, an HPV vaccine roll-out program was introduced in April 2014 by the National Department of Health in South Africa. This programme was then introduced at public schools and was highly supported by scientists and healthcare workers as they felt that the reduction of diseases caused by the HPV can be achieved through the HPV vaccination (Nabi, 2015).

2.8 SUMMARY

Chapter 2 described the literature review on the biological origin of HPV, which includes the types of HPV that are most dangerous in causing HPV infections, how the virus affects human beings and how it produces and replicates in the human body. Risk factors of HPV were also reviewed. Chapter 3 will describe research methods of the study.

CHAPTER 3: RESEARCH METHODS

3.1 INTRODUCTION

Research methodology helps to inform the reader of how the investigation was carried out. It also informs the reader about what was done by the researcher to solve the research problem or to answer the research questions. Research methodology must have enough details to enable the researcher to replicate the investigation and the selected methodology should be well motivated (Maree, 2016)

3.2 STUDY APPROACH

In this study, a quantitative approach was used to determine the knowledge of University students. A quantitative approach helps the researcher to record collected data through frequencies and percentages in the form of charts and tables (Kothari & Garg, 2014).

3.3 STUDY DESIGN

The study design is defined as a plan according to which data will be assembled and its purpose is to provide the scheme for achieving the objectives of the study, either in the form of a research question, hypotheses or study objectives (Maree, 2016). In this study, a cross-sectional descriptive survey design was used to determine the knowledge of female University students regarding the HPV and vaccines.

In a cross-sectional design, large amounts of data can be collected at one place in time which allows the results to be readily available. A cross-sectional descriptive design was employed as the researcher collected data and analyzed it accurately on the knowledge of University Students regarding the HPV and vaccines and the data was then analyzed quantitatively (Maree, 2016).

3.4 STUDY SETTING

This study was conducted at a selected University, which is a comprehensive, rural based academic institution located in the Limpopo Province of South Africa. It is bordered by Botswana which is situated in the Northern part of South Africa, Mozambique situated in the North East of

South Africa, Namibia which is situated in the South - Western side of South Africa. The institution has a population of approximately 16 117 students. Students from South Africa form the majority and there are the Vha Venda, Tsonga, Sotho/Pedi, and Zulu speaking students (University Students Admission Unit, 2019).

The institution has eight schools. The University has one campus clinic that renders primary health care services to students such as treating of minor cases, monitoring of chronic illness, sexual and reproductive health and medical circumcision of males. Other students also use Primary Healthcare center, situated at 5km from the University, which also provides healthcare services. The University clinic uses the Regional Hospital as their referral hospital which is about 8km from the University. The University campus clinic operates both owned and private ambulances. The institution has a radio station that operates 24/7 seven days a week and it provides programmes related to health, for example during cancer months they have a programme that talks about cancer. Most of the students come from poor backgrounds and rely on the National Student Financial Scheme (NSFAS), which has its own problems of delaying payments, resulting in females' risky sexual practices. Female students are accommodated at six residences; there are other residences still under construction (University Student Affairs, 2019).

3.5 STUDY POPULATION

The target population refers to the group of people that have the same characteristics (Maree, 2016). In this study the target population was all female students residing in a University residence on campus. The population of female students residing in campus residences was 987 as shown on Table 2.

Table 2: Population Frame

Residence cluster	Number of female students
Residence 1	372
Residence 2	125
Residence 3	128
Residence 4	180
Residence 5	124
Residence 6	58
TOTAL	987

SOURCE: Student Affairs Department, 2019.

3.6 SAMPLING

Sampling refers to the process where a sample is selected that is representative of the target population to form part of the study (Maree, 2016). In this study Systematic Sampling which is one of the probability sampling techniques was used in order to give all respondents in the population an equal chance to participate in the study.

3.6.1 Criteria for inclusion

The respondents who were included in this study met the following criteria:

- 18 years of age and above
- Residing in a campus residence
- Female and Gays
- Both undergraduate and postgraduate
- Only those who were willing to participate in the study

3.6.2 Sampling Size

“Slovin’s cited by Guilford and Frucher, (1973) formula was applied to calculate the sample size, where N represents the total number of the population, n is the sample size, and e is the level of error. In this study e was set at 0.05”:

N

$$n = \frac{987}{1 + 987 (0.05)^2}$$

$$1 + 987 (0.05)^2$$

$$987$$

$$n = \frac{987}{1 + 987 (0.05)^2}$$

$$1 + 987 (0.05)^2$$

$$n = 987 / (1 + 987 \times (0.05)^2)$$

$$= 987 / (1 + 2.5)$$

$$= 987 / 3.5$$

$$\text{Sample size } (n) = 282$$

In anticipation of non-response, 10 % was added make a final sample size of 310

3.6.3 Sampling technique

Systematic sampling was used to select rooms in residences that are found on campus from which female students were selected. Systematic sampling refers to selecting of respondents at an equal interval such as every 4th or 5th subject (Maree, 2012).

The sampling size was therefore calculated and found to be 310. In this study, a systematic sampling technique was used, respondents were selected using their rooms at an equal interval. To determine the sampling interval the following formula was used: K (sampling interval) = size of the population divided by the size of the sample, N/n (Brink et al., 2012). The interval of this study was calculated as 987/310= 3, therefore the interval was 3. The first room was selected randomly where all room numbers were written on the piece of papers folded and placed in a box then the box was shaken, one piece of paper with a room number to start from was picked out of the box blindly, thereafter every 3rd room was included in the study. In cases where the 3rd room was locked with no response, the researcher went to the next room and thereafter visited every 3rd room until the proportional sampling size was reached in each residence as shown in Table 3. The same procedure was repeated until all residences were completed.

Table 3: Sampling Frame

Residence cluster	Total no of sample in each residence	Percentage
Residence 1	$310/987 \times 372 = 117$	37.7%
Residence 2	$310/987 \times 125 = 39$	12.7%
Residence 3	$310/987 \times 128 = 40$	13%
Residence 4	$310/987 \times 180 = 57$	18%
Residence 5	$310/987 \times 124 = 39$	12.6%
Residence 6	$310/987 \times 58 = 18$	5.9%
TOTAL	310	100%

3.7 DATA COLLECTION INSTRUMENT

The researcher used a self-administered questionnaire as an instrument for data collection in this study. The researcher constructed the questionnaire guided by the objectives of the study and using literature from other related studies. The questionnaire was comprised of close ended questions. The questionnaire was written in English which is the medium of instruction at this university. The questionnaire included instructions that the respondents should follow when completing it. The questionnaire was comprised of three sections: Section A - demographic data of the respondents, Section B - Sexual history of the respondents, Section C - knowledge regarding HPV and vaccines. A Likert scale was used to assess the knowledge of students regarding HPV and vaccines.

3.8. VALIDITY AND RELIABILITY OF MEASURING INSTRUMENT

Validity and reliability of the instrument was ensured in this study.

3.8.1 Validity

Validity ensures the quality of research, a valid instrument measures what is supposed to measure and ensures the true differences of the variables that are being measured not to provide constant error (Maree, 2016). Face validity and content validity were ensured in this study.

3.8.2 Face validity

The researcher ensured validity by presenting the questionnaire to the Supervisor, a presentation in a Departmental Seminar and the School of Health Sciences Higher Degree Committee. The researcher then corrected the instrument according to the inputs made by the experts.

3.8.3 Content validity

Content validity is defined as the representativeness of the contentment of the instrument. This is to ensure that questions in the questionnaire cover everything that needs to be covered and the questions are not repeating in anyway (Maree, 2016). The researcher used a literature review of related studies to ensure that the questionnaire covers all essential aspects that need to be covered. The questionnaire was then presented to experts because one of the supervisors is an Oncologist, a Departmental Seminar and the School of Health Sciences Higher Degree Committee, so that the instrument can be modified using feedback received to ensure adequacy of the content of the instrument.

3.8.4 Reliability

Reliability refers to the extent to which the instrument used can produce the same results if repeated on two occasions (Maree, 2016). The researcher ensured reliability by using Stability (test-retest) by giving the same respondents the very same questionnaire on two occasions with 5 days apart to see if response given at first will be the same the second time around. The reason to give the respondents a questionnaire on different occasions apart was to prevent memorization of the instrument by the respondents.

According to Frink (2014) if the correlation coefficient is close to one, it shows good reliability and if it is close to zero the instrument is not reliable. The test retest method of reliability was done to check if the questionnaire is accurate and consistent, it was done with 31 respondents at the selected University on two occasions and it was repeated after 5 days. The Cronbach's alpha coefficient indicated 0.839 and it was acceptable because the results showed a correlation-coefficient of close to 1.

3.9 PRE-TEST

A pre-test is defined as a test that is done to find any possible errors in the instruments, such as instructions with no meaning or wording, inadequate time limits as well as whether the variables defined by operational definition are actually observable and measurable (Maree, 2016).

The researcher conducted the pre-test so that the instrument can be in a form that everyone understands. Respondents for pre-testing were students from the selected University who were staying at an off-campus residence because they had the same characteristics as the study population and 10% of the sample size was used in order to come up with the sample size for pre-test. The pre-test helped the researcher to identify mistakes made in the instrument; to see whether respondents understood the language used and if there were questions that were not clear. After the pre-test, the researcher corrected the instrument according to the findings of the pre-test.

3.10 PROCEDURE FOR DATA COLLECTION

The total number of respondents in this study was 310 and the data was collected by the researcher who visited the female students in their residences at the selected University after obtaining the permission from Student Affairs management. An information letter was given and explained to the respondents. Those who were willing to participate were given an informed consent form where they were agreeing to take part in the study by signing. The questionnaires were given to the respondents by the researcher in each residence, in their rooms. The respondents were provided with a pen and given time to read and complete the questionnaires, while the researcher waited for them. The researcher collected the questionnaires on the same day to minimize non-responses.

3.11 DATA MANAGEMENT AND DATA ANALYSIS

During the process of data collection the data was kept under lock and key. Data was then exported to SPSS version: 26 for cleaning and analysis. Cleaning of data was done to eliminate errors and inconsistencies. Data analysis refers to ordering, categorizing, and summarizing the data and providing meaningful terms. Descriptive statistics entails measures such as frequency distribution measures of central tendency. Data collected was analyzed using the statistical package for social sciences (SPSS) software version: 26. Microsoft excel was used for the coding of the data collected. Data was checked by frequency to find the missed values or wrong

values. The Chi square test was used to determine the relationship between categorical variables. The results were presented in the form of tables and charts (Maree, 2016).

3.12 ETHICAL CONSIDERATION

Ethical consideration is important to ensure that ethical procedures should be followed when conducting a research. The researcher should explain how he/she intends to follow ethical issues in the research proposal (Maree, 2016). The following ethical measures were considered in this study.

3.12.1 Permission and Ethical Clearance

The research proposal was presented at the Department of Public Health and then to the School of Health Sciences Higher Degree Committee for quality assurance. Thereafter it was submitted to the selected University Higher Degrees Committee for quality assurance and approval. An application was made to the Research Ethics Committee of the selected University for ethical clearance to conduct the study. After obtaining the ethical clearance from the Ethics Research Committee (see ANNEXURE D), written permission (see ANNEXURE C) was obtained from the University Director of Student Affairs to conduct the study.

3.12.2 Informed Consent

An information letter (Annexure: B) which explains the nature of the study, purpose, objectives, what is expected from the subjects and how the respondents rights will be protected, was provided to the respondents by the researcher prior to signing the consent form. Respondents were told of their right to leave the study at any time they want and that there would not be any consequences. Respondents were told not to expect any kind of remuneration. The respondents were not expected to cover any cost in the study and they were also informed that the information provided will be sent to the library after data analysis so that other people can use it as a reference and for knowledge. After explaining all that, respondents decided whether to take part or not by signing or not signing the consent form.

3.12.3 Voluntary participation

The researcher informed the respondents that the participation in the study is voluntary and out of their own free will, without being forced. And they were made aware that at any time the can

leave the study whenever they feel uncomfortable to continue with participation without any adverse consequences.

3.12.4 Confidentiality and privacy

The researcher made it a point that maintaining of privacy is maintained at all costs during the study. Information provided by the respondents was stored safely, where nobody could have access to it. respondents were not addressed by their names; even in the instrument they were not asked to mention their names, except in the consent form where they had to sign, they were addressed as respondent number 01, 02 etc. to ensure that information provided would never be linked to the respondents. To ensure confidentiality the researcher placed all information and consent forms signed by the subjects in a safe place so that no one can have access to them and link their names with the questionnaires. The researcher ensured that information from the subjects would never be used against them in future and the relationship between the researcher and respondents remained professional, the researcher never took advantage of the subjects or abused them.

3.12.5 Protection of Participants from any Harm

The researcher made it a point that the respondents are protected from any harm and injury, whether physically or mentally. The respondents were informed that they won't be any risk or comfort that they will be exposed; the respondents were also informed that there would be no injuries related to the study. The researcher constructed questions in good manner that cannot cause any harm and psychological trauma during the process of data collection. Other possible dangers were looked at and the researcher guarded against them.

3.13 DISSEMINATION OF THE RESULTS

The recommendations were made. The soft copy of the results will be uploaded to the selected University library, so that other people can read, use it for referencing in their research, another soft copy will be submitted to the selected University Management, another copy of results will be sent to the Department of Health in the Limpopo Province so that they can make changes in current guidelines and policies regarding the HPV in hospitals and clinics where necessary. Presentation at a conference and publication in accredited journals will be done. Feedback will be given to the students in a forum where they will be invited to gather together to listen to the

presentation of the results. The results will also be presented through the University community radio so that students can have an understanding regarding the HPV and the HPV vaccine.

3.14 CONCLUSION

This chapter discussed the research methods of the study which included the study approach, design, setting, population, sampling, the data collection instrument, the validity and reliability of the measuring instrument, the pre-test and procedure for data collection, data management and analysis, ethical considerations and the dissemination of the results.

CHAPTER 4: PRESENTATION OF THE RESULTS

4.1 INTRODUCTION

This chapter presents the findings of the study. The main aim of the study was to determine the knowledge of female students regarding the Human Papilloma Virus (HPV) and vaccines at a selected University in the Limpopo Province, South Africa. The results include demographic data of the respondents, the sexual history of the respondents and their knowledge regarding the HPV and vaccines. Responses from the respondents were compiled into frequency tables then converted into percentages, thereafter presented in the form of tables and charts. Three hundred and ten (310) questionnaires were distributed to the respondents and 310 questionnaires were completed satisfactorily and returned.

4.2 DEMOGRAPHIC DATA OF THE RESPONDENTS

A descriptive analysis was performed in order to find the frequency distribution and percentages of demographic data such as gender, age, name of school/faculty, level of study and marital status. Brief descriptions of those demographic data are explained. Table 4 provides the summary of the demographic data of the respondents.

The results of the study showed that the majority 308 (99.4%) of the respondents were females and 2 (0.6%) of the respondents were falling under gays category. The majority of the subjects' ages ranged between 18-26 years 272 (87.7%), whilst only 19 (6.1%) were between 27-30 years. The majority 93 (30%) of the respondents were from the school/faculty of management science and 20 (6.5%) were from school of Agricultural sciences. Furthermore, the results of the study also revealed that 104 (33.5%) of the respondents were doing 3rd level of their studies and 50 (16.1%) were honors/4th year students. Regarding marital status of the respondents, the majority of 167 (53.9%) of the respondents were single whilst 8 (2.6%) were cohabiting.

Table 4: Demographic data of the respondents (N=310)

DEMOGRAPHIC CHARACTERISTICS	FREQUENCY	PERCENTAGES (%)
GENDER		
Female	308	99.4
Gays	2	0.6
AGE		
18-26 years	272	87.7
27-30 years	19	6.1
30 years and above	19	6.1
SCHOOLS/FACULTY OF THE RESPONDENTS		
Management	93	30.0
Education	48	15.5
Human and social sciences	36	11.6
Environmental	32	10.3
Mathematics and natural sciences	29	9.4
Law	21	6.8
Agriculture	20	6.5
LEVEL OF STUDY		
1 st year	67	21.6
2 nd year	89	28.7
3 rd year	104	33.5
4 th /year Honors	50	16.1
MARITAL STATUS		
Single	167	53.9
Dating	120	38.7
Cohabiting	8	2.6
Married	15	4.8

4.3 SEXUAL HISTORY OF THE RESPONDENTS

The sexual history of the respondents will be presented under the following subheadings: sexual activity, sexual partners in last the 3 years, contraceptive methods, circumstances of using a condom and whether diagnosed with STIs.

4.3.1 Sexual activity

Respondents were asked how often they have sexual intercourse, the results indicated that the majority of 130 (41.9%) of the respondents were having sexual intercourse once a month, whilst those who were having sexual intercourse everyday were only 12 (3.9%).

Table 5: Sexual activity of the respondents (N=310)

Number of times engaged in sexual intercourse	Frequency	Percentage (%)
Everyday	12	3.9
Once a week	45	14.5
Twice a week	54	17.4
Once a month	130	41.9
Never	69	22.3

4.3.2 Sexual partners in the last 3 years

The results show that 121 (39.0) of the respondents had one sexual partner in the last 3 years, whilst 50 (16.1%) of the respondents had three and more sexual partners in the last 3 years.

Table 6: Sexual partners in the last 3 years (N=310)

Numbers of sexual partners	frequency	Percentage (%)
One	121	39.0
Two	84	27.1
Three and more	50	16.1
None	55	17.7

4.3.3 Contraceptive methods

The results indicated that 147 (47.4%) of the respondents uses condom as a contraceptive method whilst 8 (2.6%) of the respondents use an IUCD/LOOP as a contraceptive method.

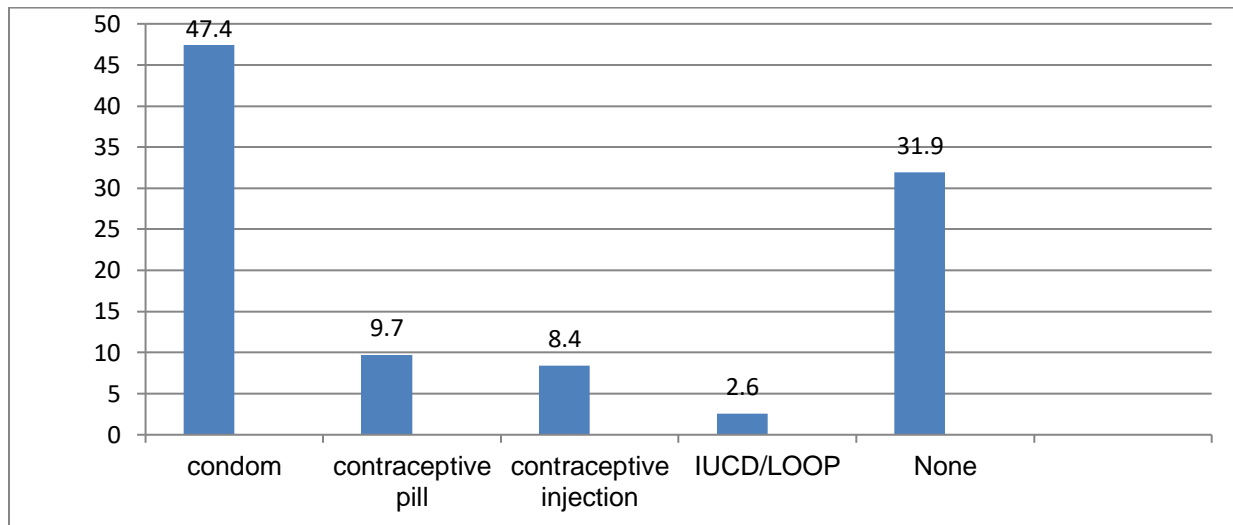


Figure 1: Contraceptive methods used by the respondents (N=310)

4.3.4 Circumstances of using a condom

The results indicated 117 (37.7%) subjects always use a condom during sexual intercourse whereas 105 (33.9%) of the respondents occasionally use condoms.

4.3.5 Diagnosed with sexual transmitted infections (STIs)

The results showed that the majority of the respondents 268 (86.4%) had never been diagnosed with STIs, whereas only 42 (13.5%) have been diagnosed with STIs.

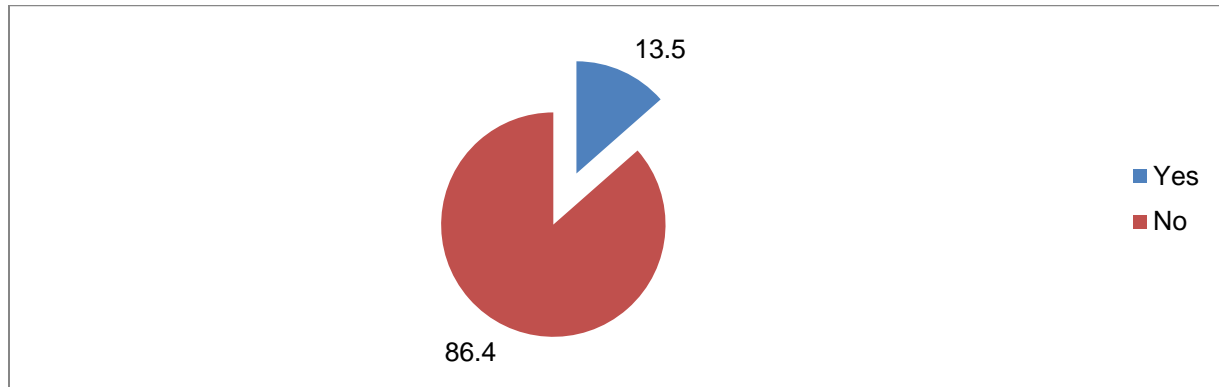


Figure 2: Respondents who had been diagnosed with STIs

4.4 KNOWLEDGE REGARDING THE HUMAN PAPILLOMA VIRUS

Knowledge regarding the HPV will be presented under the following subheadings: information about the HPV, health problems related to the HPV, the medium of which the HPV is transmitted, prevention of the HPV and gender mostly affected by the HPV.

4.4.1 Information about the human papilloma virus

The results showed that 176 (56.8%) of the respondents had never heard about the HPV, whereas 134 (43.2%) respondents have heard about the HPV.

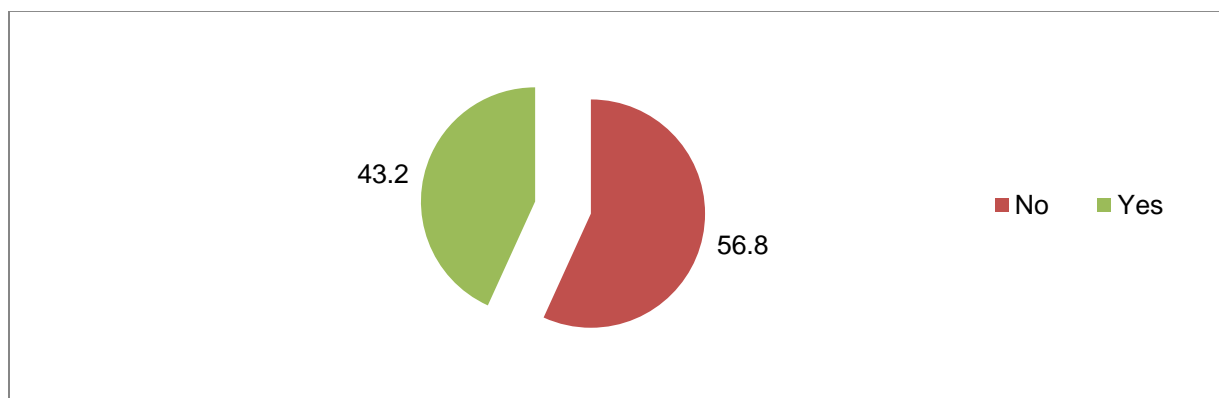


Figure 3: Respondents information about the HPV

4.4.2 Source of information about the human papilloma virus

The results showed that 174 (56.1%) respondents never heard about the HPV from anywhere whilst only 30 (9.7%) of the respondents have heard about the HPV from health care workers.

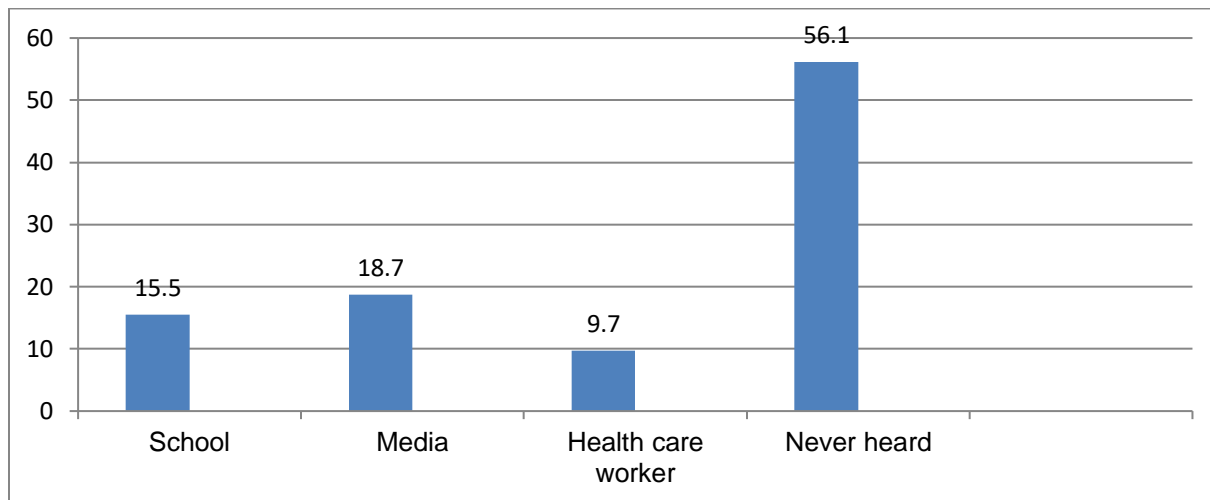


Figure 4: Source of information about the HPV (N=310)

4.4.3 Health problems related to the human papilloma virus

The results of the study showed that 166 (53.5%) of the respondents they do not know any health problem related to the HPV, 94 (30.3%) of the respondents knows that cervical cancer is one of the health problems related to the HPV. The results of this study further indicated that 24 (7.7%) of the respondents know that cervical cancer, anal cancer, and genital warts are health problems related to the HPV, whereas 20 (6.5%) of the respondents know genital warts as the health problem related to the HPV and few respondents 6 (1.9%) know that anal cancer is a health problem related to the HPV.

4.4.4 Medium of which the human papilloma virus is transmitted

The majority 206 (66.5%) of the respondents indicated that they do not know the medium through which the HPV is transmitted, 60 (19.4%) indicated that the HPV is transmitted through genital skin to skin, 26 (8.4%) indicated that contact with body fluids can transmit the HPV from one person to another, whereas 2 (6%) of the respondents indicated that the HPV can also be transmitted through coughing and only 16 (5.2%) of the respondents indicated that genital skin

to skin contact, contact with body fluids and cough can all transmit the HPV from one person to another.

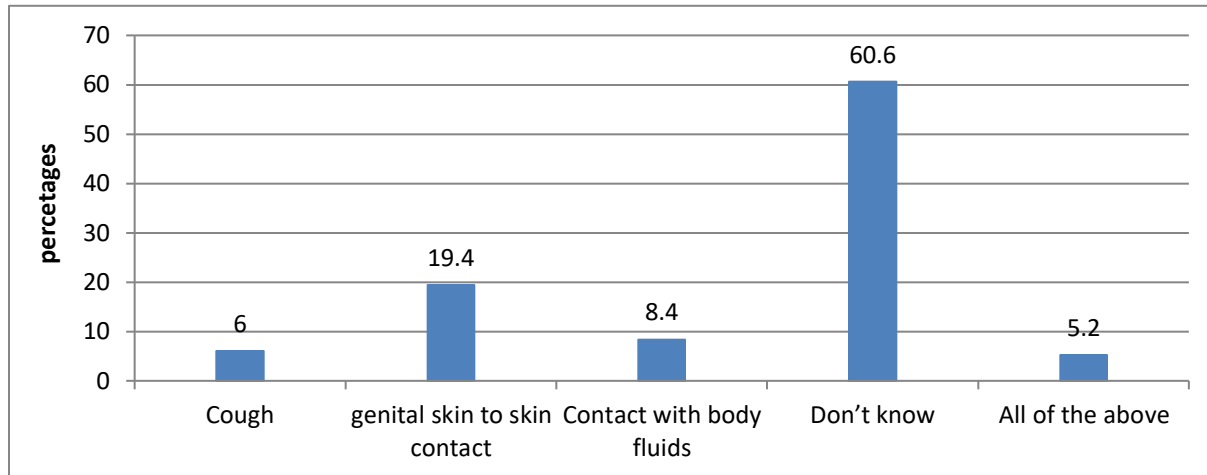


Figure 5: Medium of the HPV transmission (N=310)

4.4.5 Prevention of the human papilloma virus

A majority 188 (60.6%) of the respondents indicated that they do not know about the prevention of HPV, 65 (21.0%) indicated that they know that the HPV vaccines can prevent the HPV, 27 (8.7%) indicated that they knew that the use of condom during sexual intercourse may protect them from being infected by the HPV infections, whereas 19 (6.1%) of the respondents indicated that they knew that antibiotics can also prevent HPV infections and only 11 (3.5%) indicated that HPV vaccines, antibiotics and use of condoms during sexual intercourse can all prevent HPV infections.

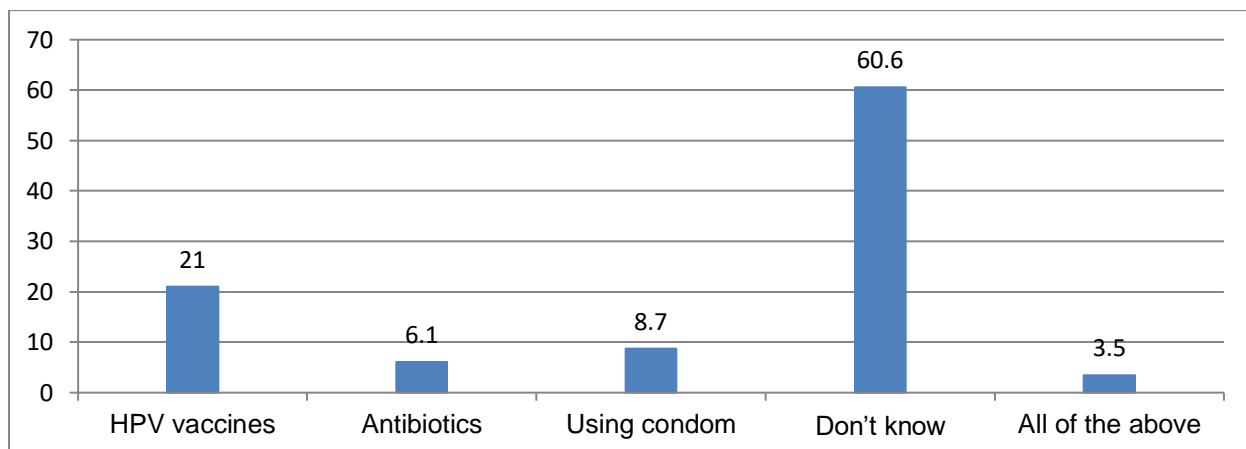


Figure 6: Knowledge of the respondents regarding the HPV prevention (N=310)

4.4.6 Gender mostly affected by the human papilloma virus

The results of the study showed that 136 (43.9%) of the respondents said that females are the ones who are mostly affected by the HPV, 117 (37.7%) indicated that they do not know which gender is mostly affected by the HPV, whereas 54 (17.4%) indicated that both genders are affected by the HPV and only 3 (1.0%) of the respondents indicated that the HPV can also affect males.

4.5 KNOWLEDGE REGARDING THE HUMAN PAPILLOMA VIRUS VACCINE

Knowledge regarding the HPV vaccines will be presented under the following subheadings: the two HPV vaccines that are available in SA, the HPV vaccines are available to girls at primary level, the HPV vaccines are given to girls before they are sexual active, HPV vaccines are given to girls at the age of 9-13 years in South Africa, the HPV vaccines prevent cervical cancer, the HPV vaccines prevent HPV and STIs, the HPV vaccines are not effective on the HPV infected person, HPV vaccines should be given at 6 months interval and knowledge regarding the HPV vaccines that are available in South Africa.

4.5.1 Two human papilloma virus vaccines are available in South Africa

The results of the study revealed that the majority 257 (82.9%) of the respondents were uncertain about the types of the vaccines available in SA, 43 (13.9%) of the respondents agreed that in South Africa there are only two types of vaccines available whilst few 10 (3.2%) respondents disagreed that the two HPV vaccines are available in South Africa.

Table 7: Knowledge of the respondents regarding the two HPV vaccines available in South Africa (N=310)

	Frequency	Percentage
Agreed	43	13.9
Uncertain	257	82.9
Disagreed	10	3.2
Total	320	100

4.5.2 Human papilloma virus vaccines are available to girls at primary level

The results of the study revealed that 202 (65.2%) of the respondents were uncertain about the HPV vaccines that are available to girls at primary level, 56 (18.1) disagreed that the HPV vaccines are available to girls at primary level, whilst 52 (16.8%) of the respondents agreed that the HPV vaccines are available to girls at primary level.

Table 8: Knowledge of respondents regarding the HPV vaccines that are available to girls at primary level (N=310)

	Frequency	Percentage
Agreed	52	16.8
Uncertain	202	65.2
Disagreed	56	18.1
Total	310	100

4.5.3 Human papilloma virus vaccines are given to girls before they are sexual active

The results of the study indicated that 161 (51.9%) of the respondents agreed that the HPV vaccines are given to girls before they are sexual active, 130 (41.9%) were uncertain whether the HPV vaccines are given to girls before or after they become sexual active and few 19 (6.1%) disagreed that the HPV vaccines are given to girls before they become sexual active.

4.5.4 Human papilloma virus vaccines are given to girls at the age of 9-13years in SA

The results of the study revealed that the majority 214 (69.0%) of the respondents were uncertain about the age at which the HPV vaccines are given, 58 (18%) agreed that the HPV vaccines are given at the age of 9-13 years in South Africa and 38 (12.3%) of the respondents disagreed that the HPV vaccines are given at the age of 9-13 years.

**Table 9: Knowledge of the respondents regarding the age at which HPV vaccines are given
(N=310)**

	Frequency	Percentage
Agreed	58	18
Uncertain	214	69.0
Disagreed	38	12.3
Total	3210	100

4.5.5 Human papilloma virus vaccines prevent cervical cancer

The results of the study showed that 176 (56.8%) of the respondents do not know whether the HPV vaccines prevent cervical cancer or not, 115 (37.1%) agreed that the HPV vaccines prevent cervical cancer and 19 (6.1%) disagreed that the HPV vaccines prevent cervical cancer.

**Table 10: Knowledge of the respondents regarding the prevention of cervical cancer
(N=310)**

	Frequency	Percentage
Agreed	115	37.1
Uncertain	176	56.8
Disagreed	19	6.1
Total	310	100

4.5.6 Human papilloma virus vaccines prevent the HPV and STIs

The results showed that 187 (61.0%) of the respondents were uncertain whether the HPV vaccines prevent HPV and STIs, 87 (28.1%) agreed that the HPV vaccines prevent HPV and STIs and 34 (11.0%) disagreed that the HPV vaccines prevent HPV and STIs.

Table 11: Knowledge of the respondents regarding the HPV and STIs prevention (N=310)

	Frequency	Percentage
Agreed	87	28.1
Uncertain	187	61.0
Disagreed	34	11.0
Total	310	100

4.5.7 Human papilloma virus vaccines are not effective on HPV infected person

The results indicated that 212 (68.4%) of the respondents were uncertain whether HPV vaccines are effective to HPV infected person or not, 56 (18.1%) disagreed that HPV vaccines are not effective to HPV infective person and 42 (13.5%) agreed that HPV vaccines are not effective to HPV infected person.

Table 12: Knowledge of the respondents regarding effectiveness of the HPV vaccines to HPV infected person (N=310)

	Frequency	Percentage
Agreed	42	13.5
Uncertain	212	68.4
Disagreed	56	18.1
Total	310	100

4.5.8 Human papilloma virus vaccines should be given at 6 months interval

The results revealed that majority of the respondents 222 (71.6%) were uncertain whether HPV vaccines should be given at 6 months interval or not, 61 (19.7%) agreed that HPV vaccines should be given at 6 months interval and few 27 (8.7%) of the respondents disagreed that HPV vaccines should be given at 6 months interval.

Table 13: Knowledge of the respondents regarding the interval of the HPV vaccination (N=310)

	Frequency	Percentage
Agreed	61	19.7
Uncertain	222	71.6
Disagreed	27	8.7
Total	310	100

4.5.9 Knowledge regarding the HPV vaccines that are available in SA

The results revealed that the majority 233 (75.2%) of the respondents were uncertain whether Gardasil and Cervarix are the HPV vaccines available in South Africa, 58 (18.7%) agreed that Gardasil and Cervarix are the vaccines available in South Africa and only 19 (6.1%) disagreed that Gardasil and Cervarix are the HPV vaccines available in South Africa.

Table 14: Knowledge of the respondents regarding types of the HPV vaccines available in South Africa (N=310)

	Frequency	Percentage
Agreed	58	18.7
Uncertain	233	75.2
Disagreed	19	6.1
Total	310	100

4.6 CONCLUSION

The results of the study revealed that majority of the respondents were uncertain about the types of HPV vaccines that are available in South Africa, at which age HPV vaccines are given and whether HPV vaccines prevents cervical cancer or not, whilst few respondents agreed that only two HPV vaccines are available in South Africa.

CHAPTER 5: DISCUSSION OF THE RESULTS

5.1 INTRODUCTION

The study focused on describing the knowledge of female students' regarding the Human Papilloma Virus (HPV) and vaccine at a selected University in the Limpopo Province, South Africa. Results will be discussed under: Demographic data of the respondents, sexual history of the respondents, knowledge regarding the HPV and knowledge regarding HPV vaccines

5.2 DEMOGRAPHIC DATA OF THE RESPONDENTS

The results of the study indicated that 15 (4.8%) of the married respondents were knowledgeable about the HPV and vaccines, they were aware about the type of HPV vaccines that are available in South Africa, availability and accessibility of HPV vaccine. Married respondents were aware of the health problems related to the HPV and how HPV infections can be prevented and this is because some married respondents have children who received the vaccine at primary level. The majority 272 (87.7%) of the respondents were knowledgeable about the HPV and vaccine and this may be because some of them received the vaccine while at primary level.

According to the study that was done among Lagos students, by Akinsoji et al. (2015) it was revealed that the 27% of the students who were married were more knowledgeable about the HPV and the HPV vaccines that are given to young girls before they become sexually active, and that if the HPV is not treated early, it may complicate to cancer. Furthermore, some students between the ages of 17 to 20 years have received the vaccine at primary level. The results of this study further concur with the finding of the study that was conducted by Kasymova et al. (2019) who reported that 45% of married respondents with children who have passed primary level and have received the HPV vaccines are aware of the HPV and vaccines.

The results of this study further revealed that the schools or faculty of the subjects influences the knowledge of the subjects regarding the HPV and vaccines. Respondents from the School of Management Sciences 93 (30%) have heard about HPV and vaccines from their school. The school influences the knowledge of the respondents and this might be because some schools have modules that includes viruses and bacteria that causes disease and how to manage them, a few 20 (6.5%) respondents from School of Agriculture were not knowledgeable about the HPV

and vaccine and this might be because they focus more on plant and animal production and other non-health related issues Dönmez et al. (2019) revealed that nursing students were not deeply taught about health related issues early from their first year of study, they were only taught toward the end of their studies

Ibrahim et al. (2019) state that there is a difference in knowledge between pre- final year students in nursing collage and final year students in medical college in Duhok, Iraq. According to a study that was conducted in Nigerian tertiary health institutions, it was reported that 10.3% of the respondents doing the B.Sc Physiotherapy course never understood the meaning of HPV and what HPV vaccines are (Idowu et al., 2019).

5.3 SEXUAL HISTORY OF THE RESPONDENTS

The results of the study revealed that respondents are engaged into risky sexual behavior, which may results into being infected by HPV infection 50 (16.1%) of the respondents stated that they had three or more sexual partners in last three years, 88 (28.3%) of the respondents reported that they do not use condoms during sexual inter course which put them at risk of contracting the HPV. *Perceived susceptibility* expressed a link between respondent's knowledge about HPV and risky sexual behavior. The study findings revealed that respondents were not knowledgeable about health related problem that could affect them if engaged into risky sexual behavior.

This study results are supported by Pelullo et al. (2019) who report that the use of alcohol and drugs may cause students to be involved in unprotected sex and changing from one sexual partner to another within a short period of time. Tolera et al. (2019) report that out of 97.7% response rate 25.3% of the students had sexual intercourse in the past 12 months and 17.0% of them had more than one sexual partner. Some students were engaged in sexual intercourse due to peer pressure in their class and others even went for commercial sex for them to be financially stable.

A case study was done in Jimma University students in Ethiopia, the findings revealed that out of 222 (33.6%) of students with symptoms of depression 30.2% were found to be engaged in risky sexual behavior and it was stated that students with signs of depression are more engaged into sexual behavior than students with no signs of depression (Tesfaye et al., 2019).

5.4 KNOWLEDGE REGARDING THE HUMAN PAPILLOMA VIRUS

The results of the study revealed that 176 (56.8%) of the respondents had never heard about the HPV either from school, media, or health care worker, which means they do not know what the HPV is and how the HPV can be prevented, 166 (53.5%) of the subjects do not know health problems related to the HPV which can results in ignorance of any symptoms related to the HPV. Only few 11 (3.5%) of the respondents knew that the HPV can be prevented through the HPV vaccines, antibiotics and the use of condoms.

Perceived severity expressed a link between respondent's knowledge about HPV and its complications. In this study it as found that respondents were not knowledgeable about health related problems related to HPV. The results of this study indicated that there is a positive relationship between the school or faculty and source of information regarding the HPV (P value= 0.001). The School of Management Sciences have the majority (93) of respondents who reported that they did not know about the HPV from their faculty or school. Table 15 attests these facts.

Table 15: Chi square test

	Value	Df	Asymptotic significance (2-sided)
Pearson Chi square	48.021^a	21	.001
Likelihood ratio	47.907	21	.001
Linear by linear association	.003	1	.959
N of valid cases	310		

a. 14 cells (43.8%) have expected count less than 5. The minimum expected count is 1.94.

A similar study was conducted among students at Bushehr University of Medical Sciences in Iran, It was reported that 56.4% of students showed poor knowledge regarding the HPV, those students were not aware of the mode of transmission of the HPV, complications of the HPV and prevention of the HPV. It was further reported that there was a significant relationship between school or faculty and knowledge of the students ($P < 0.001$) (Najafi-sharjabad & Rayani, 2019).

Bitar et al. (2020) report that in Saud Arabia, the HPV is a leading cause of cervical cancer but women still lack knowledge about it and one of the reasons is that there is a lack of knowledge about the HPV is because the HPV is labelled by stigma. This study indicated a link between women who live in central regions and knowledge regarding HPV ($P=0.001$).

Pelullo et al. (2019) further reported that among 556 nursing students in Italy only 36.5% knew about the risk factors associated with the HPV and how the HPV can be prevented and the rest of the students had poor knowledge about the HPV risk factors and prevention of the HPV. It was stated that nursing students lack knowledge about the HPV and vaccines because they start to be taught about health related issues in detail towards final year of their studies. The study showed a positive relationship between level of the study and knowledge regarding the HPV ($P= 0.003$)

5.5 KNOWLEDGE REGARDING HUMAN PAPILLOMA VIRUS VACCINES

The results of the study revealed that the majority 207 (82.9%) of the respondents were uncertain about the HPV vaccines that are available in South Africa. Respondents were uncertain about the availability and accessibility of the HPV vaccines, 222 (71.6%) of the respondents were also uncertain about the interval of receiving the HPV vaccines, what the HPV vaccines prevent and whether the HPV vaccines are effective for an HPV infected person.

Perceived benefits express a link between knowledge about HPV vaccines and what respondents believe the benefits would be if certain preventative measures are taken. In this study it was found that respondents were not knowledgeable about preventative measures against HPV. Villanueva et al. (2019) revealed that nursing students lack knowledge about the HPV vaccine although they were aware of the health problems related to the HPV and risk factors but they still need to be taught about the HPV vaccination. The study indicated a significant association between knowledge regarding the HPV vaccines and faculty or school ($P=0.001$)

In contrast, a study that was conducted on University students in Switzerland reported different findings from the current study; students at lower levels of their study have a good understanding of HPV vaccines; 95% of the respondents were aware that HPV vaccines protected from the HPV. This study indicated that there was no relationship between marital status/level of study and knowledge regarding HPV vaccine ($P=0.08$) (Jeannot et al., 2019).

5.6 CONCLUSION

Knowledge regarding the HPV and the HPV vaccine at a selected university was associated with marital status and faculty or school. The results of the study indicated that there is a significant association between knowledge regarding the HPV vaccine and the school or faculty of the respondents. The respondents from the School of Management Sciences showed a better understanding of the HPV and vaccine compared to other schools.

CHAPTER 6: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter presents the summary, conclusions and recommendations based on the study results. This is based on the study results that are presented and discussed in the previous chapters.

6.2 SUMMARY OF THE FINDINGS

The main aim of the study was to determine the knowledge of female students regarding the Human Papilloma Virus (HPV) and vaccines at a selected university in the Limpopo Province, South Africa.

The objectives of the study were to:

- Assess the knowledge of female students regarding the Human Papilloma Virus (HPV) and vaccine at a selected university in the Limpopo Province, South Africa.
- Describe the sexual history of female students at a selected university in the Limpopo Province, South Africa.

Based on the results of the study, demographic data of the respondents, sexual history of the respondents, knowledge regarding the HPV and vaccines play a big role when it comes to the knowledge of the respondents regarding sexual behavior, knowledge regarding the HPV and vaccines. Respondents who have been taught about the HPV and vaccines were more knowledgeable, they knew health problems related to the HPV, the mode of HPV transmission, and the HPV preventative measures. They also knew the types of the HPV vaccines available in South Africa, to whom they are being given, how the vaccines are given and what the HPV vaccines prevent and their sexual behavior is not risky because they know the complications of risky sexual behavior.

6.3 CONCLUSION

The study conclude that the female students at the selected university lack knowledge regarding the HPV and vaccines, for example, majority of students never heard about the HPV and

vaccines, they did not know health problems related to HPV, the medium to which the HPV is transmitted, how the HPV is prevented and the gender that is mostly affected by HPV. Respondents also lack knowledge about the HPV vaccines, majority of them didn't know the types of vaccines that available in South Africa, who are supposed to receive the vaccines, at what age the vaccines are being given and to what age the vaccines are being given. Respondents did not know what the HPV vaccines prevents and how the vaccines should be administered.

6.4 RECOMMENDATIONS

Based on the above results, the following recommendations are made about knowledge regarding the HPV and vaccines:

- It is recommended that the institutions of Higher Education and Training should revise their curriculum and include health related modules in all schools / faculties and modify their health promotion policies and guideline so that students can be made aware of issues affecting their health.
- Students must not only be taught about diseases (cervical cancer) that are caused by HPV, but also about the HPV itself and on how the virus can be prevented
- The National Department of Health should modify their guidelines, policies and programmes regarding HPV management and HPV vaccines, so that the communities can be well managed and receive health education at the health care facilities.
- Community radios should have steady programme broadcasting about the HPV and vaccines to help the communities to have knowledge about HPV and vaccines because the HPV is the virus that causes deadly diseases worldwide such as cervical cancer and breast cancer.

CONTRIBUTION TO BODY OF KNOWLEDGE

The results of the study indicated that many students at the selected University lack knowledge about the HPV and vaccines. There is a need to provide information about the HPV and vaccines through various means of communication. The findings of the study should be used in

the curricula of the Institutions of higher education and training. Students should have a module that include diseases that are causing high mortality rates across the world. Students should have this kind of module from their first year of study.

FURTHER RESEARCH

Further studies about the HPV needs to be done and they should focus more on Knowledge and attitude of students regarding the HPV prevention, as well as on both female and male students because the HPV affects both genders. The studies should also focus on other universities, colleges and other districts in the province.

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ANNEXURE A: LETTER OF INFORMATION

Title of the Research Study : Knowledge of female students regarding the Human Papilloma Virus (HPV) and vaccine at a selected University in Limpopo Province, South Africa.

Principal Investigator/s/ researcher : (M.P. Mushasha, Bcur in Nursing)

Co-Investigator/s/supervisor/s : (Dr N.S. Mashau, (PhD)

: (Prof D.U. Ramathuba (PhD)

Brief Introduction and Purpose of the Study: Human papillomavirus (HPV) is a sexually transmitted virus, it spreads through genital contact. The virus can also be spread through anal, vagina, and skin to skin contact. HPV causes diseases such as cervical cancer, anal cancer and many other cancers (Kamimura, Trinh, Weaver, Chernenko, Wright, Stoddard, Nourian & Ngunyen, 2018). The purpose of the study is to determine the knowledge of female students regarding Human Papilloma Virus and HPV vaccine at a selected University in Limpopo Province, South Africa.

Outline of the Procedures : the population of the study shall include female students residing in University of Venda residences. The sample size of 310 was calculated using a Slovin's formula. Systematic sampling will be used to select the participants in this study. Data will be collected using self-administered questionnaire. Questionnaire shall be comprised of three sections. Participants will be given the questionnaires in their rooms by the researcher who will wait for them to complete. It will take about 25-30 minutes to complete the questionnaire.

Risks or Discomforts to the Participant : There are no foreseen risks and discomforts to participants in the study. The participants will only be completing questionnaires and there will be no sensitive questions asked

Benefits : By participating in the study, the participants will become aware of the HPV and its vaccine as well as its consequences on health and how to prevent it.

Reason/s why the Participant May Be Withdrawn from the Study: The participants will be free to withdraw from the study at any time if they feel like not continuing with the study.

Remuneration : There will be no remuneration for participating in the study, participation is voluntary

Costs of the Study : Participants will not be expected to cover any cost of the study.

Confidentiality : Participants will not be expected to write their names in the questionnaire, participants will be addressed as participant number 1, 2 etc. information provided by the participants will be kept safe by the researcher where no one can access it without the researcher's permission.

Research-related Injury : Participants in this study are not involved in any invasive procedure and data collection will be collected by a researcher who is a lady and therefore there is no research-related injury anticipated.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher (M.P Mushasha) (071 1999 562), my supervisor (Dr N.S Mashau) (015 962 8892) or the University Research Ethics Committee Secretariat on 015 962 9058. Complaints can be reported to the Director: Research and Innovation, Prof GE Ekosse on 015 962 8313 or Georges Ivo.Ekosse@univen.ac.za

ANNEXURE B: CONSENT FORM

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, (M.P Mushasha), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number.
- I have also received, read and understood the above written information (*Participant Letter of Information*) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant

Date

Time

Signature

I.....

.....

.....

.....

(M.P. Mushasha) herewith confirm that the above participant has been fully

Informed about the nature, conduct and risks of the above study.

Full Name of Researcher

.....

Date.....

Signature.....

Full Name of Witness (If applicable)

.....

Date

Signature.....

Full Name of Legal Guardian (If applicable)

.....

Date.....

Signature.....

**RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR**

NAME OF RESEARCHER/INVESTIGATOR:

Ms MP Mushasha

Student No:

11611153

PROJECT TITLE: Knowledge of female students regarding Human Papilloma Virus (HPV) and vaccine at a selected University in Limpopo Province, South Africa.

PROJECT NO: SHS/19/PH/18/0710

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Dr NS Mashau	University of Venda	Supervisor
Prof DU Ramathuba	University of Venda	Co - Supervisor
Ms MP Mushasha	University of Venda	Investigator – Student

ISSUED BY:

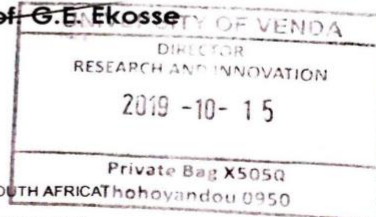
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: October 2019

Decision by Ethical Clearance Committee Granted

Signature of Chairperson of the Committee: 

Name of the Chairperson of the Committee: Senior Prof. G.E. Ekosse



University of Venda

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ANNEXURE D: RESEARCH QUESTIONNAIRE

Study Title: Knowledge of female students regarding the Human Papilloma Virus (HPV) and vaccine at a selected University in the Limpopo Province, South Africa.

Instructions

code

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1. Answer all questions in this this questionnaire.
2. Do not write your name.
3. Do not tear any page.
4. Tick or fill your answer on the space provided.

Section A: Demographic data of the respondents

Question no	Questions	Responses	Tick or fill in the space provided
1.	Gender	1. Females 2. Others	<input type="text"/> <input type="text"/>
2.	Age	1. 18-26 years 2. 27-30 years 3. 30 and above	<input type="text"/> <input type="text"/> <input type="text"/>
3.	Name of school/faculty	
4	Level of study	
5	Marital status	1. Single 2. Dating 3 .cohabiting 4. Married	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

Section B: Sexual history of the respondents

Question no	Questions	responses	Tick your response
6	How often do you have sexual intercourse?	1. Everyday 2. Once a week 3. Twice a week 4. Once a month 5. never	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
7.	How many sexual partners did you have in the last 3 years?	1. One 2. Two 3. Three or more 4. None	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8.	What contraceptive method do you use?	1. Condom 2. Contraceptive pill 3. Injection 4. IUCD/LOOP 5. None	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9.	Under which circumstances do you use condom?	1. Always 2. Occasional 3. Never	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10.	Have you ever been diagnosed with any sexual transmitted infection?	Ye No	<input type="checkbox"/> <input type="checkbox"/>

Section C: Knowledge regarding the HPV

11.	Have you ever heard about HPV	1. Yes 2. No	<input type="checkbox"/> <input type="checkbox"/>
12.	If yes where did you hear about it	1. School 2. Media 3. Health care worker 4. Never heard	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

13.	What are the health problems related to HPV	1. Cervical cancer 2. Anal cancer 3. Genital warts 4. Don't know 5. All of the above	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
14.	Through which medium is HPV transmitted	1. Cough 2. Genital skin to skin contact 3. Contact with body fluids 4. Don't know 5. All of the above	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
15.	How is HPV prevented	1. HPV vaccine 2. Antibiotics 3. Using condom 4. Don't know 5. All of the above	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
16.	Who are mostly affected by HPV	1. Female 2. Males 3. Don't know 4. All of the above	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

Knowledge regarding the HPV vaccine (indicate by ticking whether you Agree, Uncertain and Disagree on provided space.

Question number	Statement	Agree	Uncertain	Disagree

17.	Only two HPV vaccines are available in South Africa			
18.	HPV vaccine is available to girls at primary schools			
19.	HPV vaccine should be given to girls before becoming sexual active			
20	HPV vaccine is given to girls from the age of 9years to 13 years in South Africa			
21.	HPV vaccine prevents cervical cancer			
22.	HPV vaccine prevents HPV and other STIs			
23.	HPV vaccine is not effective on HPV infected person			
24.	HPV vaccine should be given with six months apart			
25	Gardasil and Cervarix are the HPV vaccines available in South Africa			

THANK YOU