

RESEARCH REPORT

**PROFILE OF CERVICAL CANCER IN PATIENTS SEEN IN THE GYNAECOLOGY
CLINIC AT MANKWENG HOSPITAL, CAPRICORN DISTRICT, LIMPOPO
PROVINCE**

by

Masekwameng MJ

MINI-DISSERTATION

Submitted in partial fulfilment of the requirements for the degree
of

MASTER OF PUBLIC HEALTH

in the

**FACULTY OF HEALTHCARE SCIENCES
(School of Public Health)**

at the

UNIVERSITY OF LIMPOPO

SUPERVISOR: Dr TS Ntuli

CO-SUPERVISORS: Dr E Maimela

2020

DEDICATION

This mini-dissertation is dedicated to my family, for without family I am nothing.

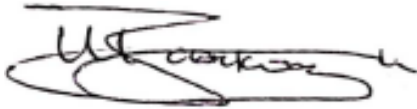
First, I would like to dedicate this to my most humble and beautiful grandmother. She is the best person I have ever met and she is the rock on which my life is built on. Her consistent encouragement made this possible, as there were times when I was off the path and her encouragement got me back on track. The world is a better place because she is in it and I will forever love her.

I also dedicate this to my children and siblings, they are the light and they make the path worthwhile. I know that everything I do in this world is to enrich their lives. Their unconditional love, support, understanding, encouragement and for always believing in me during this process came without asking. I have learned more from them than I could ever teach them.

I thank my mother and my grandmother for the example and work ethic that they provided for me. From an early age I was able to see that if you worked hard enough, you can achieve anything. I thank them for instilling in me the importance of education at the time I did not know that it would become my world, but I am grateful daily for their insistence.

DECLARATION

I hereby declare that the mini-dissertation “Profile of Cervical Cancer in patients seen in the Gynaecology Clinic at Mankweng Hospital, Capricorn District, Limpopo Province” for the degree MPH at the University of Limpopo hereby submitted by me has not been submitted before at this university, and that it is my own work in design and in execution and that all reference materials contained herein have been acknowledged by means of complete references.



Masekwameng Masela Jackson

17 September 2021

Date

ACKNOWLEDGEMENTS

Thanks be to God the Almighty for giving me life, the spirit, the chance to be alive, courage, wisdom, guidance and strength to complete this research study.

Special thanks to the following important people who contributed to this study:

Dr TS Ntuli as my supervisor who supported, guided, encouraged, motivated and facilitated me in this study. It was challenging, tiring and not simple, yet he made it simple in a way and supported me from the beginning till the end.

Dr E Maimela as my co-supervisor for your support, involvement and guidance in this study.

All cervical cancer patients who participated; for their time and sharing their experience that contributed to the success of my study.

University of Limpopo, Limpopo Department of Health and Mankweng Hospital management for giving me the permission to conduct this study.

Sr Ngoasheng MC as my operational manager for contributing so much towards my personal growth, professional growth and academic development.

I am what I am academically, professionally and personally in part due to all of you.

ABSTRACT

Background of the study: Cervical cancer is a disease that is described as the state of overgrowth of tissue resulting from the disorganisation of cell division that is preceded by several earlier cervical changes, especially at the squamocolumnar junction of the cervix. Factors such as HPV, which is a sexually transmitted infection (STI), low socioeconomic status (SES), intercourse at a very early age, numerous childbirths, poverty and limited access to health care, are some of the contributing risk factors for cervical cancer. Most women in developing countries only seek professional help once the malignancy is already at an advanced stage.

Purpose of the study: The aim of the study was to investigate the determinants of cervical cancer in patients seen in the gynaecology clinic at Mankweng hospital. And the objectives were: to profile the sociodemographic characteristics; to profile the contributory risk factors; and, to determine the association of risk factors for cervical cancer with the socio-demographic characteristics of the patients seen in the gynaecology clinic at Mankweng hospital.

Research methodology: A quantitative, cross-section descriptive study, which has been validated and used in several studies globally, was conducted at Mankweng hospital, which is a tertiary referral academic hospital in the Limpopo Province, following all cervical cancer patients consulting at gynaecology outpatient clinic during the study period. Data were collected using a structured questionnaire and entered into computer software and analysed.

Research findings: Thirty-seven percent of the women who participated in this study were single, 27% were married, 27% widowed and only 9% were divorced. Nearly half (46%) of the participants had secondary education and only 8% had tertiary education. The majority (91%) of the women were unemployed and only 9% were employed. The majority (40%) of the women were at stage II cervical cancer. Nearly two-thirds (62%) had had multiple partners. At the time of the study, 94% of the participants did not have multiple partners. Nearly two-thirds (64%) of the participants had heard about Pap smears before their current diagnosis and 62% of the participants had had a Pap smear before the current results. Few participants smoked cigarette (2%) or used contraceptive (3%). The young age group, single, divorced, with secondary and

tertiary education were more likely to be HIV positive. And the elderly, divorced, widowed and less educated were more likely to have high parity.

Recommendations and conclusions: Information about the risk factors for developing cervical cancer, specifically the transmission of HPV, needs to be disseminated to young people. Rather than initiating cervical screening by age group, which may result in young women being refused screening irrespective of their risk, cervical screening guidelines should stipulate the initiation of cervical screening and HPV vaccine from the age of 15 onwards. Present study suggests that young women may be more prone to HPV and HIV due to the fact that young women who are single or divorced, with tertiary education were more likely to have multiple partners, which places them in a risk-based cervical screening target group. A final recommendation and conclusion is that a long-term, in-depth study on cervical cancer in young women in relation to the presence of the risk-factors should be carried out. Attempts should be made to reach women who rarely visit health care services.

KEYWORDS

- Cervical cancer; Profile; Patients, HPV.

Table of Contents

DEDICATION.....	i
DECLARATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT.....	iv
KEYWORDS	v
LIST OF ACRONYMS.....	ix
DEFINITION OF CONCEPTS.....	x
CHAPTER 1: INTRODUCTION AND BACKGROUND.....	1
1.1. INTRODUCTION.....	1
1.2. BACKGROUND OF THE STUDY	1
1.3. PROBLEM STATEMENT	2
1.4. PURPOSE OF THE STUDY.....	3
1.4.1. Aim of the study	3
1.4.2. Objectives	3
1.5. RESEARCH QUESTION	3
1.6. LITERATURE REVIEW	3
1.7. METHODOLOGY	3
1.7.1. Study Site.....	3
1.7.2. Study Design.....	4
1.7.3. Population and Sampling.....	4
1.7.4. Data Collection	4
1.7.5. Data Analysis	4
1.8. ETHICAL CONSIDERATION.....	4
1.9. BIAS.....	4
1.10. SIGNIFICANCE OF THE STUDY.....	5
1.11. CHAPTER OUTLINE FOR THE STUDY	5
1.12. CONCLUSION.....	5
CHAPTER 2: LITERATURE REVIEW	6
2.1. INTRODUCTION OF THE LITERATURE REVIEW	6
2.1.1. What is cervical cancer?	6
2.1.2. Global burden of cervical cancer.....	7
2.1.3. Cervical cancer in Africa.....	7
2.1.4. Cervical cancer in South Africa.....	8

2.2. CONCLUSION.....	11
CHAPTER 3: METHODOLOGY.....	12
3.1. INTRODUCTION TO METHODOLOGY.....	12
3.1.1. Study settings.....	12
3.1.2. Study design.....	12
3.1.3. Study population.....	13
3.1.4. Sampling techniques and sample size.....	13
3.1.5. Inclusive criteria.....	14
3.1.6. Exclusive criteria.....	14
3.1.7. Data collection.....	14
3.1.8. Data Analysis.....	14
3.2. RELIABILITY AND VALIDITY.....	15
3.3. ETHICAL CONSIDERATION RELATED TO DATA COLLECTION.....	15
3.3.1. Autonomy.....	15
3.3.2. Informed consent.....	16
3.3.3. Confidentiality.....	16
3.3.4. Protecting anonymity and confidentiality.....	16
3.4. CONCLUSION.....	16
CHAPTER 4: RESULTS.....	17
PRESENTATION AND INTERPRETATION OF THE FINDINGS.....	17
4.1 Introduction.....	17
4.2 Demographic characteristics of cervical cancer patients.....	17
4.3 Contributory risk factors for cervical cancer.....	21
4.5 Conclusion.....	26
CHAPTER 5: DISCUSSION AND CONCLUSIONS.....	27
5.1. INTRODUCTION.....	27
5.2. RESEARCH DESIGN AND METHOD.....	27
5.3. SUMMARY AND INTERPRETATIONS OF THE FINDINGS.....	28
5.3.1. Demographic characteristics of cervical cancer patients.....	28
5.3.2. Contributory risk factors for cervical cancer.....	30
5.3.3. Risk factors for cervical cancer associated with demographics.....	32
5.4. CONCLUSIONS AND RECOMMENDATIONS.....	34
5.4.1. Recommendations.....	34
5.5. CONTRIBUTIONS OF THE STUDY.....	35

5.6. LIMITATIONS	35
5.7. CONCLUSION AND REMARKS	36
6. REFERENCES	38
7. APPENDIX A:	45
7.1. Structured questionnaire	45
7.2. Structured questionnaire (Sepedi translation)	48
7.3. Structured questionnaire (Tsonga translation)	51
7.4. Structured questionnaire (Venda translation)	54
8. APPENDIX B:	57
8.1. Consent form	57
8.2. Consent form (Sepedi translation)	58
8.3. Consent form (Tsonga translation)	59
8.4. Consent form (Venda translation)	61
9. APPENDIX C:	62
9.1. TREC Approval from University of Limpopo	62
9.2. Approval letters from Mankweng Hospital	63
APPENDIX D	64
10.1. Information Leaflet	64

LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ARV	Anti-Retroviral Drugs
CIN	Cervical Intraepithelial Neoplasm
DoH	Department of Health
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
HR-HPV	High Risk Human Papilloma Virus
HSIL	High-grade Squamous Intraepithelial Lesions
LSIL	Low-grade Squamous Intraepithelial Lesions
NHLS	National Health Laboratory Service
SES	Socioeconomic Status
STI	Sexually Transmitted Infection
TREC	Turfloop Research Ethics Committee

DEFINITION OF CONCEPTS

Cancer

State of overgrowth of tissue resulting from disorganised cell division (Makunyane, 2017). In the context of this study, cancer will be defined as above.

Cervical cancer

Type of cancer that occurs in the cells of the cervix (Makunyane, 2017). In the context of this study, cervical cancer will be defined as above.

Determinant

Range of behavioural, biological, socio-economic and environmental factors that influence the health status of individuals or populations (WHO, 1998). In this study, determinant is defined as behavioural, socio-economic and environmental factors that influence the health status of women with cervical cancer.

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1. INTRODUCTION

This first chapter gives a brief overview of the study. The background of the study, its research problem, purpose of the study, research methodology and layout of the research study in general are described.

1.2. BACKGROUND OF THE STUDY

Cervical cancer remains a major public health problem worldwide (De Sanjose, Wim, Alemany, Geraets, Klaustermeier et al., 2010; Arbyn, Castellsagué, de Sanjosé, Bruni, Saraiya et al., 2011). In 2012, 527,600 and 265,700 cervical cancer cases and deaths were reported worldwide, respectively (Ferlay, Soerjomataram, Ervik, Dikshit, Eser et al., 2015). Most (85%) of cervical cancer cases are found in developing countries, particularly in Sub-Saharan Africa (Vaccarella, Laversanne, Ferlay & Bray, 2017). In South Africa (SA), 5,743 women are diagnosed with cervical cancer every year and more than 3,000 die from the disease (Ferlay et al., 2015). These patterns are repeated in rural provinces, where approximately 84% of all black South African women are diagnosed with cancer (Mthembu, 2013).

There are various factors that contribute to cervical cancer and human papilloma virus (HPV) is one of those factors. HPV is a sexually transmitted infection (STI) and it is recognised as the main cause of cervical cancer (Bayoumi, Elbasuny, Nasser, Abdullah & Al Matery, 2012). However, HPV testing and vaccination has shown to reduce the incidence of cervical cancer (White, Mulambia, Sinkala, Mwanahamuntu, Parham et al., 2012). In addition, factors such as low socioeconomic status (SES), intercourse at a very early age, numerous childbirths, poverty and limited access to health care are risk factors for cervical cancer (Kour, Lal, Panjaliya, Doggra & Guptor, 2010; Kim, Kim, Lee, Seo, Park & Roh, 2012; Tao, Han, Li, Gao, Pan, Wu, Luo, Wang, Zheng & Guo, 2014; Makuza, Nsanzimana, Muhimpundu, Pace, Ntaganira & Riedel, 2015; Liu, Liu, Liu, Ye & Chen, 2015; Teame, Addissie, Ayele, Hirpa, Gebremariam, Gebreheat & Jemal, 2018).

Precancerous lesions can be detectable 10 years or more before cancer develops. However, it has been noted that many women in developing countries do not obtain screening, even when the healthcare services are near to the communities (Allemani, Weir, Carreira, Harewood, Spika et al., 2015). The Papanicolaou cytological testing (Pap smear) allows cervical lesions to be detected before they become cancerous, which effectively reduces the incidence of disease by 75-90% (Mutambara, Mutandwa, Mahapa, Chirasha, Nkiwane et al., 2017).

Many women only seek professional help once the malignancy is already at an advanced stage, resulting in a poor prognosis and increased mortality (Stewart, Moodley & Walter, 2018). Identification of the risk factors associated with cervical cancer play a key role in the prevention of the disease. To date, a number of studies have been conducted on the factors related to cervical cancer, however, in this rural tertiary hospital there is a lack of information on factors associated with cervical cancer.

1.3. PROBLEM STATEMENT

Cervical cancer is the second most common cancer in women worldwide, particularly in low- and middle-income countries (Allemani et al., 2015). In Mankweng hospital in the Limpopo Province, the number of new cases of cervical cancer are reported to increase annually. A total of 1,920 cervical cancer patients were seen at this clinic from January to December 2018 (Monthly Hospital Statistics), putting a strain in the healthcare system. Although screening and HPV vaccination for girls are the known cost-effective strategies for prevention of cervical cancer, women still die from cervical cancer, particularly in rural provinces of South Africa (Ferlay et al., 2015).

There are several risk factors, such as multiple sex partners, HPV exposure, multiparity, HIV exposure, smoking and a lack of knowledge and awareness, as well as low education, that increase the chance of women developing cervical cancer (Stewart et al., 2018; Mutambara et al., 2017). However, in this rural province of South Africa, the risk factors associated with cervical cancer are not documented. Therefore, this study aimed to investigate the determinants of cervical cancer at Mankweng hospital.

1.4. PURPOSE OF THE STUDY

1.4.1. Aim of the study

The aim of the study was to investigate the determinants of cervical cancer in patients seen in the gynaecology clinic at Mankweng hospital.

1.4.2. Objectives

- To describe the sociodemographic characteristics of cervical cancer patients seen in the gynaecology clinic at Mankweng hospital.
- To investigate the contributory risk factors for cervical cancer in patients seen in the gynaecology clinic at Mankweng hospital.
- To determine the association of risk factors for cervical cancer with the sociodemographic characteristics of the patients seen in the gynaecology clinic at Mankweng hospital.

1.5. RESEARCH QUESTION

What are the contributory risk factors for cervical cancer in patients seen in the gynaecology clinic at Mankweng hospital?

1.6. LITERATURE REVIEW

Literature relevant for profile of cervical cancer in patients seen in the gynaecology clinic at Mankweng hospital was reviewed and will be discussed fully in Chapter 2.

1.7. METHODOLOGY

1.7.1. Study Site

The study was conducted in Mankweng hospital, which is one of the tertiary referral academic hospitals in the Limpopo Province, South Africa.

1.7.2. Study Design

A quantitative, cross-section descriptive study was conducted.

1.7.3. Population and Sampling

All cervical cancer patients who consulted at the gynaecology outpatient clinic at Mankweng Hospital during the study period participated in this study.

1.7.4. Data Collection

Data was collected using a structured questionnaire (Appendix A). The questionnaire was developed based on the information obtained from previous studies on cervical cancer (Stewart et al., 2018).

1.7.5. Data Analysis

Data entering and analysis was done using Statistical Package for Social Sciences (SPSS, version 21).

1.8. ETHICAL CONSIDERATION

Ethical clearance was granted by Turfloop Research Ethics Committee (TREC) of the University of Limpopo. Permission to conduct this study was granted by the Mankweng hospital's research committee and the Limpopo Department of Health's research committee.

1.9. BIAS

Selection bias was minimised using a consecutive sampling technique by including all cervical cancer patients who were consulting at the gynaecology outpatient clinic at Mankweng hospital at the time that the study was undertaken; who gave their written informed consent to participate in the study; and, who were not too ill to participate in the study.

1.10. SIGNIFICANCE OF THE STUDY

The recommendations that will be made after the study is done may be utilised by the Limpopo Department of Health, and the Limpopo provincial hospitals and clinics to address issues related to cervical cancer and also to develop a strategy to decrease the incidence of cervical cancer. Preventative strategies to address the determinants of cervical cancer will be developed from the study findings and possibly piloted in rural areas of Limpopo Province with an aim to reduce the risk of acquiring cervical cancer.

1.11. CHAPTER OUTLINE FOR THE STUDY

In Chapter 1, the researcher presents an introduction to the study and background information on the concept of cervical cancer. In this chapter the researcher also covers the problem statement, the purpose of the study and an introduction to the methodology used.

In Chapter 2, the researcher reviews literature on cervical cancer

In Chapter 3, the researcher outlines the methodology used in the study in detail, including study setting, study design, population and sampling, as well as data collection and analysis.

In Chapter 4, the researcher reports the research findings and the analysis of the collected data. In this chapter, the researcher also discuss the interpretation of data.

In Chapter 5, the researcher presents the conclusion, summary, limitations and recommendations of the study.

1.12. CONCLUSION

In this chapter, the researcher discussed an overview of the study, starting with an introduction, followed by the problem statement, aim of the study, research question posed in the study, objective of the study and research methodology, up to bias. In the next chapter, the researcher will focus on a review of the literature in full to support the purpose of this study.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION OF THE LITERATURE REVIEW

This chapter focuses on the reviewed literature that serves as clarity and consolidation of the existing ideas. A literature review is an evaluative report on studies found that are related to the selected topic of research interest (Brink, Van der Walt & Van Rensburg, 2018). Literature review summaries, evaluates and clarifies the research question and stated research problem. The purpose of this literature review is to provide an overview of literature on the chosen topic of this enquiry, the incidence of cervical cancer in rural women. Other purposes of a literature review are to provide the context for the research; to justify the research; to show how the research fits into the existing body of knowledge; to enable the researcher to learn from previous theories on the subject; and, to help the researcher refine, refocus or even change the topic. The literature review was conducted by accessing and reviewing electronic databases and articles related to the topic of enquiry. In this chapter, the intention of the researcher is to define, determine and discuss a variety of concepts that are associated with cervical cancer.

2.1.1. What is cervical cancer?

Cancer is described as the state of overgrowth of tissue resulting from disorganised cell division. Cancer a disease that is preceded by several earlier cervical changes, especially at the squamocolumnar junction of the cervix. The pathology/abnormality of cervical cancer is described in terms of the cervical intraepithelial neoplasm (CIN) as the growth of an abnormal cell in the lining of the cervix, which is detectable by Pap smears, is not cancerous, but has the potential to progress to cancer if left untreated (Makunyane, 2017).

Cervical cancer is a long-term outcome of persistent infection with HPV, a sexually transmitted infection (STI) (Mthembu, 2013; Sankaranarayanan, 2015). Cervical cancer is caused by persistent infection of the cervix with high-risk HPV (HR-HPV) genotypes (Monsonogo, Cox, Behrens, Sandri, Franco, Yap & Huh, 2015). Cervical cancer is strictly associated with women's bodies since men do not have a cervix.

2.1.2. Global burden of cervical cancer

Globally, there were 14 million new cases of cancer and 8 million cancer-related deaths in 2012 (Denny & Prendiville, 2015). Gynaecological cancers are among the most common cancers in women, with cervical cancer being the predominant type (Ferlay et al., 2015). In 2008, 530,000 cases of cervical cancers were detected and 275,000 women died as a result (Arbyn, Castellsague, de Sanjose, Bruni, Saraiya, Bray & Ferlay, 2011), while in 2010, 585,278 cases and 327,899 cervical cancer deaths were reported (De Sanjose et al., 2010). A meta-analysis found that 528,000 cases and 266,000 cervical cancer deaths were reported worldwide in 2012 (Nwabichie, Rosliza & Suriani, 2017). Most (85%) of these cancer cases are found in developing countries (Vaccarella, Laversanne, Ferlay, & Bray, 2017).

Despite the HPV vaccination and screening programmes in UK, almost 3,000 women are diagnosed with, and 900 women die of, cervical cancer each year (Bowyer, Dodd, Marlow & Waller, 2014). In Thailand, the incidence of cervical cancer increased from 18.8% in 1999 to 24.7% in 2002 (Visanuyothina, Chompikula & Mongkolchati, 2015).

2.1.3. Cervical cancer in Africa

Africa has a population of approximately 267.9 million women aged 15 years and older who are at risk of developing cervical cancer. Approximately 80,000 women are diagnosed with cervical cancer each year, and a little more than 60,000 women die from the disease (Denny & Anorlu, 2012). Cervical cancer is the most common cancer among women in sub-Saharan Africa (Anorlu, 2008) and the incidence of cervical cancer is approximately one-quarter of the total burden female cancers (Nelson, Kim, Wilson, Soliman, Ngoma, Kahesa & Mwaiselage, 2016). In Sub-Saharan Africa, more than half (62%) of women diagnosed with cervical cancer die (Denny & Prendiville, 2015).

The incidence of cervical cancer is increasing in some African countries (Anorlu, 2008); however, the incidence varies considerably by region, with highest incidence rates found in Eastern, Western and Southern Africa (Ferlay, Shin, Bray, Forman, Mathers & Parkin.,

2010; Denny & Prendiville, 2015). There are various risk factors that contribute to the high incidence of cervical cancer in Sub-Saharan Africa. The most common risk factors include a lack of diagnostic and treatment facilities, limited doctors, a lack of healthcare infrastructure and poor pathology services (Denny & Anorlu., 2012; Nelson et al., 2016).

2.1.4. Cervical cancer in South Africa

In South Africa, cervical cancer is the 3rd leading cause of death among women (Francisa, Nelson, Liverpool, Soogun, Mofammere & Thorpe, 2010). Richter and co-workers found that approximately 6,000 new cervical cancer cases are diagnosed annually (Richter, Becker, Horton & Dreyer, 2013). Moreover, it is estimated that 1 in every 29 South African women may develop cervical cancer in their lifetime (Hoque & Kader, 2008), and it has been shown that cervical cancer deaths outnumbered maternal deaths in 2000 (Hoque & Kader, 2008; Hoque, 2010).

During the years 2006 to 2016, all primary healthcare clinics in South Africa had health professionals trained to conduct Pap smears, yet the screening rate was only 1.3% (Van Schalkwyk, Maree & Wright, 2008). Although cervical cancer can be screened for free, with regular Pap smear tests at public health facilities (Francisa et al., 2010), accurate data on the incidence of cervical cancer and the impact of sporadic screening or current screening activity in South Africa are lacking (Denny, 2010; Richter et al., 2013).

In a rural area of the Eastern Cape Province in South Africa, cervical cancer was the most common cancer among women, reported with an age-standardised rate (ASR) of 21.7 per 100,000, which is about 3 times higher than that of breast cancer (Somdyala, Bradshaw, Gelderblom & Parkin, 2010). In Groote Schuur Hospital, Cape Town, approximately 200 new cases of cervical cancer are diagnosed and treated per year. Cure rates are low because approximately 75-80% of women present with advanced disease (Denny, 2008).

Access to preventative screening measures may be nearly non-existent in resource-poor settings with limited public health infrastructure and where women may lack basic health

education (Francisa et al., 2010). In 2011, the Western Cape had the highest cervical cancer-screening rate, with 23.1% of all eligible females having had a Pap smear, versus only 13.1% of females in the Northern Cape. The screening rate for cervical cancer in the Western Cape was 1.03 times higher than that in Gauteng, while the screening rate was 0.55 times lower in Limpopo than in Gauteng (Adonis, An, Luiz, Mehrotra, Patel, Basu & Sturm, 2013). Therefore, it is important to understand women's attitudes towards, and knowledge and beliefs about, HPV, cervical cancer and Pap smears, and to assess their access to preventive screening, in order to determine their risk for developing the cervical cancer (Francisa et al., 2010).

There is a lack of data on the incidence of cervical cancer in Limpopo; however, estimates of cervical cancer deaths were 5.6% in 2000 (Bradshaw, Nannan, Laubscher, Groenewald & Joubert, 2000). In Limpopo, women lack of knowledge about cervical cancer prevention, which remains a main concern (Ramathuba, Ngambi, Khoza & Ramakuela, 2016).

2.1.5. Determinants of cervical cancer

Several epidemiological studies have shown HPV as a common sexually transmitted infection and an important risk factor for cervical cancer (Bruni, Diaz, Castellsagué, Ferrer, Bosch & de Sanjosé, 2010; Poljak, Seme, Mave, Kocjan, Cuschieri, Rogovskaya, Arbyn & Syrjänen, 2013; Rogovskaya, Shabalova, Mikheeva, Minkina, Podzolkova, Shipulina, Sultanov, Kosenko, Brotons, Buttman, Dartell, Arbyn, Syrjänen & Poljak, 2013). Despite the advent of ART, HIV-infected women are at a higher risk for developing cervical neoplasia (Sankaranarayanan, 2015).

HPV 16 and 18 are the commonly detected high risk HPV genotypes in all categories of HPV (Verhoef, Heideman, van Kemenade, Rozendaal, Bosgraaf, Hesselink, Bekkers, Massuger, Steenbergen, Snijders, Berkhof & Meijer, 2014; Agorastos, Chatzistamatiou, Zafrakas, Siamanta, Katsamagkas, Constantinidis, Lampropoulos & Lysistrata study group, 2014). Interestingly, vaccination against HPV has shown to reduce the burden of cervical cancer; however, vaccine coverage varies across regions (Herrero, González &

Markowitz, 2015) as a result of sociocultural, health and political factors in developing countries (Wigle, Coast & Watson-Jones, 2013).

In Beijing, China, women aged 46–55 years, with a lower education level, reporting bleeding after intercourse, and affected by *Trichomonas vaginalis* infection, cervical inflammation and genital warts, are at higher risk for high-grade squamous intraepithelial lesions (Tao et al., 2014). The University of Jamma in India conducted a study among 120 women and found high parity and early marriage as predominant factors associated with cervical cancer (Kour, Lal, Panjaliya, Doggra & Guptor, 2010).

A hospital-based unmatched case-control study in 6 selected health facilities in Addis Ababa, Ethiopia revealed that older age, history of multiple sexual partners and sexually transmitted infections were associated with increased risk of cervical cancer (Teame et al., 2018). Another study in Ethiopia found multiple sexual partnerships, early ages of first sexual contact, parity greater than three and long term oral contraceptive pills use were significant predictors of cervical cancer (Getinet, Gelaw, Sisay, Mahmoud & Assefa, 2015). A meta-analysis of epidemiological studies found that having multiple sexual partners, with or without HPV infection, is a risk factor of cervical cancer (Liu, Liu, Liu, Ye, & Chen, 2015). Kim and co-authors found that smoking and high parity were associated with cervical cancer (Kim, Kim, Lee, Seo, Park, & Roh, 2012).

A descriptive cross-sectional study in 3 districts of Rwanda found that younger age, earlier age of the first pregnancy, early sexual debut and higher number of children born were all risk factors for cervical cancer (Makuza et al., 2015). Sharma & Pattanshetty (2017) showed that marital status, history of alcohol use, <18 years of age at first coitus, age at menarche and parity of >3 as risk factors of cervical cancer. Pap smear has been shown as the mainstay of cervical cancer prevention (Denny & Prendiville, 2015); however, women with less education and low socioeconomic status are less likely to be screened (Bowyer et al., 2014).

2.2. CONCLUSION

In this chapter, the researcher discussed a review of the literature and its purpose. The manner in which the literature review was conducted was also explained and followed the postgraduate research manual of the university. The researcher dealt with an introduction to literature review and an overview of the literature. The overview included the following subheadings: what is cervical cancer, global burden of cervical cancer, cervical cancer in Africa, cervical cancer in South Africa and the determinants of cervical cancer. In the next chapter, the researcher will focus on the research methodology employed in this study.

CHAPTER 3: METHODOLOGY

3.1. INTRODUCTION TO METHODOLOGY

The purpose of this chapter is to discuss the research methodology employed in this study, which includes the study site, where the research undertaken, and all the research methods which were used to conduct the research. In this chapter, the researcher also discusses the way in which data was collected and analysed, as well as the ethical considerations.

3.1.1. Study settings

The study was conducted at Mankweng referral hospital in the Limpopo Province, South Africa. The hospital receives referrals from Kgapane hospital, Dilokong hospital, Tshilidzini hospital, Maphutha-Malatji hospital, Lethaba hospital and other hospitals across the province. The hospital is a tertiary referral academic hospital, attached to the University of Limpopo. The hospital is situated 30 km from the city of Polokwane in Capricorn District, Limpopo Province. The hospital is divided into 13 wards/units, with an outpatient gynaecology clinic located in the obstetrics and gynaecology department. A total of 1 920 cervical cancer patients were seen in this clinic between January and December 2018.

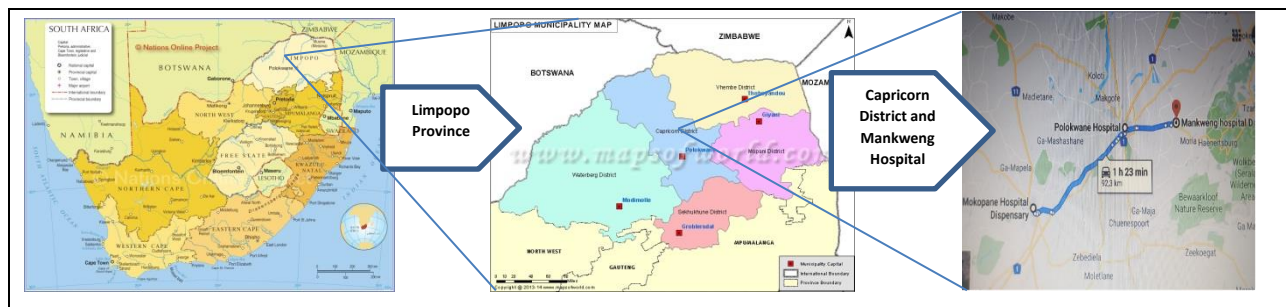


Figure 1 Maps of South Africa and the Limpopo Province showing the roads to Mankweng Hospital in the Greater Polokwane Municipality located in the Capricorn District.

3.1.2. Study design

Research design is set of logical steps taken by the researcher to answer the research question, and forms the blueprint of the study to determine the methodology used by the researcher to obtain information and to interpret the results (Brink et al., 2018). In simple

terms, research design is defined as the overall plan for addressing a research question, including specifications for enhancing the study's integrity (Polit & Beck, 2012). A cross-section descriptive study was conducted in the gynaecology outpatient clinic at Mankweng hospital for a period of 3 months (January – March 2019). This study collected data on participants at one point in time (Brink, Van der Walt & Van Rensburg, 2012).

3.1.3. Study population

Population is a complete set of persons who possess some common characteristics that are of interest to the researcher (Brink et al., 2012). In this study, the population was all cervical cancer patients consulting at the gynaecology outpatient clinic at the Mankweng hospital during the study period, about 200 patients over three months.

3.1.4. Sampling techniques and sample size

Sample is the subset of a population that is selected to represent the whole population (Brink et al., 2012). Cervical cancer patients consulting at the gynaecology outpatient clinic at Mankweng Hospital during the study period, who signed consent and freely agreed to participate in the study formed the study population. A consecutive sample of cervical cancer patients consulting at the gynaecology outpatient clinic at Mankweng hospital during the study period were asked to participate in this study. Consecutive sampling is a technique in which every subject meeting the inclusive criteria is selected until sample size is achieved (Brink et al., 2012). A minimum sample size of 113 was required for the study, which was calculated based on 5% sampling error, 95% confidence interval and an 8% prevalence of cervical cancer in the Limpopo Province (Mamahodi, Kuonza & Candy, 2013).

The sample size was calculated using the formula below:

$$n = \frac{Z^2 p(1-p)}{(e)^2}$$

Where:

n – Sample size

Z – 95% confidence interval

p – Prevalence of cervical cancer

e – Sampling error

3.1.5. Inclusive criteria

All cervical cancer patients who gave their written consent were recruited to participate in the study. These individuals formed part of the study because they answered all the research questions on the structured questionnaire.

3.1.6. Exclusive criteria

All patients who were too ill, who were without cervical cancer or who had not consented to participate in the study were exempted. These individuals were excluded from the study because they were most likely to provide inaccurate information.

3.1.7. Data collection

Data collection is the gathering of information needed to address a research problem (Pilot & Beck., 2012; Brink et al., 2018). Data were collected using a structured questionnaire (Appendix A). The questionnaire was developed based on the information obtained from previous studies on cervical cancer (Stewart et al., 2018). The questionnaire collected the following information: age, parity, occupational status, type of family planning/contraceptives, referral hospital, residential address, marital status, stage of cervical cancer, diagnoses, pap smear and HIV status. The questionnaire was translated from English into the Tsonga, Venda and Sepedi languages.

3.1.8. Data Analysis

Data analysis is the systematic organisation and synthesis of data. It entails categorising, ordering, manipulating and summarising the data (Brink et al., 2012). Data entering and analysis was done using Statistical Package for Social Sciences (SPSS, version 21). Data presentation was done using frequencies and percentages. Statistical analysis was done on the determinants of cervical cancer and on sociodemographic data. For group comparison, a Chi-square test and a student t-test were used for categorical and

continuous data, respectively. A p-value of less than 0.05 was considered statistically significant.

3.2. RELIABILITY AND VALIDITY

Validity refers to the extent to which a measurement instrument actually measures what it is meant to measure. The instrument must actually measure the concept in question and that the concept must be measured accurately. On the other hand, reliability is the degree of consistency with which an instrument measures the attributes it is supposed to be measuring. Reliability of the instrument can be equated to the stability, consistency and dependability of a measuring tool (Pilot & Beck., 2012; Brink et al., 2018). A pilot study was conducted at Pietersburg hospital to test the semi-structured questionnaire before data collection in the main study began. The pilot study helped to determine whether the semi-structured questionnaire was suitable for the study. The pilot study helped to restructure the semi-structured questionnaire, where necessary.

3.3. ETHICAL CONSIDERATION RELATED TO DATA COLLECTION

The proposal for this study was presented at the Department of Public Health Research Committee and then submitted to the School of Healthcare Sciences Research Committee (SREC) and the Faculty Higher Degree Committee (FHDC) for further reviews. Ethical approval was granted from Turfloop Research Ethics Committee (TREC) of the University of Limpopo. Permission to conduct this study was granted by Mankweng hospital's research committee and Limpopo Department of Health's research committee.

3.3.1. Autonomy

Autonomy implies that participants have a right to decide either to participate or not to participate in this study, without penalty (Brink et al., 2012). The participants had the right to withdraw from the study at any time and also the right to refuse to give any information without fear that they might not receive treatment from the doctor regarding their cervical cancer condition.

3.3.2. Informed consent

The participants were protected from harm by signing a written informed consent. The patients were asked to complete a consent form (Appendix B) before participating in the study.

3.3.3. Confidentiality

The participants had the right to decide to what extent their information should be kept confidential and anonymous (Brink et al., 2012). The patient's name and file number were not included in the study to maintain the privacy and confidentiality of the patients.

3.3.4. Protecting anonymity and confidentiality

According to Brink et al. (2012), confidentiality and anonymity are concerned with respect for and protection of research participants. The information collected for this study was kept confidential. The researcher ensured that any identifying details of patients were not documented anywhere during the data collection process. The data collection tool required no names; numbers were assigned to the data collection tool to identify and differentiate between individual participants. Completed data collection tools were kept by the researcher in a lockable cabinet.

3.4. CONCLUSION

In this chapter, the researcher discussed the research methodology in detail. This included a discussion on the research method used, the study site where the study took place, the design of the study, the population that participated in the study and the sampling techniques used. The researcher further discussed how a pilot study was used to test and restructure the data collection tool; as well as data collection and analysis, which will be explained further in Chapter 4. Ethical considerations were also dealt with in this chapter.

CHAPTER 4: RESULTS

PRESENTATION AND INTERPRETATION OF THE FINDINGS

4.1 Introduction

In the previous chapter, the study design, setting, population, inclusion and exclusion criteria, sampling techniques and sample size, data collection and data analysis were discussed. In this chapter, the results of the study are presented and interpreted.

The objectives of this study were:

- To describe the sociodemographic characteristics of cervical cancer patients seen in the gynaecology clinic at Mankweng hospital.
- To investigate the contributory risk factors for cervical cancer in patients seen in the gynaecology clinic at Mankweng hospital.
- To determine the association of risk factors for cervical cancer with the sociodemographic characteristics of the patients seen in the gynaecology clinic at Mankweng hospital.

4.2 Demographic characteristics of cervical cancer patients

A total of 113 women participated in this study. The mean age of the participants was 57.2 ± 13.1 years, ranging from 28 to 83 years old. Figure 4.1 illustrates in detail the distribution of the age of the participants. Slightly more than two-thirds (69%) of the participants were in the age group 50 years and older and only one third (31%) were <50 years.

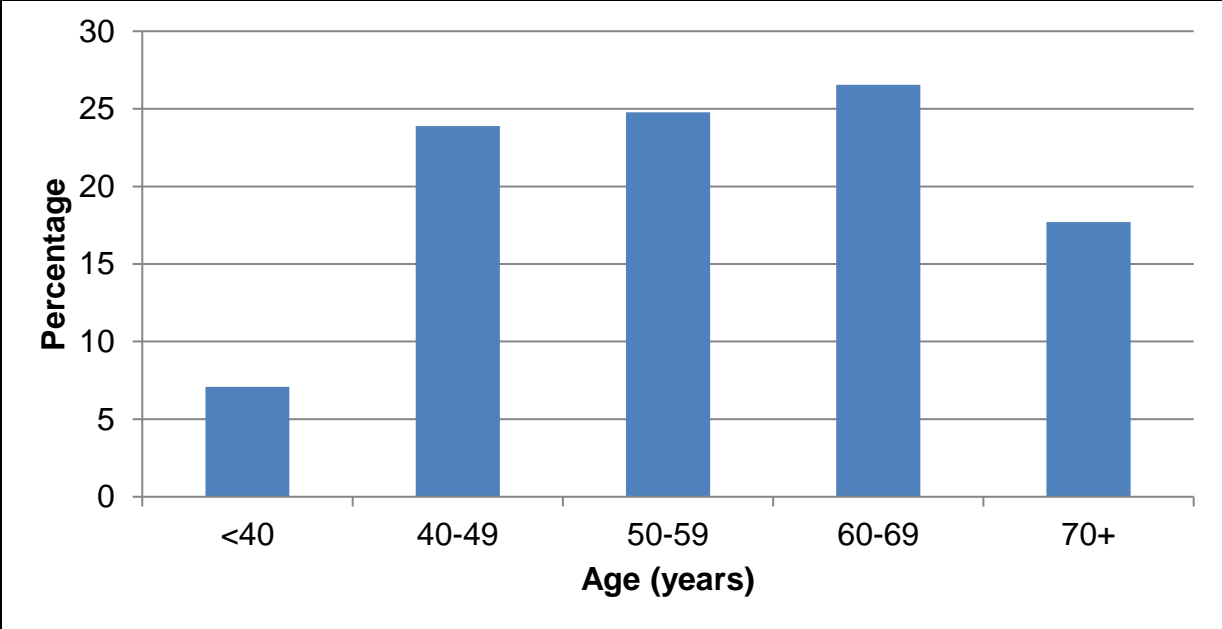


Figure 4.1: Age distribution of the participants

Figure 4.2 presents the marital status of the participants. Thirty-seven percent of the women were single, 27% were married, 27% widowed and only 9% were divorced.

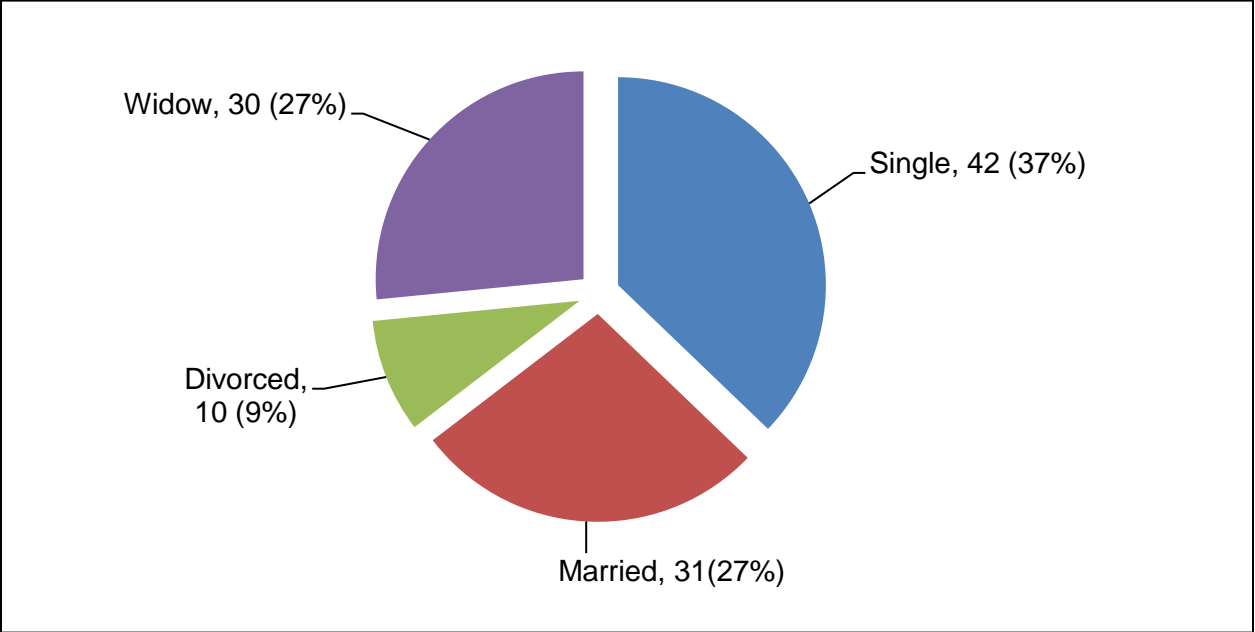


Figure 4.2: Distribution of marital status of the participants

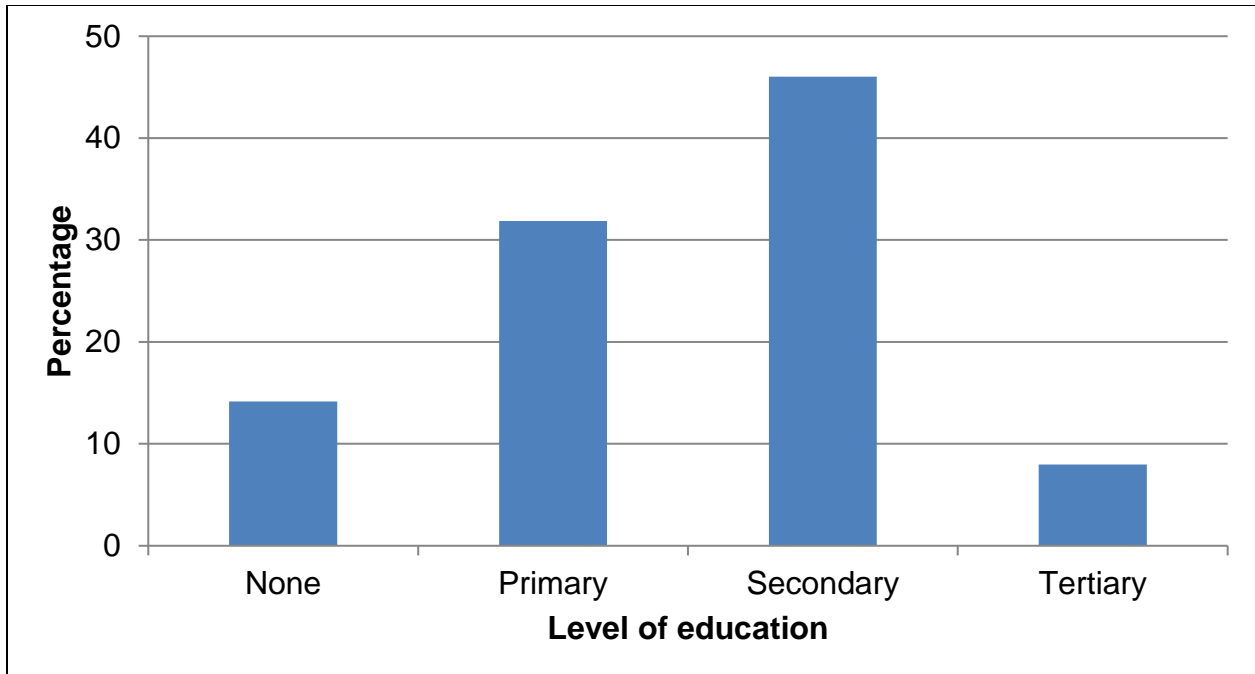


Figure 4.3: Distribution of level of education for the study participants

Nearly half (46%) of the participants had secondary education, while only 8% had tertiary education (Figure 4.3). The majority (91%) of the women were unemployed and only 9% were employed. The majority (40%) of the women were at stage II cervical cancer (Figure 4.4).

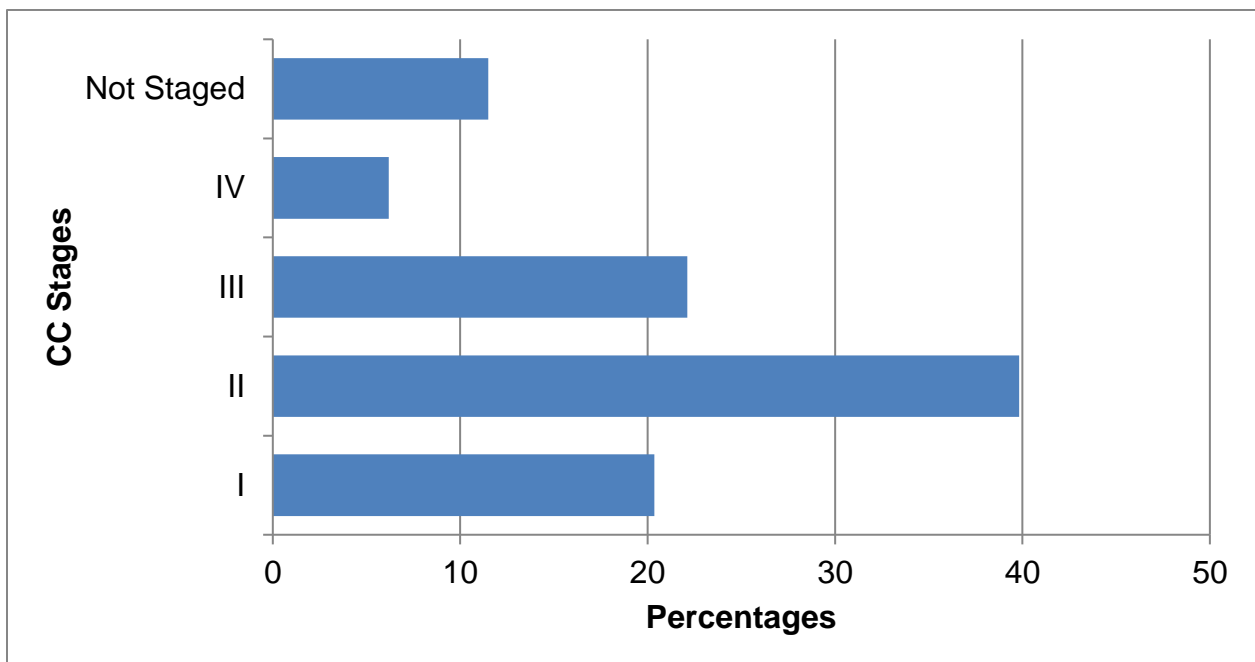


Figure 4.4: Distribution of cervical cancer stages

Table 1: The cervical cancer staging amongst participants stratified by age

Cervical cancer patients							p-value
Age in years n (%)	< 40 9 (8%)	40 – 49 27 (24%)	50 – 59 27 (24%)	60 – 69 30 (27%)	≥ 70 20 (18%)	Total 113 (100%)	
CC stages	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	0.421
Not staged	0 (0%)	3 (11%)	4 (15%)	4 (13%)	2 (10%)	13 (12%)	
I	4 (44%)	8 (30%)	1 (4%)	7 (23%)	3 (12%)	23 (20%)	
II	1 (11%)	11 (41%)	12 (44%)	10 (33%)	10 (50%)	44 (39%)	
III	3 (33%)	3 (11%)	8 (30%)	7 (23%)	5 (25%)	26 (23%)	
IV	1 (11%)	2 (7%)	2 (7%)	2 (7%)	0 (0%)	7 (6%)	

The cervical cancer staging of participants stratified by age did not show any statistically significant difference. In age group <40 years, cervical cancer stage I occurred in 44% of the participants, stage II and IV in 11% and stage III in 33% of the participants. In age group 40-49 years, cervical cancer stage I occurred in 30% of the participants, stage II in 41%, stage III in 11% and stage IV in 7% of the participants. In age group 50-59 years, cervical cancer stage I occurred in 4% of the participants, stage II in 44%, stage III in 30% and stage IV in 7% of the participants. In age group 60-69 years, cervical cancer stage I and stage III occurred in 23% of the participants, stage II in 33%, and stage IV in 7% of the participants. In age group 70 years and above, cervical cancer stage I occurred in 12% of the participants, stage II in 50%, and stage III in 25% of the participants. No participants in the 70 years and above age group presented with stage IV cervical cancer.

4.3 Contributory risk factors for cervical cancer

Nearly two-thirds (62%) of the participants had had multiple partners (Figure 4.5); however, 94% said that they currently did not have multiple partners (data no shown).

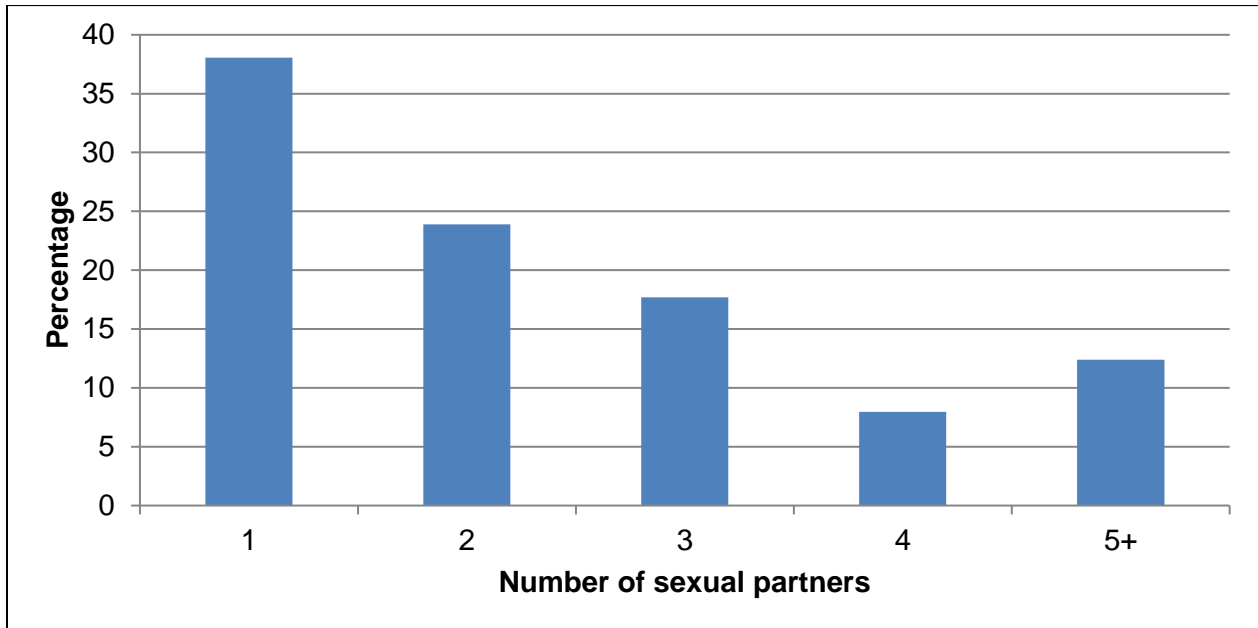


Figure 4.5: Number of sexual partners use to have

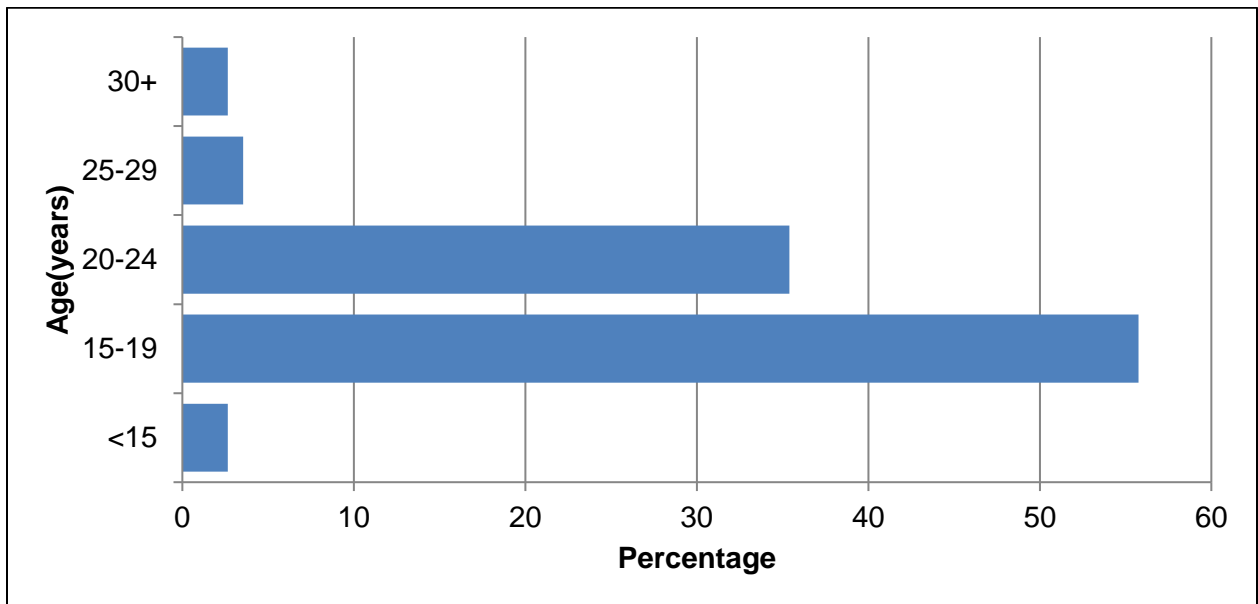


Figure 4.6: Distribution of age at first sexual intercourse

The average age at first sexual intercourse of the participants was 19.2 ± 3.6 years, ranging from 12 to 37 years of age. The distribution of age at first sexual intercourse is shown in Figure 4.6. Slightly more than half (56%) of the participants said they started to have sexual intercourse between the ages of 15 and 19 years, followed by 35% who started to have sexual intercourse between the ages of 20 and 24 years. Forty five percent of the women were HIV positive. Of these, nearly all of them, 98%, were on highly active antiretroviral therapy (HAART). The number of years on HAART is shown in Figure 4.7.

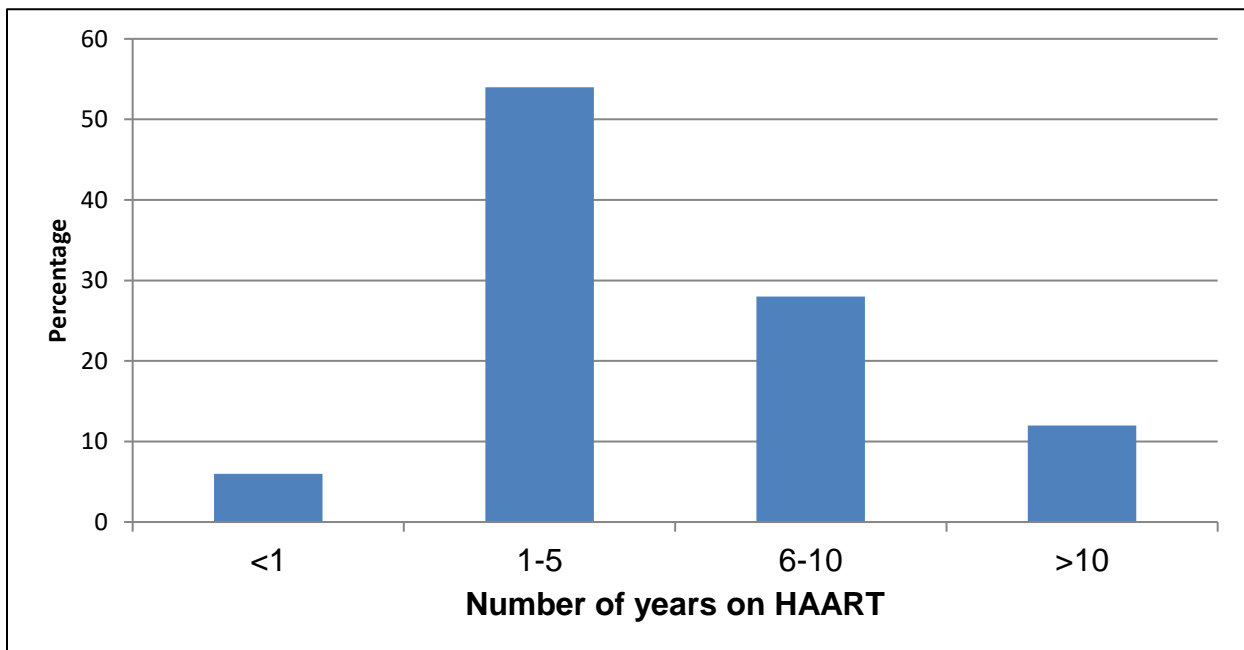


Figure 4.7: Distribution of number of years on HAART

Nearly two-thirds (64%) of the participants had heard about Pap smears before their current diagnosis of cervical cancer, while 62% had done a Pap smear before receiving the current results. A few participants smoked cigarette (2%) and used contraceptives (3%). Figure 4.8 presents the parity of the participants.

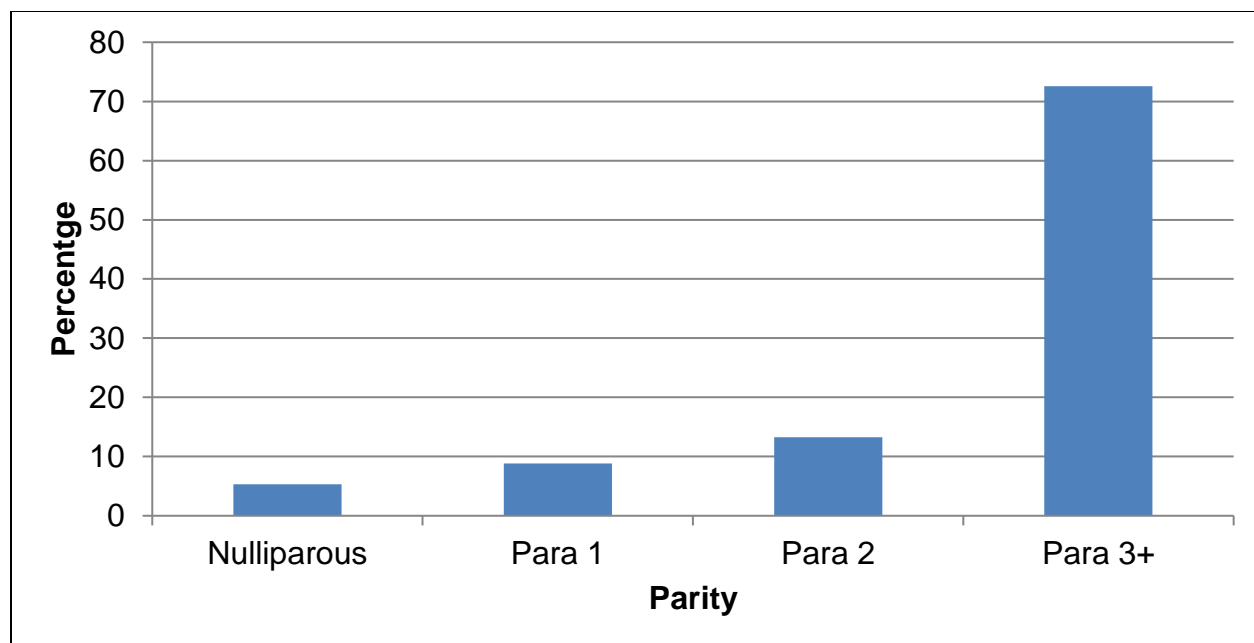


Figure 4.8: Distribution of parity

4.4 Risk factors for cervical cancer associated with demographics

The association between risk factors for cervical cancer and demographics is illustrated in Table 4.9. There was a significant relationship between age, marital status and level of education and the participants HIV status ($p < 0.05$). The young age group, single, divorced, with secondary and tertiary education were more likely to be HIV positive.

Similarly, parity was significantly associated with age, marital status, level of education ($p < 0.05$). The results of this study revealed that the elderly, divorced, widowed and less educated were more likely to have high parity.

Again, there was statistically significant relationship between age, marital status and level of education and having multiple partners ($p < 0.05$). The young women, single, divorced, with tertiary education were more likely to have multiple partners. There was no statistically significant difference between level of education and marital status and age at first sexual intercourse ($p > 0.05$).

Table 4.9: Association between risk factors for cervical cancer and demographics

	HIV Status		p-value	Parity				p-value	Multiple partners				p-value
	+ve	-ve		Nulliparous	Para 1	Para 2	Para 3+		1	2	3	4+	
Age (mean±sd)	48.9±9.6	63.7±11.8	<0.001	48.3±9.5	54.4±18.6	45.8±7.9	60.2±11.9	<0.001	63.5±12.8	56.9±10.3	54.4±12.9	48.4±11.2	<0.001
Marital status													
Single	29(69)	13(31)	<0.001	5(12)	6(14)	11(26)	20(48)	<0.001	9(21)	8(19)	11(26)	14(33)	0.015
Married	9(30)	21(70)		0(0)	2(7)	3(10)	26(84)		14(45)	10(32)	3(10)	4(12)	
Divorced	7(70)	3(30)		0(0)	0(0)	1(10)	9(90)		2(20)	3(30)	2(20)	3(30)	
Widow	6(20)	24(60)		1(3)	2(7)	0(0)	27(90)		18(60)	6(20)	4(13)	2(7)	
Education level													
None	3(19)	13(81)	<0.001	1(6)	3(19)	0(0)	12(75)	0.019	11(69)	3(18)	2(12)	0(0)	<0.001
Primary	11(31)	24(69)		0(0)	1(3)	3(8)	32(89)		20(55)	8(22)	7(19)	1(3)	
Secondary	31(60)	21(40)		4(8)	6(12)	8(15)	34(65)		11(21)	15(29)	9(17)	17(33)	
Tertiary	6(67)	3(33)		1(11)	0(0)	4(44)	4(44)		1(11)	1(11)	2(22)	5(56)	

Table 4.9: Continued

	Age at first sexual intercourse	p-value	Have heard about pap smear		p-value
	mean±sd		Yes	-No	
Marital status					
Single	19.0±4.4	0.4439	31(74)	11(26)	0.054
Married	19.8±3.1		21(68)	10(32)	
Divorced	17.8±4.2		7(70)	3(30)	
Widow	19.5±2.6		13(43)	17(57)	
Education level					
None	19.41.3	0.0936	6(38)	10(62)	0.003
Primary	20.43.7		19(53)	17(47)	
Secondary	18.63.8		38(73)	14(27)	
Tertiary	18.03.9		9(100)	0(0)	

4.5 Conclusion

In this chapter, the results of the study were presented and interpreted. In the next chapter, the findings of this study are discussed and compared to the literature.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

5.1. INTRODUCTION

In this chapter, the researcher reflects on the research question and objectives of the study, as stated in Chapter 1, in relation to the literature review in Chapter 3 and research findings presented in Chapter 4. The researcher also discusses the recommendations flowing from the data collected and analysed and provides conclusions to the research study.

5.2. RESEARCH DESIGN AND METHOD

A total of 113 women from across Limpopo Province participated in this quantitative cross-sectional study. The purpose of the study was to investigate the profile of cervical cancer in patients seen in the gynaecology clinic at Mankweng hospital. The researcher discusses the significance of the findings, provides a detailed discussion on the study limitations and provides recommendations for future studies. The concept of profile of cervical cancer was explored in the literature. In their study, Sharma & Pattanshetty (2017) presented that marital status, history of alcohol use, less than 18 years of age at first coitus, age at menarche and parity of more than three as risk factors of cervical cancer. A study done by Adeyemi (2013) also determined that vulnerable women may have poorer access to health care, receive poorer health care, may not have the resources to take care of their health adequately or utilise health care services to protect or improve their reproductive health.

In the current study, nearly 64% of the participants had heard about Pap smears before their current diagnosis and 62% had had a Pap smear before the current results. These findings oppose the findings of other researchers who found low cervical cancer screening rates among women (Adeyemi, 2013). The high cervical cancer screening rates among the study population indicate that, while screening services are available, women from the Limpopo Province may not be using preventive health care services and may, therefore, be at high risk to develop invasive cervical cancer in the later stages of life. The factors that affect health care utilisation among women include predisposing factors such as age, education, employment status and income. Demographic factors that influence an individual's need for health services include cervical screening. In this study, the researcher examined the association of the

dependent variable of cervical cancer screening with the independent variables of employment status, education level, age group and health status (Worthington, McLeish and Fuller-Thomson, 2012).

The analysis of the data using the chi-square testing revealed that there was a statistically significant relationship between age, marital status, level of education and having multiple partners. Young women, single or divorced, with tertiary education were more likely to have multiple partners, which predisposes them to cervical cancer. Age and education were significantly associated with the number of sex partners and cervical cancer screening (Waller, Jackowska, Marlow & Wardle, 2012). Furthermore, this study established no statistical significance between level of education, marital status and age at first sexual intercourse. Education level, financial status, language of interview and health status were not significantly associated with the receipt of cervical cancer screening.

5.3. SUMMARY AND INTERPRETATIONS OF THE FINDINGS

5.3.1. Demographic characteristics of cervical cancer patients

While there have been increased efforts to make cervical cancer screening available to women, the findings of this study suggest that women continue to experience barriers to receiving the cervical screening. Efforts must be made to overcome these barriers. The findings of this study should be interpreted by taking into account the demographic characteristics of participants. Factors such as age and level of education can predict the extent to which those identified as vulnerable use preventive health services. Other studies have found that age was a significant determinant for receipt of screening services for cervical cancer (Han, Kim, Lee, Hedlin, Song, Song & Kim, 2011).

In this study, participants were grouped into five age categories as follows: less than 40 years, 40–49 years, 50–59 years, 60–69 years and then 70 years or more. The 9 years range within the three groups may make a difference to an individual's health and sociodemographic characteristics. The age of participants in this study ranged from 28 to 83 years. Slightly more than 69% of the participants were 50 years of age and older, while only 31% of the participants were less than 50 years old. According

to Kaverappa, Prakash, Kulkarni and Renuka (2015), the majority (46.1%) of the patients with cervical cancer were in the age group of 50-64 years. This may affect health choices, including receipt of cervical cancer screening. The researcher was not able to show any significant consistency in the cervical screening among 113 participants. Sociodemographic characteristics of the women who were sampled for the analyses in this study were aged from 28 to 83 years. The sample comprised mainly middle-aged women. Nearly half (46%) of the participants had secondary education and only 8% had tertiary education.

The majority (91%) of the women participants were unemployed, while only 9% were employed. This factor could not have hindered women from accessing health services for screening since the services are provided free of charge.. This high unemployment rate is cause for concern and reflects a challenge the country faces in reaching the millennium target of achieving permanent and decent work for all, including women. This situation could hinder women from accessing health care services, especially where women are required to pay transport costs to get to a clinic. In a study done in the rural areas of Kwa Zulu Natal by Ndlovu (2011), the employment rate was also very low, with only 26% of women being employed. This could negatively impact on access to cervical screening services (Ndlovu, 2011).

The findings from the analysis of the data obtained in the current study support the findings from one of the studies done by Adeyemi (2013), which revealed that age was associated with the receipt of cervical cancer screening. In this study, the researcher found that 64% of the participants had heard about Pap smears before their current diagnosis and 62% had had a PAP smear before the current results. In the study by Waller et al. (2012), younger women aged 18 to 44 were less likely than older women aged 45- 60 to have ever had a Pap smear. The findings from this study imply that age is important when developing interventions to increase Pap smear testing. The odds of getting cervical cancer were greater in single women compared to married women. Studies conducted elsewhere have shown a significant difference between cervical screening and marriage, with married women more likely than single women to screen for cervical cancer (Han et al., 2011). Ndlovu (2011) also reported that married women had a higher recognition of cervical cancer risk factors than unmarried women. In a study conducted by Afroj, Banu, Sultana, Jahan, Rahman and Begum

(2017), 74.6% of the respondents were married, whereas 19.4% and 3% were widowed or divorced, respectively, however, the authors did not find any unmarried patients, unlike in this study, where there were single participants.

5.3.2. Contributory risk factors for cervical cancer

The study revealed that nearly 64% of the participants had heard about PAP smears before their current diagnosis and 62% of the participants had had a PAP smear before the current results. This indicate that most of the participants had engaged in cervical cancer screening during the study period but this was still not enough to prevent cervical cancer. One of the studies done on cervical cancer in Rio de Janeiro by Teixeira indicated that Pap smears were done on an average of less than 70% of the population. This rate is low, given that studies done by the World Health Organization emphasise the need for screening to cover around 80% of a vulnerable population (WHO, 2012; Teixeira, 2015). As the literature has revealed, women who do not receive cervical cancer screening are at a greater risk of developing cervical cancer than women who engage in cervical cancer screening (Adeyemi, 2013). As said previously, unemployment could negatively impact on access to health care services, especially where women are required to pay transport costs. Contrary to expectations, it was discouraging to note that so few women (3%) were using contraceptives. A goal to achieve universal access to reproductive health is needed, given the low prevalence of contraceptive use in this rural population.

Efforts should be made to target the women in the older age group and in the younger age groups when developing interventions to improve cervical cancer screening. Resources must be provided to increase Pap smear access by all age groups, but specifically by the groups identified in this study as less likely to screen for cervical cancer. There is the need to develop age-appropriate messages that will target different age groups to increase their adherence to the utilisation of preventive health services. In the current study, women in the younger age may think that they are less vulnerable to adverse health conditions because they are usually in good health, while women in the older age group may think that they no longer need preventive services since they have passed childbearing age. Younger women were more likely to hold the opinion that they do not need to utilise screening services because they do not believe that they are at risk of contracting cervical cancer and they think that their

health is not a priority. In the same manner, one of the published studies in the literature indicated that older women, above the age of 50 years, may not worry about cervical cancer (Waller et al., 2012). Women who do not have a cervical cancer screening history were more likely to be diagnosed with cervical cancer than those who screened regularly for cervical cancer (WHO, 2012).

Early screening services mostly focus on family planning and women using antenatal services in a public healthcare facility (Ndlovu, 2011; WHO, 2012). Even when fewer participants (3%) in the sample reported using family planning, and 64% of the participants had heard about Pap smear, while 62% of the participants had had a Pap smear, one would expect that a greater proportion of women would have been reached with educational information about cervical cancer screening and reproductive health at some stage. Even though evidence from other research studies indicates that hearing about cervical screening does not always translate into greater usage of the screening service (Waller et al., 2012; Worthington et al., 2012). There should be a considerable number of packaging messages aimed at the target population, coupled with re-enforcement of these messages. The focus should be on getting all women to receive comprehensive health services, including screening for cervical cancer. This study recruited women who were already utilising health care services; therefore, one would expect the utilisation of cervical screening services to be higher than the results indicate.

The literature reports that HPV is a significant risk factor for cervical cancer (Poljak et al., 2013). The same assumption may apply to ignorance about whether cervical cancer can be prevented or not. This study showed that women knew that cervical cancer could be prevented through early screening and management. Most women (64%) had heard about Pap smears and 62% had had a PAP smear. This should form a basis for motivating women to screen for cervical cancer. There is need to scale up health education on cervical screening services and access to such services, in order to bring about a reduction in the incidence of cervical cancer. The findings from the present study demonstrated that less than one-third of participants had attended a clinic for cervical screening. The findings of the present study indicated that most of participants who had attended for cervical screening, did so before the current diagnosis. Conversely, the findings from the present study show that approximately

only one-third of the participants were sexually active before age 25 and one-third of participants had attended a clinic for screening. The present study also indicated that few participants smoked cigarettes (2%) and the possibility that there is no association between smoking and cervical cancer or cervical cancer screening attendance.

The present study demonstrated that sufficient knowledge of cervical screening was statistically associated with cervical screening attendance, since 62% of the participants had had a Pap smear before their current diagnosis. One of the studies done by Cann (2018) supports the above finding and indicates that some participants may have attended a clinic for cervical cancer screening in the belief that it was an STI test, or just a simple vaginal examination. A lack of knowledge about cervical screening may have contributed to prevalence of cervical cancer; may also be indicative of the high proportion of abnormal screening results found in the present study; and, may account for the high number of patients being at stage II and III cervical cancer. This suggests a poor communication relationship between healthcare providers and the participants in the present study regarding the prevention of cervical cancer. The present study found that, while more participants might have received sex education in school and in a healthcare facility, information about cervical cancer, cervical screening, HPV and HPV vaccine was seldom included in their education.

5.3.3. Risk factors for cervical cancer associated with demographics

In the current study, the researcher investigated the association between level of education and cervical cancer. Findings from literature on the association between education and cervical cancer, and cervical cancer screening, have been mixed. In this study, the researcher grouped the educational level of participants into four groups: no school education, primary school education, secondary school education and tertiary graduate. Nearly 46% of the participants had secondary education, while only 8% had tertiary education. The chi-square analysis revealed that education was significantly associated with HIV and cervical cancer. Han et al. (2011) found a significant correlation between literacy level and health screening. In this study, there was a significant relationship between level of education and the participant's HIV status. Young age group with secondary and tertiary education were more likely to be

HIV positive. There was also a statistically significant relationship between level of education and having multiple partners.

Young women with tertiary education were more likely to have multiple partners; however, there was no statistically significant association between level of education and age at first sexual intercourse. Some of the authors reason that women in the lower educational level do not have cervical cancer screening, which may be related to a poor understanding of the need for screening services, and may also be related to other factors that have not been explored in previous studies (Han et al., 2011). The findings of the current study similarly revealed that the level of education completed by participants may have some level of association with the receipt of cervical cancer screening. Health professionals must consider these findings when developing interventions to improve adherence to cervical cancer screening recommendations.

Women aged 40 years and above are more likely to be at cervical cancer stage II compared to women aged 40 years of age and below. There are very few women at stage IV cervical cancer and no women were at stage IV in the age 70 years and above age group. Most patients presented with stage II or III cervical. This emphasises the need for early detection of cervical cancers in our population. In a study conducted in Mysuru, the majority of the patients (36.8%) were at stage III cervical cancer, followed by 30.5% of the participants at stage II cervical cancer (Kaverappa et al., 2015). In a study conducted by Umate, Thengal and Kurdukar (2017), almost 66.6% of women had advanced stage (II, III & IV) cervical cancer, while only 33.3% of the cases were diagnosed with early stage cervical cancer.

Interventions should aim to increase awareness of screening services so that women can make informed choices about the utilisation of these services. Future studies should explore the knowledge of the importance of cervical cancer screening and misconceptions about the screening services among youth. Research studies have shown a high HIV incidence in rural populations and the risk of cervical cancer is also high. However, the cervical screening frequency does not correlate to the risk. The cervical cancer screening frequency also needs to be revised, especially for HIV-exposed and infected women, since the literature suggests that disease progression to invasive cervical cancer usually occurs ten years earlier in HIV positive women

(WHO, 2012). This raises concerns, since government primary health care services are provided free of charge. There are very few differences between women who had been and those who had never been screened for cervical cancer. This is possibly indicative of a generalised utilisation of cervical screening in this population, especially in relation to awareness on cervical cancer and cervical screening (Ndlovu, 2011).

5.4. CONCLUSIONS AND RECOMMENDATIONS

This study revealed that there is limited information about the profile of cervical cancer and cervical screening among women in Limpopo Province. These results suggest poor dissemination of information by health care professionals about the profile of cervical cancer. Women in rural provinces such as Limpopo mostly rely on healthcare professionals to educate them and to recommend safe reproductive healthcare practices that are beneficial to them. Information pamphlets or posters on all government cars and other resources should be user friendly by being translated to the local languages and by being distributed to the women as widely as possible. Determinants of cervical cancer and cervical screening messages should form part of the basic health education package offered to all women, irrespective of their health status. It is also recommended that further largescale studies be conducted in order to focus on exploring healthcare resources that influence access to health education and health promotion services across the districts so as to better understand the reasons for the uptake of screening services by women in a rural community.

5.4.1. Recommendations

There are several recommendations that can be made from the results of the present study and the consequent discussion of these findings. There should be greater education on and communication about the importance and purpose of cervical screening. Information about the risk factors for developing cervical cancer, specifically the transmission of HPV, needs to be disseminated to adolescents and young people. This may lead to the adoption of preventative health behaviours, such as reducing possible risky sexual behaviours, and may also alleviate the anxieties associated with cervical screening attendance that women may have. The present study showed that the profiling of cervical cancer, specifically the sexual behaviour risk-factors for contracting HPV or HIV, appears to be increasing among young women. Therefore, rather than initiating cervical screening by age group, which may

result in young women being refused screening irrespective of their risk, cervical screening guidelines should stipulate the initiation of cervical screening and HPV vaccine from the age of 15 onwards, based on the presence of the established risk-factors.

These recommendations may help to detect abnormalities in women that would otherwise not be detected until later age, and then possibly at an advanced CIN grade. Such recommendations may also encourage young women to become habitual about cervical screening. The sensitive personal information provided by participants in the present study suggests that young women may be more prone to HPV and HIV due to the fact that young women who are single or divorced, with tertiary education were more likely to have multiple partners, which places them in a risk-based cervical screening target group. A final recommendation is that a long-term, in-depth study on cervical cancer among young women in relation to the presence of the risk factors should be carried out; this will help determine whether the correct minimum age for free cervical screening and HPV vaccine is in line with this current research, reporting a lower mean age of first sexual intercourse and increasing numbers of sexual partners.

5.5. CONTRIBUTIONS OF THE STUDY

This study is significant because it has broadened an understanding of the health status and health needs of women in one of the rural provinces in South Africa, as one of the studies to address risk factors that are associated with cervical cancer through profiling of cervical cancer patients.

5.6. LIMITATIONS

The study used a quantitative cross-section descriptive study design. This means that data collection was conducted simultaneously, ignoring the possible changes in views of participants. Adopting a longitudinal approach to data collection would have enhanced insights into this area of study. There were some variables which formed part of this study that were not included in the files of some of patient and the researcher had to ask the doctors for this information. This study will bring about an increased interest in the study population. The health needs of the study group, and other groups, must be addressed, not only at the individual level, but also at the

societal level. Health professionals can use the findings from this study to educate women about the determinants of cervical cancer and about improving adherence to screening practices, as findings from the study have revealed that young people have multiple sex partners and they are at high risk to contract HIV.

There may, therefore, be a need to develop policies that are targeted at improving adherence to cervical cancer screening recommendations. Future research should ensure that the variables that are investigated are operationalised to fit the study target population. Information and selection bias might have occurred, as women were recruited from one gynaecology clinic, which means that this study may have underestimated patients who never sought care and those who normally seek care from other healthcare services. The very sick patients were excluded from enrolment in this study. therefore, it was not possible to explore whether there are any differences in knowledge and perception levels in women who are very sick. The sample size may have masked real differences within the group of women that could not be involved in the study.

5.7. CONCLUSION AND REMARKS

This quantitative cross-sectional study investigated the profile of cervical cancer among women living in the Limpopo Province of South Africa. Early detection predicts better prognosis of cervical cancer (Umate et al., 2017). The most effective way of preventing and controlling cervical cancer is regular cervical cancer screening. The focus should be on addressing the needs of the underprivileged women of Limpopo Province. Vaccination against HPV and maintaining Pap smear tests as the primary test for cervical screening may decrease the incidence of cervical cancer (Comparetto & Borruto, 2015). A sample of 113 women were asked to participate into the study. Chi square analysis determined that there was a significant relationship between age, marital status, level of education and the participant's HIV status, which means that young woman with secondary and tertiary education were more likely to be HIV positive. Similarly, parity was significantly associated with age, marital status, level of education, which means that the elderly was more likely to have high parity.

The data analysis did not find any statistically significant associations between level of education, marital status and age at first sexual intercourse. Future studies should

continue to shed better light on the determinants of cervical cancer and preventive health services, not only among the study group, but also among all population groups and mostly amongst young females. There is a need to reinforce comprehensive health education about the profile of cervical cancer and cervical screening programmes to target women in rural communities and to ensure the success of the cervical screening programme. The healthcare workers should also play a vital role in educating communities about cervical cancer and about the benefits of cervical cancer screening, reaching all patients who utilise healthcare services and the communities with this information through outreach programmes. Attempts should be made to reach women who rarely visit health care services.

6. REFERENCES

- Adeyemi, M. 2013. Factors affecting cervical cancer screening among African women living in the United States. Walden University, United States.
- Adonis, LAR, Luiz, J, Mehrotra A, Patel D, Basu D & Sturm R. 2013. Provincial screening rates for chronic diseases of lifestyle, cancers and HIV in a health-insured population. *SAMJ: South African Medical Journal*. 103(5): 309-312.
- Afroj S, Banu MA, Sultana S, Jahan R, Rahman S & BEGUM N. 2017. Clinicopathological profile of cervical cancer patients attending in a specialized hospital. *J Dhaka Medical College*. 26(2): 117-121.
- Agorastos, T, Chatzistamatiou, K, Zafrakas, M, Siamanta, V, Katsamagkas, T, Constantinidis, TC, Lampropoulos, AF & Lysistrata study group. 2014. Epidemiology of HPV infection and current status of cervical cancer prevention in Greece: final results of the LYSISTRATA cross-sectional study. *Eur J cancer prev.* , 23 (5): 425-431.
- Allemani, C, Weir, HK, Carreira, H, Harewood, R, Spika, D, Wang, X, Bannon, F, Ahn, JV, Johnson, CJ, Bonaventure, A, Marcos-Gragera, R, Stiller, C, Silva, GA, Chen, W, Ogunbiyi, OJ, Rachet, B, Soeberg, MJ, You, H, Matsuda, T, Bielska-Lasota, M, Storm, H, Tucker, TC & Coleman, MP. 2015. Global surveillance of cancer survival 1995–2009: analysis of individual data for 25 676 887 patients from 279 population-based registries in 67 countries. *HHS Public Access*, 385(9972): 977–1010.
- Anorlu, RI. 2008. Cervical cancer: the sub-Saharan African perspective. *Reproductive health matters*. 16(32): 41-49.
- Arbyn, M, Castellsagué, X, de Sanjosé, S, Bruni, L, Saraiya, M, Bray, F & Ferlay, J. 2011. Worldwide burden of cervical cancer in 2008. *Ann Oncol*. Dec; 22(12): 2675-86.
- Bayoumi, MMM, Elbasuny, MMM, Nasser, AMA, Abdullah, KM & Al matery, NMA. 2012. Saudi young females' level of knowledge regarding cervical and breast cancer. *International Journal of nursing science*; 2(5): 47-52.

- Bowyer, HL, Dodd, RH, Marlow, LAV & Waller, J. 2014. Association between human papillomavirus vaccine status and other cervical cancer risk factors. *Journal of vaccine*. Health Behaviour Research Centre, Department of Epidemiology & Public Health. United Kingdom.
- Bradshaw, D, Nannan, N, Laubscher, R, Groenewald, P & Joubert, J. 2000. South African National burden of disease study, estimates of Provincial Mortality, Limpopo Province South Africa. *Burden Dis Res*. Unit 1-15.
- Brink, H, Van der Walt, C & Van Rensburg, G. 2018. *Fundamental of research methodology for healthcare professionals*. 4th edition. Juta. SA.
- Brink, H, Van der Walt, C & Van Rensburg, G. 2012. *Fundamental of research methodology for healthcare professionals*. 3rd edition. Juta. SA.
- Bruni, L, Diaz, M, Castellsagué, M, Ferrer, E, Bosch, FX & de Sanjosé, S. 2010. Cervical human papillomavirus prevalence in 5 continents: Meta-analysis of 1 million women with normal cytological findings. *The Journal of Infectious Diseases*.;202(12): 1789-1799.
- Cann, J. 2018. *Cervical screening a study on the prevalence of the risk-factors cervical screening a study on the prevalence of the risk-factors for developing cervical cancer among young women*. Technological University Dublin, Dublin.
- Comparetto, C & Borruto, F. 2015. Cervical cancer screening: A never-ending developing program. *World Journal of Clinical Cases*. 3(7): 614-624.
- De Sanjose, S, Wim, Q, Alemany, GV, Geraets, L, Klaustermeier, DT, Lloveras, J, Tous, B, Felix, S, Bravo, A & Shin, E. 2010. Human papilloma virus genotype attribution in invasive cervical cancer: a retrospective cross-sectional worldwide study. *The Journal of lancet oncology*. 11(11).
- Denny, L. 2008. Prevention of Cervical Cancer. *Reproductive Health Matters*. 18-31.
- Denny, L. 2010. Cervical cancer in South Africa: an overview of current status and prevention strategies. *Continuing Medical Education*. 28(2).
- Denny, L & Anorlu, R. 2012. Cervical cancer in Africa. *Cancer Epidemiology and Prevention Biomarkers*. 21(9): 1434-1438.

Denny, L & Prendiville, W. 2015. Cancer of the cervix: Early detection and cost-effective solutions. *International Journal of Gynecology and Obstetrics*. 131. University of Cape Town

Ferlay, J, Shin, HR, Bray, F, Forman, D, Mathers, C & Parkin, DM. 2010. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *International journal of cancer*. 127(12): 2893-2917.

Ferlay, J, Soerjomataram, I, Dikshit, R, Eser, S, Mathers, C, Rebelo, M, Parkin, DM, Forma, D & Bray, F. 2015. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *International Journal of Cancer*; 136: 359–386.

Francisa S.A, Nelsonb J, Liverpoolc J, Soogun S, Mofammere N & Thorpe Jr R.J. 2010. Examining attitudes and knowledge about HPV and cervical cancer risk among female clinic attendees in Johannesburg, South Africa. *Journal of Vaccine*. Volume 28 (50).

Getinet, M, Gelaw, B, Sisay, A, Mahmoud, EA & Assefa, A. 2015. Prevalence and predictors of Pap smear cervical epithelial cell abnormality among HIV-positive and negative women attending gynecological examination in cervical cancer screening center at Debre Markos referral hospital, East Gojjam, Northwest Ethiopia. *BMC Clin Pathol*. Sep 23;15:16.

Han, H, Kim, J, Lee, J, Hedlin, H, Song, H, Song, Y & Kim, M. (2011). Interventions that increase use of Pap tests among ethnic minority women: A meta-analysis. *Psycho-Oncology*, 20(4), 341-351.

Herrero, R, González, P & Markowitz, LE. (2015). Present status of human papillomavirus vaccine development and implementation. *The Lancet. Oncology*, 16(5): 206–216.

Hoque, ME & Kader, SB. 2008. Evaluation of cervical cancer screening program at a rural community of South Africa. *East Afr J Public Health*. 5(2): 111-6.

Hoque, ME. 2010. Cervical cancer awareness and preventive behaviour among female university students in South Africa. *Asian Pac J Cancer Prev*. 11(1): 127-30.

- Kaverappa VB , Prakash B, Kulkarni P & Renuka M. 2015. Sociodemographic profile of patients with cervical cancer in a tertiary-care cancer hospital in Mysuru, Karnataka. *International Journal of Medical Science and Public Health*. Vol 4 (9).
- Kim, J, Kim, BK, Lee, CH, Seo, SS, Park, SY & Roh, JW. 2012. Human papillomavirus genotypes and cofactors causing cervical intraepithelial neoplasia and cervical cancer in Korean women. *International Journal of Gynecological Cancer*, 22: 1570–1576.
- Kour, P, Lal, M, Panjaliya, R, Doggra, V & Guptor. 2010. Study of risk factors associated with cervical cancer. *Biomed Pharmacol J*. 3(1): 179-182.
- Liu, ZC, Liu, WD, Liu, YH, Ye, XH & Chen, SD. 2015. Multiple sexual partners as a potential independent risk factor for cervical cancer: A meta-analysis of epidemiological studies. *Asian Pacific Journal of Cancer Prevention*, 16(9): 3893–3900.
- Makunyane, CM. 2017. The perspectives of cervical cancer screening in Makhuduthamaga sub-district, Sekhukhune district, Limpopo province, South Africa. University of South Africa, South Africa.
- Makuza, JD, Nsanzimana, S, Muhimpundu, MA, Pace, LE, Ntaganira, J & Riedel, DJ. 2015. Prevalence and risk factors for cervical cancer and pre-cancerous lesions in Rwanda. *Pan Afr Med J*. 2015 Sep 11: 22-26.
- Mamahlodi, MT, Kuonza, LR & Candy, S. 2013. Cervical cancer screening programme in Limpopo province: January 2007 to December 2010. *South African Journal of Gynaecology & Oncology*. Vol 5 (1).
- Monsonogo, J, Cox, JT, Behrens, C, Sandri, M, Franco, EL, Yap, P & Huh, W. 2015. Prevalence of high-risk human papilloma virus genotypes and associated risk of cervical precancerous lesions in a large U.S. screening population: Data from the ATHENA trial. *Journal of Gynecologic Oncology* 137. Elsevier
- Mthembu, SP. 2013. Cervical Cancer Policy and Women Living with HIV in South Africa. University of KwaZulu-Natal, SA
- Mutambara, J, Mutandwa, P, Mahapa, M, Chirasha, V, Nkiwane, S & Shangahaidonhi, T. 2017. Knowledge, attitudes and practices of cervical cancer

screening among women who attend traditional churches in Zimbabwe. *Journal of Cancer Research and Practice*

Ndlovu, BH. 2011. Awareness, knowledge and experiences of women regarding cervical cancer in rural Kwazulu-Natal, South Africa. Stellenbosch University, South Africa.

Nelson, S, Kim , Wilson, FA, Soliman, AS, Ngoma, T, Kahesa, C & Mwaiselage, J. 2016. Cost-effectiveness of screening and treatment for cervical cancer in Tanzania: Implications for other Sub-Saharan African countries. *Value in health regional*. Issue 10C

Nwabichie, CC, Rosliza, AM & Suriani, I .2017. Global Burden of Cervical Cancer: A Literature Review. *International Journal of Public Health and Clinical Sciences*. 4(2): 10-18

Polit, DF & Beck, CT. 2012. *Nursing research: Generating and assessing evidence for nursing practice*. 9th edition. Philadelphia: Wolters Kluwers/Lippincott Williams & Wilkins.

Poljak, M, Seme, K, Maver, PJ, Kocjan, BJ, Cuschieri, KS, Rogovskaya, SI, Arbyn, M & Syrjänen, S. (2013). Human papillomavirus prevalence and type-distribution, cervical cancer screening practices and current status of vaccination implementation in Central and Eastern Europe. *Vaccine*. Suppl 7: 59-70.

Ramathuba, DU, Ngambi, D, Khoza, LB & Ramakuela, NJ. 2016. Knowledge, attitudes and practices regarding cervical cancer prevention at Thulamela Municipality of Vhembe District in Limpopo Province. *Afr J Prim Health Care Fam Med*. 7;8(2):e1-7. doi: 10.4102/phcfm.v8i2.1002. World Health Organization (WHO) 1998. *Health promotion glossary*. Geneva: WHO.

Richter, K, Becker, P, Horton, A & Dreyer, G. 2013. Age-specific prevalence of cervical human papillomavirus infection and cytological abnormalities in women in Gauteng Province, South Africa. *SAMJ: South African Medical Journal*, 103(5): 313-317.

Rogovskaya, SI, Shabalova, IP, Mikheeva, IV, Minkina, GN, Podzolkova, NM, Shipulina, OY, Sultanov, SN, Kosenko, IA, Brotons, M, Buttman, N, Dartell, M, Arbyn, M, Syrjänen, S & Poljak, M. 2013. Human papillomavirus prevalence and type-

distribution, cervical cancer screening practices and current status of vaccination implementation in Russian Federation, the Western countries of the former Soviet Union, Caucasus region and Central Asia. *Vaccine*. Suppl 7: 46-58.

Sankaranarayanan R. 2015. HPV vaccination: The most pragmatic cervical cancer primary prevention strategy. *International Journal of Gynecology and Obstetrics*. 131. International Agency for Research on Cancer, Lyon, France.

Sharma, P & Pattanshetty, SM. A study on risk factors of cervical cancer among patients attending a tertiary care hospital: A case-control study, *Clin Epidemiol Glob Health* (2017)

Somdyala, NI, Bradshaw, D, Gelderblom, WC & Parkin, DM. 2010. Cancer incidence in a rural population of South Africa, 1998–2002. *International Journal of Cancer*. 127(10): 2420-2429.

Stewart, TS, Moodley, J & Walter, FM. 2018. Population risk factors for late-stage presentation of cervical cancer in sub-Saharan Africa. *Cancer epidemiology*. Vol 53: 81-92.

Tao, L, Han, L, Li, X, Gao, Q, Pan, L, Wu, L, Luo, Y, Wang, W, Zheng, Z & Guo, X. 2014. Prevalence and risk factors for cervical neoplasia: a cervical cancer screening program in Beijing. *BMC Public Health*. 14:1185. doi: 10.1186/1471-2458-14-1185.

Teame, H, Addissie, A, Ayele, W, Hirpa, S, Gebremariam, A, Gebreheat, G & Jemal, A (2018). Factors associated with cervical precancerous lesions among women screened for cervical cancer in Addis Ababa, Ethiopia: A case control study. *PLoS One*. 2018 Jan 19;13(1): 191-506.

Teixeira, LA. 2015. From gynaecology offices to screening campaigns: a brief history of cervical cancer prevention in Brazil. *Beazil, Rio de Janeiro*. 22 (1).

Umate P, Thengal DS & Kurdukar D. 2017. Study of clinical profile of cervical cancer patients: a hospital based study. *International Journal of Reproduction, Contraception, Obstetrics and Gynaecology*. 6 (11): 4873-4878.

Vaccarella, S, Laversanne, M, Ferlay, J, & Bray, F. (2017). Cervical cancer in Africa, Latin America and the Caribbean, and Asia: Regional inequalities and changing trends. *International Journal of Cancer*, 141(10): 1997–2001.

Van Schalkwyk, SL, Maree, JE & Wright, SCD. 2008. Cervical cancer: the route from signs and symptoms to treatment in South Africa. *Reproductive health matters*. 16(32): 9-17.

Verhoef, VM, Heideman DA, van Kemenade FJ, Rozendaal L, Bosgraaf RP, Hesselink AT, Bekkers RL, Massuger LF, Steenbergen RD, Snijders PJ, Berkhof J, Meijer CJ. (2014): Methylation marker analysis and HPV16/18 genotyping in high-risk HPV positive self-sampled specimens to identify women with high grade CIN or cervical cancer. *Gynecol oncol.* , 135 (1): 58-63.

Visanuyothina, S, Chompikula, J & Mongkolchati, A. 2015. Determinants of cervical cancerscreening adherence in urban area of Nakhon Ratchasima Province, Thailand. *Journal of Infection and Public Health*. 8. Elsevier

Waller, J, Jackowska, M, Marlow, L & Wardle, J. (2012). Exploring age differences in reasons for nonattendance for cervical screening: a qualitative study. *BJOG: An International Journal of Obstetrics & Gynaecology*, 119(1), 26-32.

White, HL, Mulambia, C, Sinkala, M, Mwanahamuntu, MH, Parham, GP, Moneyham, L, Grimley, DM & Chamol, E. 2012. Worse than HIV or not as serious as other diseases? Conceptualization of cervical cancer among newly screened women in Zambia. NIH Public Access.

Wigle, J, Coast, E, & Watson-Jones, D. (2013). Human papillomavirus (HPV) vaccine implementation in low and middle-income countries (LMICs): Health system experiences and prospects. *Vaccine*, 31(37): 3811–3817.

World Health Organization. (2012). Sexual and reproductive health: Cancer of the cervix. Retrieved from <http://www.who.int/reproductivehealth/topics/ancers/en/>

Worthington, C, McLeish, K & Fuller-Thomson, E. (2012). Adherence Over Time to Cervical Cancer Screening Guidelines: Insights From the Canadian National Population Health Survey. *Journal of Women's Health*, 21(2), 199-208.

7. APPENDIX A:

7.1. Structured questionnaire

UNIQUE ID

DEMOGRAPHIC INFORMATION

A1 How old are you? years

A2 What is your marital status?

<input type="checkbox"/>	Single
<input type="checkbox"/>	Married
<input type="checkbox"/>	Divorced
<input type="checkbox"/>	Widow

A3 Age at first sexual intercourse years

A4 Do you currently have multiple sexual partners?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

A5 How many sexual partners did you have? Number

A6 Number of biological children Number

A7 Level of education

<input type="checkbox"/>	None
<input type="checkbox"/>	Primary
<input type="checkbox"/>	Secondary
<input type="checkbox"/>	Tertiary

A8 Employment status

<input type="checkbox"/>	Employed
<input type="checkbox"/>	Unemployed

A9 Place of residence

A10 Distance to facility Kilo meters (km)

A11 Tobacco smoking Yes
 No

A12 Type of contraceptive Oral
contraceptives
 Injection
 None

A13 HIV status Negative
 Positive
 Unknown

A14 If positive are you on HAART? Yes
 No

A15 How long have you been on HAART? Years

A16 Before the current diagnosis, have you ever heard about pap smear? Yes
 No

A17 Have you ever done Pap smear before the current results? Yes
 No

A18 If yes, how many times have you done pap smear in the past 10 years? Number

FOR OFFICE USE

A19 Smear grading

A21 Specimen type

A20 Date of first diagnosis

A22 HIV status

7.2. Structured questionnaire (Sepedi translation)

UNIQUE ID

DEMOGRAPHIC INFORMATION

A1 Ona le mengwaga eme kae?

Mengwaga

A2 O nyetswe?

Aka nyalwa

Ke nyetswe

Hlalano

Mohlogadi

A3 Othomile gp tsenela tsa thobalano ona le mengwaga eme kae?

Mengwaga

A4 Otsenela tsa thobalano le balekane bago fapana fapana?

Aowa

Aowa

A5 Otsenetse tsa thobalano le balekane ba bakae?

Nomoro

A6 Ban aba gago ba o babelegileng ke ba bakae?

Nomoro

A7 O fihlile kae ka sekolo

Aka tsena

Primary

Secondary

Tertiary

A8 Oa bereka

Kea shoma

Ake shome

- A9 O dula kae
- A10 Odula kgole ga kakang le sepetlela goba tliniki Kilo metera (km)
- A11 O goga motsoko wa sekarethe Ee
 Aowa
- A12 O shomisha eng go thibela pelego Dipilisi
 Yago hlapela
 Ake shomishi selo
- A13 Ona le kokwana hloko ya HIV Aowa
 Ee
 Aketsebe
- A14 Ge eba ona le kokwana hloko ya HIV, otsea dipilisi tsa yona? Ee
 Aowa
- A15 Ke sebaka se se kakang o tsea dipilisi tsa kokwana hloko ya HIV? Mengwaga
- A16 Pele ga bolwetse bo bogo swereng gane bjale, oile wakwa ka pap smear? Ee
 Aowa
- A17 Oile wa dira Pap smear pele gadi pelo tsa ganebjale? Ee
 Aowa
- A18 Ge ore ee, o dirile pap smear ga kae mengwageng ye lesome yago feta? Nomoro

FOR OFFICE USE

A19 Smear grading

A21 Specimen type

A20 Date of first diagnosis

A22 HIV status

7.3. Structured questionnaire (Tsonga translation)

UNIQUE ID

DEMOGRAPHIC INFORMATION

A1 U na malembe manghani?

Malembe

A2 Xiyimo xa vukati?

Indzi tekangi

Ndzi tekiwile

Ndzi tharile

Noni

A3 Awuri na malembe manghani loko u
tihlanganisa na swa masangu

Malembe

A4 Xana u hlangana na vanhu vo tlula un'we eka
timhaka ta masangu?

Ina

Ee

A5 U hlangana na vanhu vangani eka timhaka ta
masangu

Nomboro

A6 Una vana vangani lava humaka eka nyoka ya
wena?

Nomboro

A7 U dyondze ku fika kwihi

Andzi dyondzangi

Purayimari

Sekondari

Kholege/yunevhesiti

A8 Xiyimo xa ntirho

Ndza ntirha

- _____ Andzi ntirhi
- A9 U tshama kwihi?
- A10 Ufamba karhi wo leha ku fika kwihi loko uya etliliniki? Kilo meters (km)
- A11 Xana wa ndzhaha? Ina
 Ee
- A12 Utirhisa wihi muxaka wa kunguhato? Ndzi tirhisa tiphilisi
 Ndzi tirhisa nayiti
 Andzi tirhisi nchumu
- A13 Xiyimo xa HIV Ndzi hava
 Ndzi na HIV
 Andzi tivi
- A14 U tirhisa maphilisi yo hanya na xitsongwantsongwana? Ina
 Ee
- A15 Una malembe manghani utirhisa maphilisi yativ? Malembe
- A16 U tshama u twa hi PAP smear? Ina
 Ee
- A17 U tshama u endla PAP smear? Ina
 Ee
- _____

Loko kuve u tshama u endla PAP smear, u yi
A18 endle kangani eka malembe ya 10 lama Nomboro
hundzeke?

FOR OFFICE USE

A19 Smear grading

A21 Specimen type

A20 Date of first
diagnosis

A22 HIV status

7.4. Structured questionnaire (Venda translation)

UNIQUE ID

DEMOGRAPHIC INFORMATION

A1 Ni na minwaha mingana?

Minwaha

A2 Vho maliwa naa?

Thongo maliwa

Ndo maliwa

Ndo talwa

Ndo lovheliwa

A3 No thoma lini u di dzhenisa kha zwa vhudzekani?

Minwaha

A4 Ni na vhathu vhanzhi vhane na di dzhenisa kha zwa vhudzekani navho?

Ee

Hai

A5 Ndi tshi ngana tshivhalo tsha vhathu vhane no di wana no di dzhenisa kha zwavhudzekane navho?

Nomboro

A6 Vha na vhana vhangana?

Nomboro

A7 Pfunzo

Ahuna

Primary

Secondary

Gudedzeni
ntha

la

- A8 Mushumo Ndi a shuma
 thi shumi
- A9 Vhudzulapo
- A10 Vhukule ha tshi imiswa tsha mutakalo Kilo meters (km)
- A11 Vha a daha naa? Ee
 Hai
- A12 Vhutea muta Philisi
 Nelete
 Ahuna
- A13 Vhuimo ha HIV A thina
 Thi nayo
 Athi divhi
- A14 Arali vha na HIV, vha khou nwa philisi naa? Ee
 Hai
- A15 Vha na tshifhinga tshi ngafhani vha tshi khou nwa dziphilisi? Minwaha
- A16 Musi vha sa athu vha na nwatela ya mulomo wa mbumbelo, vho vha vho no pfa nga ndingo ya mulomo ya mbumbelo? Ee
 Hai
- A17 Vho no ita ndingo ya nwatela ya mulomo wa mbumbelo phanda ha musi vha tshi wana mbuyelo idzi? Ee
 Hai

A18 Arali zwo ralo, vho vha vho lingiwa lungana kha Nomboro
minwaha ya fumi yo fhiraho?

FOR OFFICE USE

A19 Smear grading

A21 Specimen type

A20 Date of first
diagnosis

A22 HIV status

8. APPENDIX B:

8.1. Consent form

UNIVERSITY OF LIMPOPO (Turfloop Campus) ENGLISH CONSENT FORM

Statement concerning participation in a Clinical Research Study.

Name of study: Profile of Cervical Cancer in Patients seen in Gynaecology clinic at Mankweng Hospital, Capricorn district, Limpopo province.

I have read the information and heard the aims and objectives of the proposed study and was provided the opportunity to ask questions and given adequate time to rethink the issue. The aim and objectives of the study are sufficiently clear to me. I have not been pressurized to participate in any way.

I am aware that this material may be used in scientific publications which will be electronically available throughout the world. I consent to this provided that my name, identification and hospital number are not revealed.

I understand that participation in this study is completely voluntary and that I may withdraw from it at any time and without supplying reasons. This will have no influence on the regular treatment that holds for my condition neither will it influence the care that I receive from my regular doctor.

I know that this study have been approved by the Turfloop Research Ethics Committee (TREC) of the University of Limpopo. I am fully aware that the results of this study will be used for scientific purposes and may be published.

I hereby give consent to participate in this study, provided my privacy is guaranteed.

.....

.....

Name of patient/volunteer

Signature of patient/guardian

.....

.....

Place

Date

Witness

8.2. Consent form (Sepedi translation)

UNIVERSITY OF LIMPOPO (Turfloop Campus) ENGLISH CONSENT FORM

Statement concerning participation in a Clinical Research Study.

Name of study: Profile of Cervical Cancer in Patients seen in Gynaecology clinic at Mankweng Hospital, Capricorn district, Limpopo province.

Ke badile se sengwetswego ebile ke kwele maikemishetso le dikelelo tsa dithutho tse dinyakang go dirwa ebile kefilwe sebaka sago botsisa diputsiso le go ke nagana. Maikemishetso le dikelelo tsa thutu ye dia kwagala ebile di molaleng. Ase ke gapeletswe go tsea karolo.

Kea tseba gore thuto ye eka shumishwa gotsa saentshe yaba ya tsebiwa khutlong tse nne tsa lefase. Ke dumetse kagore leina laka goba nomoro yaka ya faele ekase shomishwe.

Kea kweshisha gore go tsenela thuto ye ke maethaopo ebile nka tlogela nakp yengwe le yengwe ntle le gofa mabaka. Ebile se sekase tsene felo go thuso ye ke e humanang ka bolwetse bo bontshwereng ebile goka sebe le bothata magareng gaka le ngaka yaka ya mehleng.

Kea tseba gore thuto ye e dumeletse ke komiti ya melao yatsa thuto tsadi nyakishisho kua unibesithi ya Limpopo. Kea tseba gore dipoelotsa thuto ye ditlo shomishwa go phethagatsa dilo tsa saentshe ebile dika tsebagatswa.

Kefa tumelelo yago tsea karolo go thuto kago tseba gore maina aka a tshireletsegile.

.....

.....

Leina la molwetse/moithaopi

go saena ga molwetse/mohlokomedi

.....

.....

Lefelo

Letsatsi

Hlatse

8.3. Consent form (Tsonga translation)

UNIVERSITY OF LIMPOPO (Turfloop Campus) ENGLISH CONSENT FORM

Statement concerning participation in a Clinical Research Study.

Name of study: Profile of Cervical Cancer in Patients seen in Gynaecology clinic at Mankweng Hospital, Capricorn district, Limpopo province.

Ndzi hlayile timhaka na xikongomelo-nkulu xa vulavisisi lebyi nga tsariwa ehenhla, nakona ndzi nyikiwile karhi lowu ringaneke wo vutisa swivutiso no tivutisisa. Kongomelo-nkulu na mhaka-nkulu swiringanerile ka mina. A ndzi sindzisiwanga ku teka xiave eka vulavisisi lebyi nga tsariwa laha henhla.

Ndzi swi tiva kahle leswaku mbuyelo lowu nga ta kumeka eka vulavisisi lebyi, wu nga hangalasiwa emaphepheni lawa nga pasisiwa hi hlangano wa vuhangalasi. Unga kumeka emisaveni na mihlovo hinkwayo ya vuhangalasi kufana na elekitoriniki. Ndzi nyika pfumelelo ku teka xiave ntsena loko kuve vutitivisi bya mina byi nga humeseriwi erivaleni, ku fana na vito, nomboro ya xibendhlele na nomboro ya vutitivisi.

Ndzi twisisa leswaku kunghenelela ka mina eka vulavisisi lebyi, I ku tihlawulela ka mina nakona ndzi nga hlawula kuva ndzi nga yi emahlweni handle ko nyika swivangelo swo tshika. Ku tshika ka mina a swi nge vi na swita-ndzhaku eka vutshungulo bya mina lebyi ndzi nga ta byi kuma eka dokodela wa mina.

Ndza swi tiva leswaku vulavisisi lebyi byi pasisiwile hi "Turfloop Research Ethics Committee" (TREC) ya yunivhesiti ya Limpopo. Ndzi swi tiva kahle leswaku mbuyelo wa vulavisisi byi ta tirhisiwa hi vanhu va sayense nakona byi ta phabilixiwa kuya emahlweni.

Ndzi nyika pfumelelo ku teka xiave eka vulalavisis, ntsena loko kuve a ndzi nge humeseriwi erivaleni.

.....

Vito ra muvabyi

nsayino wa muvabyi/muhlayisi

.....

Ndhawu

siku

mbhoni

8.4. Consent form (Venda translation)

UNIVERSITY OF LIMPOPO (Turfloop Campus) ENGLISH CONSENT FORM

Statement concerning participation in a Clinical Research Study.

Name of study: Dzina la ngudo: Zwiitisi zwa nwatela ya mulomo wa mbumbelo kha vhalwadzwe vha ne vha vhoniwa kiliniki ya gynaecology sibatela tsha Makweng, Capricon district, Limpopo province.

Ndo vhala zwo nwaliwaho and zwi pfesesa. A thi khou kombetshedziwa u di dzhenisa kha ngudo iyi.

Ndi a zwidivha zwauri ngudo iyi I do shumiswa kha u andadzwa kha sainsi ya shango lothe. Ndi a tendela uri dzina langa, nomboro ya vhune na nomboro ya sibatela zwi songo andadziwa.

Ndi a pfesesa zwauri u di dzhenisa hanga kha ngudo iyi zwo bva kha nne munne na uri ndi nga kona u di bvisa tshifhinga tshinwe na tshinwe ndi so ngo amba zwiitisi. Hezwi a zwi nga tshinyadzi dzilafho la vhulwadze havho kana dzilafho li ne vha khou li wana kha dokotela.

Ndi a divha uri ngudo heyi yo telelwa nga Turfloop Research Ethics Komiti (TREC) nga fhasi ha gudedzi lihulwane la Limpopo. Ndi a pfesesa uri vhutanzi ha ngudo iyi vhu do shumiswa nga ndila ya tshi sainsi na u andadza.

Ndi khou fha thendelo ya u vha tshipida tsha idzi ngudo, tenda vhune hanga ha tsireledzea.

.....

.....

Dzina

Saini

.....

.....

Fhethu

Datumu

Thanzi

9. APPENDIX C:

9.1. TREC Approval from University of Limpopo



University of Limpopo
Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3935, Fax: (015) 268 2306, Email: anastasia.ngobe@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE
ETHICS CLEARANCE CERTIFICATE

MEETING: 4 September 2019

PROJECT NUMBER: TREC/266/2019: PG

PROJECT:

Title: Profile of Cervical Cancer in Patients Seen in Gynecology Clinic at Mankweng Hospital, Capricorn District, Limpopo Province.

Researcher: MJ Masekwameng

Supervisor: Dr TS Ntuli

Co-Supervisor/s: Dr F Maimela

School: Health Care Sciences

Degree: Master of Public Health


PROF P MASOKO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031

Note:

- i) This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.
- ii) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.
- iii) PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

Finding solutions for Africa

9.2. Approval letters from Mankweng Hospital



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Department of Health

Ref : LP-201810 - 017
Enquires : Ms PJ Mahlokwane
Tel : 015-283 6028
Email : Kuphula.Hlophane@dhsd.limpopo.gov.za

Masekwamang Masela Jackson

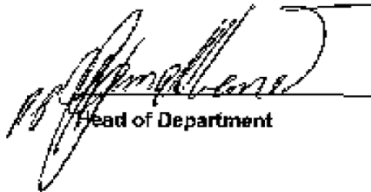
PERMISSION TO CONDUCT RESEARCH IN DEPARTMENTAL FACILITIES

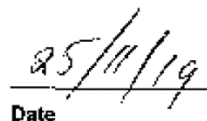
Your Study Topic as indicated below;

Profile of cervical cancer in patients seen in gynaecology clinic at Mankweng hospital, Capricorn district, Limpopo.

1. Permission to conduct research study as per your research proposal is hereby Granted.
2. Kindly note the following:
 - a. Present this letter of permission to the institution supervisor/a week before the study is conducted.
 - b. In the course of your study, there should be no action that disrupts the routine services, or incur any cost on the Department.
 - c. After completion of study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
 - d. The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
 - e. The approval is only valid for a 1-year period.
 - f. If the proposal has been amended, a new approval should be sought from the Department of Health.
 - g. Kindly note that, the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated


Head of Department


Date

Private Bag X9302 Polokwane
Fidel Castro Ruz House, 18 College Street, Polokwane 0700, Tel: 015 293 6000/12, Fax: 015 293 6211.
Website: <http://www.limpopo.gov.za>

APPENDIX D

10.1. Information Leaflet

I, Mr Masekwameng MJ a third year Master of Public Health Student at University of Limpopo conducting a study entitled “*Profile of Cervical Cancer in Patients seen in Gynaecology Clinic at Mankweng Hospital, Capricorn District, Limpopo Province*”.

The purpose of the study is to investigate the determinants of cervical cancer in patients seen in gynaecology clinic at Mankweng hospital. Participation in this study is completely voluntary and has no effect on the treatment you are getting from the hospital. This study has been approved by the relevant Research Ethics Committee of the University of Limpopo and Department of Health in Limpopo Province. There is no potential risk or harm related to participate in this study.

A questionnaire will be provided to you to gather the required information about yourself and the contributing risk factors for cervical cancer. The information received from you will never be used to disclose your identity in person at any stage. Once you agree to take part in the study you will be requested to sign an informed consent form to that effect. You may withdraw your participation at any stage and it may not affect your treatment from the hospital.

I am looking forward to your cooperation.

Thank you