STUDENT NURSES’ RISK PERCEPTION OF CONTRACTING CERVICAL CANCER IN ZIMBABWE

by

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UNIVERSITY OF SOUTH AFRICA

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CO-SUPERVISOR: MRS A MOSALA

NOVEMBER 2015
DECLARATION

I declare that STUDENT NURSES’ RISK PERCEPTION OF CONTRACTING CERVICAL CANCER IN ZIMBABWE is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references and this work has not been submitted for any other degree at any other institution.

25 November 2015

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DATE
STUDENT NURSES' RISK PERCEPTION OF CONTRACTING CERVICAL CANCER IN ZIMBABWE

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ABSTRACT

Cervical cancer accounts for 34.6% of all the female cancers in Zimbabwe. The purpose of this study was to explore the knowledge, attitudes and perceptions of female student nurses regarding cervical cancer in Zimbabwe using the Health Belief Model (HBM) as a theoretical framework. The ultimate aim was to analyse female student nurses' risk perception of contracting cervical cancer. A quantitative, cross-sectional descriptive research design was used, using a structured questionnaire for data collection. One hundred and thirty-two (132) respondents were conveniently selected. Descriptive and inferential statistics were calculated using Statistical Package for Social Sciences (SPSS) version 21 software program. The study revealed that 57.9% of the respondents perceive that they are at risk of developing cervical cancer. They believe that screening for cervical cancer is not embarrassing. Knowledge improved with increase in the level of study, there was lack of knowledge of HPV and cervical cancer link. More emphasis on cervical cancer should be put on curricula taught in undergraduate education earlier on in the programme.

Keywords

Attitudes; cervical cancer; Health Belief Model (HBM); knowledge; perceptions; screening; female student nurses.
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Dedication

This study is dedicated to my mother and late father, who instilled in me the value of hard work.

My sister in law Beatrice Phuthi and my friend and colleague ‘Sis J’ Jessina Ncube who both succumbed to cervical cancer.
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CHAPTER 1

INTRODUCTION AND BACKGROUND INFORMATION

1.1 INTRODUCTION

Cervical cancer is a devastating disease that results in more years of life lost in women than any other cancer in Zimbabwe. According to Zimbabwe national cancer registry (ZNCR), the percentage of cervical cancer stood at 34.6% in 2012. The age adjusted incidence rate of cervical cancer in Zimbabwe is 52.1 per 100,000 women and age adjusted mortality rate is 43.1% (Chi’nombe, Sebata, Ruhanya & Matarira 2014:1). It is the second most common cancer in women worldwide with an estimated 530,000 new cases in 2012 (World Health Organization (WHO) 2014:25). Every year over 266,000 deaths occur as a result of cervical cancer, with 85% of these occurring in the developing countries that have access to less than 5% of the global cancer treatment resources and the proportion of deaths is expected to increase to 90% by 2020 (Untiet, Vassilakos, McCarey, Tebeu, Fosso, Menoud, Boulvain, Navarria & Petignat 2014:1911).

Despite being one of the world’s deadliest cancers, it is the most easily preventable cancer. In the developed countries, programmes are in place which enables women to get screened, making most precancerous lesions identifiable at stages when they can be easily treated (WHO 2014:23). The incidence of cervical cancer appears to be increasing in the developing world this is due to the fact that there is no national cervical cancer screening or HPV testing programmes (Chin’ombe et al 2014:3). The scarcity of health care in general and in particular an absence of palliative care means that cervical cancer causes enormous suffering before it results in the death of a woman (Fiander 2011:121). According to WHO (2014:25), limited access to effective screening in the developing countries means that the disease is often not identified until it is has advanced and symptoms develop. In addition, prospects for treatment of such late-stage disease may be poor, resulting in a higher rate of death from cervical cancer in these countries. The high mortality rate from cervical cancer which is 52% per 100,000 women globally can be reduced by effective screening and treatment programmes.
Lack of knowledge of cervical cancer in the population and among health care workers is a prime barrier to access to screening and prevention (McCarey, Pirek, Tebeu, Bouvaih, Doh & Petignant 2011:2). Most African countries efforts are hampered by lack of human and material resources. Health care providers are fundamental in relaying information to patients, particularly nurses who are able to reach a large and diverse population of females who may not normally have access to Human Papilloma Virus (HPV) and cervical cancer information or screening (Rogers & Cantu 2009:136).

Nursing students are future nursing professionals, since nurses make up a large percentage of health care providers, their integration and participation in cervical cancer screening approaches would be an advantage. As a first step towards this direction the student nurses’ current knowledge, attitudes and perceptions towards cervical cancer screening needs to be assessed so that important amendments could be made to their curriculum to align it to the needs of women hence the need to conduct the study. Besides their knowledge, attitudes and perceptions regarding cervical cancer screening, it has a bearing on their health as well. Their attitude is often crucial in gaining women’s confidence as they are the persons who help conduct tests (Goyal, Vaishnav, Shrivastava, Verma & Modi 2013:248). It is therefore relevant to appraise the perception and utilisation of cancer screening services by future nurses.

1.2 BACKGROUND

Zimbabwe is one of the Sub-Saharan African (SSA) countries where cervical cancer remains one of the leading cancers affecting women. SSA has the highest burden and mortality associated with cervical cancer in the world. The countries with the highest burden of cervical cancer are often those more impacted by the HIV epidemic especially in SSA (Huchko, Sneden, Sawaya, McCune, Maloba, Abdulrahim, Bukusi & Cohen 2014:392). Zimbabwe lies north of the Tropic of Capricorn between Limpopo and Zambezi rivers. The country is landlocked, bordered by Mozambique to the east, South Africa to the South, Botswana on the west and Zambia on the north and northwest. It is part of a great plateau which constitutes the major feature of the geology of Southern Africa (Zimbabwe Demographic Survey (ZDHS) 2010-2011). Bulawayo the province in which this study will be conducted is the second largest city in Zimbabwe after the capital Harare, has a high percentage of women with cervical cancer. It accounts for 41.8% of all cancers in Bulawayo according to the Bulawayo cancer registry 2013,
statistics obtained on site at Mpilo radiotherapy centre. The country is divided into 10 administrative provinces and 62 districts. The country is undergoing significant macroeconomic challenges. Communicable diseases continue to be a major public health problem in Zimbabwe (WHO Country Cooperation Strategy 2008-2013:2).

Zimbabwe has a young population with 39.4% under the age of 15 years and 22.5% of the population between the ages of 15-25 years. Life expectancy in Zimbabwe is 56 and 60 years for males and females respectively (ZDHS 2010-11). The main cause of death in Zimbabwe is Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) related illnesses (54.4%) and is one of the highest in the world WHO 2011). The HIV prevalence has worsened the incidence of cervical cancer as studies have shown that women infected with HIV have a greater prevalence of HPV and are at a greater risk of developing cervical squamous intraepithelial lesions and cervical cancer. These lesions are more aggressive, persistent and are more likely to recur following anti-retroviral treatment (ART) (Moodley, Constant, Hoffman, Salimo, Allan, Rybicki, Inga, Hitzeroth & Williamson 2009:2).

The primary cause of cervical cancer is persistent infection with oncogenic types of HPV. HPV is primarily transmitted through sexual intercourse and or genital skin to skin contact (VIAC Practical Manual 2011:12). Hence every woman who is sexually active is at risk of acquiring cervical HPV infection. Since the onset of HIV epidemic the United States Centres for Disease Control (CDC) has classified cervical cancer as an AIDS defining cancer because of its close association with HIV infection (Gedefaw, Astatkie & Tessema 2013:2). Of the invasive cervical cancers in Zimbabwe 79.6% are attributed to HPV subtypes 16 and 18 (MOHCC National cancer strategy 2013-2017:20). At least 50% of sexually active women acquire genital HPV infection at some point in their lives, however, not all of them will develop into cervical cancer.

Cervical cancer is the most preventable type of human cancer because of its slow progression, cytologically identifiable precursors and effective treatment (Baskaran, Subramanian, Rahman, Ping, Taib & Rosli 2013:7693). In Zimbabwe the majority of cancer patients 80% have been found to present late in the 3rd and 4th stage, resulting in increased premature deaths from cancer (Mupepi, Sampselle, Timothy & Johnson 2011:944). This is also asserted by the Canadian Medical Association (2013) who reports that most women presented with advanced cancer due to long intervals between
screening and poor compliance towards cervical cancer screening. Diagnosis of cancer at an earlier stage of the disease can enhance the chance of successful cure. A major component of early detection is education of the population to promote early diagnosis and screening. Lack of knowledge of cancer screening may be a reflection of general poor health education in the country (Awodele, Adeyomoye, Awodele, Kwashi, Awodele & Dolapo 2011:498).

In Zimbabwe along with other health problems the burden of cervical cancer and care has been aggravated by economic hardships and a lack of coherent public policies and knowledge of cervical cancer screening (Mupepi et al 2011:945). Cervical cancer screening is available in private and public institutions in Zimbabwe but the cost is prohibitive for the majority of the community. Even for those who can afford screening there have been insufficient awareness campaigns to encourage women to be screened for cervical cancer. The Ministry of Health and Child Care has several sites at Mpilo, United Bulawayo Hospitals, Masvingo and Harare providing cervical cancer screening services using visual inspection with acetic acid (VIA).

The aim of screening is to identify women at high risk for cervical cancer to enable intervention at a time that allows treatment to substantially reduce the risk (Magowan, Owen & Drife 2009:206). Different cervical cancer screening tests are available worldwide. Protocols vary with respect to guidelines for performing tests such as HPV/DNA, VIA, Pap smear and cervicography. In the UK it is estimated that 3-yearly cervical cancer screening programme for women aged 25-49 years, prevents 84 cervical cancers out of every 100 that would develop without screening (Magowan et al 2009:206). According to Baskaran et al (2013:7694), 46% of women with cervical cancer in Canada and 53% in USA did not have a Pap smear within 3 years of being diagnosed.

Cervical cancer screening is testing for pre-cancer and cancer among women who have no symptoms and may feel perfectly healthy. Pre-cancer lesions are detectable for 10 years or more before cancer develop (Magowan et al 2009:203). It is therefore recommended that all sexually active women are screened. According to WHO (2014:8), screening is effective on cervical cancer mortality if a high proportion of women participate, hence the need to analyse student nurses’ risk perception of contracting cervical cancer in Zimbabwe.
1.3 STATEMENT OF THE PROBLEM

The problem statement articulates the problem to be addressed and indicates the need to study through the development of an argument (Burns & Grove 2011:146). It identifies the specific gap in the knowledge needed for practice. The integration and participation of nurses in any of the cervical cancer screening approaches would be an advantage in early prevention of cervical cancer (Goyal et al 2013:247). As a step in this direction knowledge, attitudes and perceptions towards cervical cancer screening needs to be assessed. Besides their knowledge, attitudes and perceptions regarding cervical cancer, screening has a bearing on their own health as well. Their attitude is often crucial in gaining women’s confidence as they are the persons who help conduct tests. It is therefore relevant to appraise the perception and utilisation of cancer screening services by future nurses.

Cancer of the cervix is the leading malignancy among women in Zimbabwe and it accounts for 41.8% of all cancers in Bulawayo according to the Bulawayo cancer registry 2013 on site at Mpilo Radiotherapy Department. While many college students underestimate the risk of contracting various sexually transmitted infections (STI), it has been found that HPV has become a common sexually transmitted infection on college campuses in South Africa (Hoque & Hoque 2009:21). College women have a greater risk of acquiring STI’s than the general population because of their high risk sexual behaviour in which they engage (Hoque & Hoque 2009:21).

Student nurses provide health promotion to patients as part of their training as it is stated in the curriculum. They can fulfil a key role in health promotion and disease prevention as they are in an ideal position to provide health care education to young girls and women. It is therefore important to investigate student nurses’ perception of their risk of developing cervical cancer as well as knowledge of the disease. Based on the specific hospital registry data, seventy seven women tested positive for cervical cancer in the 2013 at Mpilo VIA centre. Against this background the student nurses’ knowledge, attitudes, perceptions and their personal commitment to have themselves tested for cervical cancer has to be determined, as their commitment can influence their involvement in other women’s cervical cancer risk. Whilst the researcher has been involved at the Mpilo VIA centre, the observation in practice was that several numbers
of women tested positive for cervical cancer screening as supported with statistics below in table 1.3.

**Table 1.1: Mpilo VIA statistics 2013**

<table>
<thead>
<tr>
<th>Month</th>
<th>Women tested</th>
<th>Tested positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>224</td>
<td>8</td>
</tr>
<tr>
<td>February</td>
<td>225</td>
<td>10</td>
</tr>
<tr>
<td>March</td>
<td>237</td>
<td>3</td>
</tr>
<tr>
<td>April</td>
<td>239</td>
<td>9</td>
</tr>
<tr>
<td>May</td>
<td>193</td>
<td>5</td>
</tr>
<tr>
<td>June</td>
<td>230</td>
<td>7</td>
</tr>
<tr>
<td>July</td>
<td>217</td>
<td>11</td>
</tr>
<tr>
<td>August</td>
<td>196</td>
<td>3</td>
</tr>
<tr>
<td>September</td>
<td>265</td>
<td>5</td>
</tr>
<tr>
<td>October</td>
<td>236</td>
<td>9</td>
</tr>
<tr>
<td>November</td>
<td>206</td>
<td>6</td>
</tr>
<tr>
<td>December</td>
<td>150</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2618</strong></td>
<td><strong>77</strong></td>
</tr>
</tbody>
</table>

With such high statistics health workers need to be encouraged to disseminate information on cancer prevention so as to reduce morbidity and mortality from cervical cancer. The high incidence of cervical cancer indicates the importance of doing the study.

**1.4 RESEARCH PURPOSE**

Research purpose is a clear concise statement of a specific goal or focus of a study (Burns & Grove 2011:146). It captures the essence of a study in a single sentence and is essential for directing the remaining steps of the research process. Cervical cancer is a preventable disease; however, its prevention depends on early detection of precancerous lesions and treatment. The purpose of the study is to analyse/investigate the knowledge, attitudes and determine perceptions influencing cervical cancer screening behaviour of nursing students against their own utilisation of screening services.
1.5 RESEARCH OBJECTIVES

Research objectives are clear concise declarative statements expressed in the present tense that usually are presented following the study purpose to specify the study focus (Grove, Burns & Gray 2013:138). The objectives of the study are to

- determine knowledge of cervical cancer screening among female student nurses at a hospital in Zimbabwe
- analyse female student nurses attitudes towards screening for precancerous lesions
- determine female student nurses risk perception in contracting cervical cancer in Zimbabwe
- determine female student nurses’ attitudes towards their own utilisation of cervical cancer screening

1.6 RESEARCH QUESTIONS

They are specific queries researchers want to answer in addressing the research problem. A research question is a clear concise interrogative statement that is worded in the present tense and includes one or more variables and is expressed to guide the implementation of quantitative studies (Burns & Grove 2011:163).

The study seeks to answer the following questions:

- What is the knowledge of female student nurses regarding cervical cancer screening?
- What are the female student nurses’ attitudes towards screening for cervical cancer?
- What are female student nurses’ perceptions with regards to contracting cervical cancer?
- What is female student nurses’ commitment to self-screening for cervical cancer?
- What is the female student nurses’ perceived susceptibility to cervical cancer?
1.7 SIGNIFICANCE OF THE STUDY

The findings of the study will be used to make recommendations to influence the policy makers in designing more innovative ways of reducing cervical cancer among women. It is hoped that the information generated from this study will provide insight into the perception of the risk of contracting cervical cancer that female student nurses have. The study findings might assist the health care providers to review the cervical cancer screening and treatment policies. It is envisaged that the female nursing students will benefit from this study by becoming more aware of their reproductive health, as such patients might also benefit from female students’ commitment to their personal health with regards to cervical cancer.

1.8 DEFINITION OF TERMS

Defining concepts allows consistency in the way the term is used. A conceptual definition is more comprehensive than a denotative (or dictionary) definition and includes associated meanings the word may have. A concept is a complex mental formulation of perceptions of the world (Chinn & Kramer 2011:158). A concept is a term that abstractly describes and names an object, idea or phenomenon, thus providing it with a separate identity or meaning (Burns & Grove 2011:230). Creating conceptual meaning produces a tentative definition of the concept and a set of tentative criteria for determining whether the concept is meaningful in a particular situation (Chinn & Kramer 2011:162).

Knowledge

Knowledge is understanding of or information about a subject that one gets by experience or study, either known by one person or by people generally. It is the facts, information and skills acquired through experience or education. Knowledge refers to knowing that is expressed in a form that can be shared or communicated with others (Chinn & Kramer 2011:3). In this study knowledge refers to the understanding or information the participants have about cervical cancer with respect to symptoms, risk perception, prevention and treatment.
Attitude

Bergh and Theron (2003:168) refer to attitude as an orientation that is based on an individual’s value system. It is a way of feeling or behaving, feeling or opinion about something or someone, or a way of behaving that is caused by this. Attitude is a pattern of mental views established by cumulative prior experience. Attitudes develop through interaction between parent and child, critical periods of development, social cultural and educational influences. In this study attitude refers to the feelings or opinions that students have about the perceived risks and screening for premalignant cervical lesions.

Perception

Perception is a selective process by which we interpret and give meaning to external factors (Bergh & Theron 2003:105) a belief or firmly held opinion, an acceptance that something exists or is true especially one without proof, something one accepts as true or real. Perception is thought, idea and concept moulded by culture, religion and parental and family influence which plays a major role in opinion and behaviour.

1.9 OPERATIONAL DEFINITION

According to LoBiondo-Wood and Haber (2010:58), an operational definition includes the method used to measure the concept. It gives a general idea of the concepts empiric indicators. The first part of the definition provides a general meaning for the term and the second part suggests behaviours associated with the concept to be assessed (Chinn & Kramer 2011:178).

Knowledge

Knowledge in this study is the understanding the respondents have about cervical cancer with respect to symptoms, prevention, and treatment and screening methods.
Attitude

An attitude in this study is the mode of thinking about screening for premalignant cervical lesion.

Perception

Perception in this study will mean the ideas that influence students’ opinions and behaviour regarding cervical cancer screening.

1.10 THEORETICAL FRAMEWORK

A research framework summarises and integrates what we know about a phenomenon more succinctly and clearly than the literary explanation and allows us to grasp the picture of the phenomenon (Grove et al 2013:117). It will guide the development of a study and enable the researcher to link the findings to the body of nursing knowledge. The purpose of this study is to analyse female nursing students' knowledge attitudes and perceived risk to cervical cancer. The conceptual framework chosen for this study is the health belief model (HBM). It attempts to explain people’s health behaviour by focussing on their attitudes and beliefs (Watkins & Cousins 2010:104). This model is used in studies focusing on patient compliance and preventive health care services (Polit & Beck 2014:138). The model postulates that health-seeking behaviour is influenced by a person’s perception of a threat posed by a health problem. It is based on interaction of four different types of belief. The model predicts that individuals will take action to promote or protect health. If application of this model to the prevention of cancer is considered in order to adopt behaviours that minimise the risk of cervical cancer is taken by female students nurses they need to perceive

- that preventive measures are available that can reduce their susceptibility or minimise the consequences of cervical cancer
- that the benefits of taking action outweigh the costs or barriers to cervical cancer screening
- that they are all susceptible to carcinoma of the cervix
- that carcinoma of the cervix has potential serious consequences
The model applies to cervical cancer in the sense that if nursing students know that they are susceptible, if they know that cervical cancer has serious consequences on their lives, if they know preventive measures are available that can reduce their susceptibility or minimise the consequences of cervical cancer, if they believe the benefits outweigh the costs they would be motivated to seek preventive measures.

The components of the HBM and their possible influence on nursing students’ decision to screen for cervical cancer will be discussed in more detail in chapter 2.

1.11 RESEARCH DESIGN AND METHODOLOGY

This section gives a summarised overview of the research design and the methodology which will be discussed in detail in chapter 3.

1.11.1 Research method

A quantitative research design and methodology will be used. Quantitative research is a formal, objective systematic process in which numerical data are used to obtain information about the world (Burns & Grove 2011:20). Deductive reasoning is used to generate predictions that are tested in the real world. The researcher moves in a systematic fashion from the definition of a problem and the selection of concepts on which to focus, to the solution of the problem (Polit & Beck 2010:16). This methodology will be used in order for the researcher to understand the full nature of the phenomenon which is the student nurses’ knowledge, attitude and risk perception of contracting cervical cancer. The information gathered is numeric information that results from some type of formal measurement and that is analysed with statistical procedures.

1.11.2 Research design

A descriptive cross-sectional survey design will be used to determine the knowledge, attitudes and perceptions influencing cervical cancer screening behaviour of student nurses. A research design is a blueprint for the conduct of a study that maximises control over factors that could interfere with the study’s desired outcome. The type of
design directs the selection of a population, procedures for sampling, methods of measure and plans for data collection and analysis (Burns & Grove 2011:49).

1.11.3 Sampling

The study was conducted at Mpilo Central Hospital which is a tertiary training hospital. Mpilo is a quaternary teaching hospital which is the highest level of care in Zimbabwe. The researcher targeted student nurses training at Mpilo central hospital. Student nurse training is a 3-year programme which is hospital based in Zimbabwe. There are 3 intakes of new students each year in January, May and September. In total there are 173 female nursing students at Mpilo. The researcher targeted all female student nurses in training. Convenience sampling was used in which all eligible students from the accessible population willing to participate were selected. A sample size of 120 students was selected for this study, more detail in chapter 3.

1.11.4 Data collection

Data was collected using a questionnaire which was designed for this study after an extensive literature review on screening for precancerous lesions and cervical carcinoma. A structured self-designed questionnaire composed mainly of closed ended questions was administered to female student nurses (see annexure E). The main sections of the questionnaire that was developed included: demographic data, perceived susceptibility to cervical cancer, perceived severity of cervical cancer, perceived benefits of cervical cancer screening, perceived barriers to cervical cancer screening and cues to action.

1.11.5 Data analysis

The collected data was processed using descriptive statistics and the Statistical Package for Social Sciences (SPSS) version 21. The descriptive statistics included frequency distribution and Chi-square calculations.
1.12 ETHICAL CONSIDERATION

The primary aim of research into health related issues, namely the improvement of the quality of life of individuals and groups, situates research within the realm of the ethical: doing what is good and right (Van der Wal 2011:326). A letter was written to the Mpilo Central Hospital for permission to conduct the study (Annexure D). To ensure the protection of human subjects, approval to conduct the study was obtained from the Research and Ethics committee at the University of South Africa (Annexure A) and Mpilo Central Hospital (Annexure B). Each participant signed an informed consent (Annexure C) prior to answering the questionnaire.

The guiding ethical principles were autonomy, beneficence, justice and confidentiality. These were considered in relation to the participants, researcher and the institution where the research was conducted. This will be discussed in detail in chapter 3.

1.13 OUTLINE OF THE DISSERTATION

The dissertation will comprise five chapters:

Chapter 1: Introduction and overview of the study

Chapter 2: literature review

Chapter 3: Research design

Chapter 4: Presentation and discussion of data

Chapter 5: Conclusion, limitations and recommendations

1.14 SUMMARY

This chapter outlined the background to the study, the study objectives and significance of the study. The researcher defined key terms, operational definitions, discussed the theoretical framework and briefly discussed the research design, methodology, data collection instrument and ethical considerations. The next chapter will discuss literature review.
CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents literature review on studies that have been conducted on knowledge, attitudes and perceptions towards cancer screening and the utilisation of services. The discussion will be presented under the following headings: cervical cancer, aetiology prevention of cervical cancer, available screening tests, impact of screening and the health belief model. According to LoBiondo-Wood and Haber (2010:59), literature review is a systematic and critical appraisal of the most important literature on a topic; it is the key step to the research process that provides the basis of a research study. Literature review can shape research questions, contribute to the argument about the need for a new study, suggest appropriate methods, and point to a conceptual framework (Polit & Beck 2010:170). It also provides a strong knowledge base for the conduct of the research study.

For the purposes of this study literature available internationally and nationally about student nurses’ knowledge attitudes and perceptions regarding cervical cancer, screening, early detection, treatment and health belief model concepts were reviewed. A literature search was conducted to enhance the researcher’s knowledge about the research topic and to enhance the research design. Sources of information included research articles on the internet, journals and books, Ministry of health and child care reports for Zimbabwe and information from Zimbabwe’s cancer registry 2012. These were sourced from the libraries of the University of South Africa (UNISA), University of Zimbabwe, and Mpilo School of Nursing. The following search engines were utilised during this study i.e. googlescholar, pubmed and Ebsco host.

The major concepts of the study were used as key words for literature. These included cervical cancer, health belief model, cervical cancer screening, knowledge attitude and perceptions about cervical cancer, visual inspection with acetic acid and Pap smear.
2.2 CERVICAL CANCER

Regular screening is believed to be the key in preventing cervical cancer epidemic throughout the world. Worldwide cervical cancer is one of the leading causes of morbidity and mortality among gynaecological cancers. The WHO (2014:23) reported that cervical cancer is the second most common cause of female cancer globally. At least 80% of the cases occur in developing countries (Ibekwe, Hoque & Ntuli-Ngcobo 2010:1021). It accounts for over 275 000 female deaths and approximately 529 000 new cases occur every year due to this preventable disease (Hoque, Ghuman, Coopoosmay & Van Hal 2014:1). Cervical cancer is a major public health problem worldwide. In developing countries it tends to present about 15 years earlier than it does in the developed countries (Al-Naggar, Low & Isa 2010:867). It is therefore more aggressive variant of the disease probably occurs in the developing countries. Sadly it also occurs where people are poor, the socio-economic status of the women is low and sometimes specific ethnicity also poses additional risks to women to develop cervical cancer (Ali, Kuelker & Wassie 2012:1).

The developing world has carried a disproportionate share of the burden of cervical cancer. Cervical cancer incidence rates in Sub-Saharan Africa (SSA) are the highest in the world and the disease is the most common cause of cancer death among women in the region (De Vuyst, Alemany, Lacey, Chibwesha, Sahasrabuddhe, Banura, Denny & Parham 2013:1). Zimbabwe has a population of 4.37 million women of ages 15 and older who are at risk of developing cervical cancer. Current estimates indicate that every year 7000 women are diagnosed with cervical cancer and only 1300 to 2000 of these are treated with radiotherapy (Pomerai, Muchekezi & Nyachowe 2015:1). In Zimbabwe females as young as 15 years old continue to die from the disease and studies indicate that cervical cancer continues to grow in the country. For example in 1995 cervical cancer ranked number one accounting for about 25% of all cancer mortality. In 2003 cervical cancer accounted for 27.3% of all cancer deaths (Mupepi et al 2011:943). Currently the incidence of cervical cancer is at 34.6% (Chokunonga et al 2012:34). The incidence rates have been increasing at an average of 3.3% every year and are now very high (Chokunonga, Borok, Chirenje, Nyakabau & Parkin 2013:8). The reason for this trend could be linked to the epidemic of HIV/AIDS. According to Averbach, Gravitt, Nowark, Celentano, Durnbar, Morrison, Grimes and Padian...
(2010:1036), cervical HPV infection enhances HIV acquisition among the uninfected women by recruiting an increased number of HIV target cells to the genital mucosa. The eventual recruitment of T lymphocytes to the genital epithelium is required to clear the infection. Because HPV requires activated T cells to elicit an effective cell-mediated immune response, it is biologically plausible that HPV infection enhances a woman’s susceptibility to HIV acquisition by exposing target cells to HIV in male ejaculate.

Although it is known that cervical cancer can be cured through treatment if pre-cancer is diagnosed early by screening, in Sub-Saharan (SSA) countries disease screening is not routine. People do not access health care check-ups for routine screening because it is not common practice. Instead people tend to access health care when they have disease symptoms (Mupepi et al 2011:944). The first national cytology service for cervical cancer prevention in Zimbabwe was established in January 1972 to serve patients. According to Chirenje and Akino (1993:222), since that time there is no systematic cervical screening programme available in Zimbabwe. Selective or opportunistic screening of women who present at family planning clinics, city council clinics, and various central hospital clinics and private clinics is done. Despite the availability of screening services very few women are being screened for the disease (Mutandwa, January, Nyati-Jokomo, Tapera & Chipendo 2014:20).

In SSA mortality caused by cervical cancer is the highest in the countries that are less equipped to deal with the problem (Ali et al 2012:2). The highest incidences of cervical cancer in SSA are found in Lesotho and Swaziland. These two countries have neither screening programs nor anticancer facilities (Denny 2012:80). According to Hoque et al (2014:2), cervical cancer is the second most frequent cancer among women between 15-44 years of age after breast cancer. Current estimates indicate that every year in South Africa 5743 women are diagnosed with cervical cancer and 3027 die from the disease. According to Al-Naggar and Isa (2010:435), in Australia 85% of the women who die from cervical cancer have not had regular Pap smears and about 50% of them have never had a Pap smear. Developed countries have been successful in controlling the incidence of cervical cancer, whereas developing countries such as Malaysia have performed dismally in this respect. There is a dramatic increase of death rate among Malaysian women due to cervical cancer from 1996, 2000 and 2002 ranged from 0.29%, 0.41% and 10.5% respectively (Al-Nagar & Isa 2010:436). This increase is
despite the cervical cancer screening programme established in 1969 targeting women aged 20-65 years, no reduction in the prevalence of cervical cancer has been noted.

Botswana has effective preventive and screening programs that are available in the country’s health care system free of charge for cervical cancer screening. Despite this the annual number of deaths for cervical cancer in Botswana remains high at 126 per 100,000 women. The crude incidence rate is 19.8 per 100,000 and the annual number of new cervical cancer cases is 15.6 per 100,000 women. The crude mortality rate from cervical cancer remains the highest when compared to the other types of cancers with a crude mortality rate of 15.9 per 100,000 women (Ibekwe et al. 2010:1021). Cervical cancer is an endemic throughout the world, and deaths related to this cancer can be reduced with protection, early diagnosis and treatment. Midwives, nurses and other health professionals with training on this subject can identify individuals at risk as well as co-factors contributing to the disease, and play an important role in the protection against cancer by providing education and counselling (Genc, Sarican, Turgay, Icke, Sari & Saydam 2013:6775).

Health care services which in general are poorly developed and under resourced in poor countries tend to focus on communicable and infectious diseases (TB, HIV and malaria) and maternal mortality, with cancer of the cervix barely recognised as a significant health problem (Denny 2008:329). There is also widespread poverty in many developing countries which impact on women’s access to health care. In addition to the formidable barriers created by socio-economic conditions in poor countries the traditional method of screening, cervical cytology, presents a further barrier (Denny 2006:1206). The high prevalence of HPV among women in West Africa may be explained by risk factors including high parity and early sexual debut (Schluteman, Sow, Traore, Bakarou, Dembele, Sack, Gravitt & Tracy 2013:2).

2.3 AETIOLOGY

Cervical intraepithelial neoplasia (CIN) develops in the transformation zone of the cervix. The change in pH along with other factors causes the delicate columnar epithelium cells to transform into squamous epithelium through the process of metaplasia. CIN develops in the transformation zone and it is this area which is sampled cytologically (Magowan et al 2009:203). Persistent infection of the cervix with certain
high risk types of HPV has been well established as a necessary cause of cervical cancer (Denny 2012:581). There are more than 200 recognised serotypes of the HPV. The most common are HPV 16 and 18, which are responsible for approximately 70% of cervical cancer cases (Hoque et al 2014:1).

Cervical cancer has a long premalignant period that provides the opportunity for screening and treating before it turns to be invasive cervical cancer (Oranratananaphan, Amatyakul, Iramaneerat & Srithipayawan 2010:1). The precise rates of progression and spontaneous resolution are unknown. Roughly 1/3 of the lesions will progress to the next stage, a 1/3 remains unchanged and a 1/3 will regress. The duration of progression to invasive carcinoma is variable but the average is 10 years (Magowan et al 2009:203).

As it is known that precancerous lesions are detectable for 10 years or more before cancer develops, the ideal ages for screening should then be 20-30 years, the age when women are at the highest risk of precancerous lesions (Mutyaba, Mmiro & Weiderpass 2006:1). This window of opportunity which has enabled the developed countries to reduce the incidence of cancer of the cervix would be wasted if the level of screening is low as is the case in developing countries.

2.3.1 Signs and symptoms of cervical cancer

The majority of HPV infections do not cause symptoms or disease and resolve spontaneously. Early invasive disease may be asymptomatic. The earliest symptom of invasive cervical cancer is usually abnormal bleeding often post coital and pelvic pain (Ajithkumar & Hatcher 2011:213). However, persistent infection with specific types of HPV (most frequently types 16 and 18) may lead to precancerous lesions. If untreated these may progress to cervical cancer (WHO 2014:157, Neal & Hoskin 2009:186) symptoms of cervical cancer tend to appear only after the cancer has reached an advanced stage and may include:

- Irregular intermenstrual or abnormal vaginal bleeding after sexual intercourse
- Back, leg or pelvic pain
- Fatigue, weight loss, loss of appetite
- Vaginal discomfort or odourous discharge
- A single swollen leg
More severe symptoms may arise in advanced stages (WHO 2014:157).

2.4 PREVENTION OF CERVICAL CANCER

Cervical cancer is a preventable disease when detected early. The value of cervical cancer screening is reducing the risk of cervical cancer and mortality and it is estimated that regular screening reduces the risk of cancer by up to 80% (Al-Naggar & Isa 2010:435). Primary prevention is based essentially on a healthy lifestyle and vaccination against HPV (Pomerai et al 2015:2). It is aimed at reducing risk factors. Risk factors of cervical cancer are young age at first sexual intercourse, multiple male sexual partners, male sexual partners who have had multiple partners, early age at first birth, multiparty, smoking, long term use of oral contraceptive pills and immunosuppressed states (Owoeye & Ibrahim 2013:48; Ghotbi & Anai 2012:897; Oranratanaphan et al 2010:1; Ali et al 2012:1). Awodele et al (2011:498) also state that co-infection with Chlamydia trachomatis, herpes simplex virus type 2 and certain dietary deficiencies are contributory factors to cervical cancers. It is also well established that individuals with HIV have increased risk of HPV infection and HPV related disease including cervical intraepithelial neoplasia and cervical cancer (Wang, Wright, Denny & Kuhn 2011:479).

In a study that was done by Wang et al (2011:477) in Cape Town in South Africa from 2000 it was found that within ~1 year after seroconversion, HPV infection prevalence more than doubled and reached levels similar to that observed among women with prevalent HIV infection.

Cervical cancer prevention and control programmes are developed and designed to decrease cervical cancer incidence, morbidity and mortality. A comprehensive programme should include primary, secondary and tertiary prevention activities and access to palliative care (WHO 2014:45)

2.4.1 Primary prevention of cervical cancer

Primary prevention of cervical cancer involves vaccination against HPV. Prophylactic HPV vaccination and HPV testing in screening have the potential to bring unprecedented gains in reducing the burden of cervical cancer worldwide (Franco & Paavonen 2008:261). Unfortunately the current vaccines only protect against 70% of the disease and only effective to those not yet exposed to the virus (Awodele et al
Moreover there are different HPV genotypes in different regions and populations, thus increasing the complexity of cervical cancer prevention (Wang, Li, Wei, Peng, Yuan, Xie & liu 2013:7483). However, the availability of vaccines against certain types of HPV has altered the landscape of possibility for prevention of cervical cancer (Denny 2012:582). Vaccines are prophylactic and should be ideally administered to individuals prior to onset of sexual activity which varies from country to country and in different cultures (Fiander 2011:122). The vaccines are Monovalent (against HPV 16), Bivalent (against 16 and 18 cervarix) and Quadrivalent against 6, 11, 16 and 18 Gardasil (Denny 2012:582).

In the United States the American Cancer Society (ACS) recommends HPV vaccination for females from 11-16 years old as well as those between 13-18 years old who want to catch up with missed vaccines or complete the vaccination series (Ghotbi & Anai 2012:898). The vaccines have been recommended for girls between the ages of 9-26 in many European countries, New Zealand, Australia and in the USA within the context of various school immunisation programs (Genc et al 2013:6775). There are benefits which have been realised in screening women who have been previously vaccinated. In Chile there was a 25% additional cancer risk reduction when screening three times per lifetime (ages 35, 40 and 45) was conducted in women who were vaccinated as pre-adolescents (Goldie, O’Shea, Diaz & Kim 2008:89). According to Pomeraï et al (2015:2), vaccination of adolescent girls in Zimbabwe is still under trial. The 2 demonstration project districts are Marondera and Beitbridge. Nine to thirteen year old girls are targeted. Three doses of the vaccines will be administered over 6 months.

Other preventive interventions recommended by WHO (2014:48) are:

- Education about safe sexual practices including delayed start of sexual activity
- Promotion and provision of condoms for those already engaged in sexual activity
- Warning about tobacco use
- Male circumcision

2.4.2 Secondary prevention of cervical cancer

Secondary prevention of cervical cancer is by screening for precancerous lesions and early diagnosis (Pomerai et al 2015:2). Owoeye and Ibrahim (2013:49), state that a key
aspect to cervical cancer is the detection of the pre malignant form by cervical screening; it is also one type of cancer that can be prevented and cured if detected early. The long transition time from premalignant lesion to frank cancer of the cervix affords ample time for early detection and nearly complete cure. In Japan the incidence of cervical cancer is low 6.7 per 100 000, however, 15 000 new cases are diagnosed annually and about 2 500 women die due to the cancer (Ghotbi & Anai 2012:897). Women above 20 years are encouraged to undergo Pap smears every two years, since 2009 a coupon for free Pap smears is distributed nationwide to women turning 20, 25, 35 or 40 during the previous year. Despite these measures Japan has a strikingly low rate of participation in cancer screening programmes. In 2009, 24.5% of all Japanese women screened for cervical cancer (Oshima & Maezawa 2013:4313).

Notable reduction in the incidence of cervical cancer has been recorded in Finland, Sweden, Japan and New Zealand (Ali et al 2012:5). In Australia, deaths from cervical cancer have decreased at about 2.8% a year, since the introduction of the National Cervical Cancer Screening Programme in 1991. In some African countries widespread national cervical cancer screening programmes have not been initiated (Asonganyi, Vaghasia, Rodrigues, Phadtare, Ford, Pietrobon, Atashili & Lynch 2013:2). This is a cause for concern as Africa not only has a high incidence of cervical cancer but a large proportion of patients present with advanced disease. However, in South Africa a national screening programme has been put in place. The goal of this national programme is to screen at least 70% of women within the target age group within 10 years of initiating the Programme. The policy allows for three Pap smears in a woman’s lifetime taken at 10 year intervals from 30 years of age (South African HPV Advisory Board 2010:24).

According to Ali, Kuelker & Wassie (2012:12), Kenya, South Africa and Zimbabwe have cytology based screening programmes. The same authors state that a study was done in Nairobi, Kenya to evaluate the quality and usability of various screening methods. Pap smear, VIA, cervicography and HPV/DNA methods were used. The study concluded that Pap smear had had the highest sensitivity (94.6%). In Bangladesh a speculum is used for detecting cervical abnormalities by visual inspection without any aid. This strategy was proposed by WHO and is known as down-staging (Ali et al 2012:13).
The screening for cervical cancer is based on two assumptions. The first is that prevention is better than cure and the second is that early detection may allow early treatment as the primary pathologic process is still reversible (Ali et al 2012:2). Cervical cancer provides unique opportunities for prevention because; central to its aetiology is infection of the cervix with a well-defined virus and preventing infection with the virus should have a major impact on the incidence of cervical cancer and the process of developing cervical cancer takes at least 10-20 years allowing opportunities to intervene long before cancer develops (Denny 2008:21).

**2.4.3 Tertiary prevention of cervical cancer**

Tertiary prevention of cervical cancer involves the diagnosis and treatment of confirmed cases of cancer. Treatment is through surgery, radiotherapy and sometimes chemotherapy. Palliative care is provided to patients when the disease has already reached an incurable stage (Pomerai et al 2015:2).

**2.5 STAGES OF CERVICAL CANCER**

Stages of cervical cancer according to the Federation of International Gynaecology and Obstetrics (FIGO). Cervical cancer is staged by clinical examination often carried out under anaesthesia and diagnosis confirmed histologically by biopsy (Wiebe, Denny & Thomas 2012:S100).

**Table 2.1: Cervical cancer stages: Cancer of the cervix uteri**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The carcinoma is strictly confined to the cervix (extension to the uterine corpus should be disregarded).</td>
</tr>
<tr>
<td>IA</td>
<td>Invasive cancer identified only microscopically. (All gross lesions even with superficial invasion are stage 1B cancers.) Invasion is limited to measured stromal invasion with a maximum depth of 5 mm and no wider than 7 mm. IAI Measured invasion stroma ≤ 3 mm in depth and ≤ 7 mm width. IA2 Measured invasion of stroma &gt; 3 mm and &lt; 5 mm in depth and ≤ 7 mm width.</td>
</tr>
<tr>
<td>IB</td>
<td>Clinical lesion confined to the cervix, or preclinical lesions greater than stage 1A. IBI: Clinical lesions no greater than 4 cm in size. IB2: Clinical lesions &gt;4 cm in size.</td>
</tr>
<tr>
<td>Stage</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>II</td>
<td>The carcinoma extends beyond the uterus, but has not extended onto the pelvic wall or to the lower third of vagina</td>
</tr>
<tr>
<td>IIA</td>
<td>Involvement of up to the upper 2/3 of the vagina. No obvious parametrial involvement. IIA1: Clinically visible lesion ≤4cm IIA2: Clinically visible lesion &gt;4 cm</td>
</tr>
<tr>
<td>IIB</td>
<td>Obvious parametrical involvement but not onto the pelvic sidewall</td>
</tr>
<tr>
<td>III</td>
<td>The carcinoma extends onto the pelvic sidewall. On rectal examination, there is no cancer-free space between the tumor and the pelvic sidewall. The tumor involves the lower third of the vagina. All cases of hydronephrosis or non-functioning kidney should be included unless they are known to be due to other causes.</td>
</tr>
<tr>
<td>IIIA</td>
<td>Involvement of the lower vagina but no extension onto pelvic sidewall.</td>
</tr>
<tr>
<td>IIIB</td>
<td>Extension onto the pelvic sidewall, or hydronephrosis / non-functioning kidney.</td>
</tr>
<tr>
<td>IV</td>
<td>The carcinoma has extended beyond the true pelvis or has clinically involved the mucosa of the bladder and / or the rectum.</td>
</tr>
<tr>
<td>IVA</td>
<td>Spread to adjacent pelvic organs.</td>
</tr>
<tr>
<td>IVB</td>
<td>Spread to distant organs.</td>
</tr>
</tbody>
</table>

(Adapted from FIGO Committee on Gynaecologic Oncology (2009:104))

2.6 AVAILABLE SCREENING TESTS

Cervical cancer screening is a public health intervention provided to an asymptomatic target population. Women targeted for screening may actually feel perfectly healthy and see no reason to visit health facilities. Screening is not undertaken to diagnose a disease, but to identify individuals with increased probability of having either the disease itself or a precursor of the disease (WHO 2014:123). New opportunities to reduce cervical cancer deaths stem from new and feasible screening alternatives for developing countries (Goldie et al 2008:86). Organised screening policies designed to screen a large population of women at regular intervals have shown to be much more effective in reducing deaths than opportunistic screening (Ibboston & Wykes 1995:748). Cervical cancer screening is relatively inexpensive and there is a worldwide agreement that screening programmes for cervical cancer are a necessity (Owoeye & Ibrahim 2013:49).

Uptake is one of the most important factors determining the success of a screening programme with non-attenders at a higher risk of cervical cancer. Facilitating and
improving uptake of screening would save lives, reduce costs of treating invasive cancer and reduce mortality. Historically cervical cancer has been prevented by performing cervical cytology within the context of national screening programs and referring women with abnormal cytology for colposcopy, treatment and follow up (Denny 2012:582). Nowadays there are a number of methods which are used to detect premalignant lesions such as Pap smear, liquid based cytology, VIA and HPV DNA (Oranratanaphan et al 2010:1).

2.6.1 Cytology-based screening

Cytology-based screening involves taking a sample of cells from the entire transformation zone. Cytology based screening can use either conventional Pap smear or liquid-based cytology (LBC). With conventional cytology, a sample of cells is smeared on a glass slide, and preserved by a fixative agent. For LBC, instead of smearing the sample onto a slide, it is placed into a container of preservative solution and sent to the laboratory for microscopic examination (WHO 2014:133). The advantages of LBC include an increased possibility of more representative and complete transfer of cervical cells from the sampling device to the slide and improved microscopic readability (Sankaranarayanan, Gaffikin, Jacob, Sellors & Robles 2005:S6). The same authors state that LBC is more expensive than conventional cytology and requires additional instrumentation to prepare a smear it is therefore not feasible to implement LBC in low resource settings. Cytology-based cervical cancer screening programmes have significantly reduced the incidence of mortality caused by cervical cancer in many developed countries (Ali et al 2012:11).

In the developed countries 75% of women are screened for cervical cancer typically by Pap smears and more recently HPV test compared with 5% in the developing countries (Gedefaw et al 2013:2). According to McCarey et al (2011:2), cytology based screening in developing countries have been conducted since the early 1980’s but have failed to reduce the mortality rates mainly because of inadequate material resources, absence of a quality control system, lack of trained providers and of follow up and treatment. A study done in Sweden revealed that Pap smear screening brought down mortality caused by cervical cancer by 53% (Ali et al 2012:12).
There are many barriers to setting up national screening programs in low resource countries, however, in the last 15 years new approaches and technologies have made the possibility of implementing secondary prevention screening programs in poor countries more feasible (Denny 2012:580). Barriers to cytology based screening include developing necessary infrastructure to obtain and transport the Pap smears to laboratories for processing and interpretation and thereafter results need to be communicated to the referring clinic and to the women who have been screened (Denny, Quinn & Sankaranarayanan 2006:72). There is also a growing concern that Pap screening is largely inefficient because of its high false negative (Franco & Paavonen 2008:261). Under performance of cytology screening led to alternative screening approaches such as VIA, VILLI, HPV testing based screening and a single visit screen and treat, in which treatment with cryotherapy or cold coagulation is provided immediately or soon after the screening test to screen positive without evidence of cancer (Sankaranarayanan 2014:415).

2.6.2 Visual screening methods

Visual screening with acetic acid (VIA) is a method of detecting early changes that are visible when using a speculum to inspect the cervix with the naked eye after applying dilute (3-5%) acetic acid to it (WHO 2014). According to Huchko et al (2015:392), visual inspection with 3-5% acetic acid (VIA) is the most widely implemented low-cost screening technique. In 1999 a project of the University of Zimbabwe on VIA showed that VIA could be used to detect precancerous lesions (Ali et al 2012:11). The advantage of VIA is that it can be performed by mid-level health practitioners such as nurses and the patient is provided with immediate results. However, VIA is a subjective test and therefore depends on the skills and experience of the provider executing the test.

Although Via has lower specificity and sensitivity than HPV tests, it has shown equal validity compared to cytology in resource limited settings (Gedefaw, Astatkie & Tessema 2013:2). Another limitation of VIA is its high false positive rate owing to the subjective nature of the test (Sherigar, Dalal, Durdi, Pajar & Dhumale 2010:323). The main advantage of the VIA over other methods is that it give immediate results and can be used effectively for treatment without colposcopy and histological sampling in a single visit and thus is known as screen and treat approach (Ali et al 2012:11). The
positive predictive value of VIA depends on the incidence of cervical lesions which results in a reduced quality if the see and treat approach is implemented in a medium risk population with medium incidence of cervical cancer (Untiet, Vassilakos, McCarey, Tebeu, Menoud, Boulvain, Navarria & Petignant 2014:1912).

Another method which can be used as visual inspection is VIAM, where low level magnification is used. The added value of low magnification is that it could eliminate a proportion of false positive identifications (Sankaranarayanan, Gaffikin, Jacob, Sellors & Robles 2005:S9). However, in a study done in South Africa magnification did not improve the test performance over VIA (Sankaranarayanan et al 2005:S9).

2.6.3 Visual inspection with Lugol’s Iodine

Visual inspection with Lugol’s Iodine (VILI) originally known as Schiller’s test, a test introduced by Schiller in the 1930’s was rapidly replaced by cytology when it became available. It involves naked eye examination of the cervix to identify mustard yellow lesions in the cervix immediately after application of Lugol’s iodine. A positive result is based on the appearance of a definite mustard yellow area on the cervical os or on a cervical growth (Cuzick et al 2012:f113). The test cannot be repeated for several hours as iodine stains and changes persist for a long time.

The sensitivity of VILI varied from 44-92% and specificity from 75-85% in cross-sectional studies done in India, Africa and Latin America (Cuzick et al 2012:f113). The same others state that VILI is not recommended as a standalone visual test it is useful as an adjunctive to VIA.

2.6.4 HPV-DNA

HPV DNA testing is recommended as a primary screening test in women over 30 years of age followed by cytology for women with a positive test (Denny 2008:332). HPV DNA was found to be more sensitive than cytology based screening tests in the developed countries but the sensitivity was reported to be lower when performed in developing countries, it ranged between 50-80% in 4 studies done in India. (Ali et al 2012:11). According to Sankaranarayanan (2014:415), HPV has a huge potential to eliminate cervical cancer and when it is used it should not be repeated in less than 10 year intervals. HPV-DNA is associated with a higher sensitivity than VIA to detect precancer,
a large randomised trial in India demonstrated that a single round of HPV-DNA testing in women above 30 reduced advanced cervical cancer and mortality by 50% whereas VIA did not (Campos, Castle, Wright & Kim 2015:2209).

HPV-DNA allows for self-versus provider-collection of specimens. Self-sampling for HPV provides a simple alternative to attending a clinic for screening in person. There is no need for a speculum examination by a health professional, and the woman can take the sample herself using a vaginal swab, brush, tampon, or other collection device (Cuzick et al 2012:f112). Uptake of HPV-DNA could improve if self-sampling is utilised. However the sensitivity of HPV testing in vaginal self-sampling studies was found to be lower than that in studies that used direct sampling of cervical cells by clinicians or nurses indicating that adequacy of specimen collection is an important determinant of the success of HPV testing (Sankaranarayanan et al 2005:S7).

2.6 HPV

According to WHO (2014:129), HPV testing is being incorporated into cervical cancer screening programmes in high resource settings as a primary screening test. A new low cost HPV test that can be processed on-site at the same facility where the sample has been taken is being tested in several low-resource settings and will soon be available on the market. The emergence of testing for high risk HPV types has allowed a higher diagnostic accuracy and prognostic information (Untiet et al 2014:1912)

2.7 DIAGNOSIS

A diagnostic or confirmatory test is a medical test performed to aid in the diagnosis or detection of a disease. Because not all women with positive results on cervical screening tests have pre-cancer, a subsequent diagnostic test is sometimes used for confirmation of pre-cancer or cancer (WHO 2014:136). Colposcopy, biopsy and endocervical curettage (ECC) are the most commonly used diagnostic test for cervical pre-cancer.
2.7.1 Colposcopy

Colposcopy is the examination of the cervix, vagina and vulva with an instrument that provides strong light and magnifies a field, allowing specific patterns in the epithelial layer and surrounding blood vessels to be examined. According to Ali et al (2012:13), colposcopy is often used for low-power magnification and illumination. The purpose of colposcopy is to assess further if some abnormalities are found in smear tests. Colposcopy is used in on patients with positive screening results to verify the presence, extent and type of pre-cancer, to guide biopsies of any areas that may appear abnormal, and to help determine whether cryotherapy or Loop electrosurgical excision procedure (LEEP) is the most appropriate treatment (WHO 2014:137).

2.7.2 Biopsy

Biopsy is the removal of small samples of abnormal tissue for microscopic examination to achieve a diagnosis. Biopsies are taken from areas of the cervix that are VIA positive or from areas that appear suspicious for cancer. Biopsies determine the degree of abnormality of the cell changes at the cervix and to rule out cancer (WHO 2014 137).

2.7.3 Endocervical curettage

It is a simple procedure in which some surface cells are gently scraped from the endocervical canal with a special thin instrument or spatula, and the tissue is placed in a container with a fixative solution and sent to the laboratory for examination (WHO 2014:139).

2.8 TREATMENT FOR INVASIVE CANCER

Treatment of cervical cancer is dependent on the stage of the disease, age and medical state of the patient, tumour characteristics, patients preferences and resources within the health sector of each country (Urasa & Darj 2011:49). The management of cervical cancer, according to Wiebe et al (2012:100), is as follows:
**Stage IAI**

The recommended management is total abdominal hysterectomy, vaginal hysterectomy, or laparoscopic total hysterectomy. Colposcopy of the lower genital tract should be performed pre-operatively, and if there is any associate vaginal intraepithelial neoplasia (VAIN) an appropriate cuff of the vagina is removed.

**Stage IA2**

The recommended treatment is modified radical hysterectomy and pelvic lymphadenectomy.

**Stage IB1-IIA1**

The treatment of choice depends on availability of resources, and tumour and patient related factors. The standard surgical treatment is modified radical or radical abdominal hysterectomy and pelvic lymphadenopathy.

Grossly invasive cervical carcinoma (FIGO Stage IB –IVA)

Use of concurrent platinum-based chemotherapy with radiotherapy.

According to WHO (2014:165), cervical cancer treatment options include surgery, radiotherapy and chemotherapy. Treatment depends on the stage of cancer the general health of the woman and availability of facilities and expertise.

**2.8.1 Surgery**

It consists of removal of varying amounts of tissue from the area involved with cancer and its surroundings; it can be done through the vagina or an opening through the abdomen. A cone biopsy can be done which includes the removal of a wide circle of tissue that surrounds the opening of the uterus and includes the lower portion of the cervical canal. Hysterectomy is another surgical procedure which is the removal of the entire uterus (WHO 2014:167).
2.8.2 Radiotherapy

It uses sophisticated equipment to produce invisible rays that are beamed on to the cancer and surrounding affected areas. The rays penetrate the body and destroy cancer cells so that the cancer is fully or partially eliminated (WHO 2014:168).

2.8.3 Chemotherapy

It is the administration of repeated treatments with toxic drugs. A series of several treatments with one or more chemicals is given intravenously to kill rapidly dividing cells (WHO 2014:170).

2.9 TREATMENT OPTIONS FOR CERVICAL PRE-CANCER

Women with pre-cancer must receive effective treatment, in the context of a screen and treat approach treatment follows a positive screening test without diagnostic confirmation (WHO 2014:141). Treatment aims to destroy or remove areas of the cervix identified as pre-cancer. Cryotherapy loop electrosurgical excision (LEEP) and cold knife conisation can be used.

2.9.1 Cryotherapy

It is the controlled local destruction of cervical tissue by application of subfreezing temperatures. It acts by causing crystallisation and rupture of cell membranes (Abha, Bhavna & Vivek 2011:432). It can be performed by all levels of health workers. Following cryotherapy the frozen area regenerates to normal epithelium (WHO 2014:142).

2.9.2 Loop electrosurgical excision procedure

In LEEP heat from a high voltage electrical arc between the operating electrode and tissue allows the cutting by vaporising or coagulation (Abha et al 2011:432). The LEEP tool cuts and coagulates at the same time and this is followed by use of a ball electrode to complete the coagulation. LEEP aims to remove the lesion and the entire
transformation zone (WHO 2014:143). According Abha et al (2011:434), LEEP requires considerable equipment but the cost is not much and it has a low maintenance.

2.9.3 Cold knife conisation

This is the removal of a cone-shaped area from the cervix, including portions of the outer and inner cervix. The amount of tissue removed will depend on the size of the lesion and the likelihood of finding invasive cancer (WHO 2014:144). The tissue is sent to the pathology laboratory for histopathological diagnosis and to ensure that the abnormal tissue has been completely removed.

2.10 IMPACT OF SCREENING

In Africa which has a population of 267.9 million women aged 15 years and older at risk of developing cervical cancer approximately 80 000 women are diagnosed with cancer each year, and just over 60 000 women die from the disease. By comparison in Europe where there are 321.8 million women aged 15 years and older at risk of developing cancer of the cervix 59.931 women are diagnosed with cancer of the cervix and 28 812 die from the disease (Denny 2012:580). This huge difference in cervical cancer incidence in low versus high resource regions is a reflection of the absence of national cancer screening programmes in most low resource countries (Urasa & Darj 2011:49). Screening using cervical cytology is not feasible in most developing countries due to the financial, technical and infrastructural investment required (Fiander 2011:125).

To make matters worse poor knowledge of cervical cancer and lack of awareness of available screening methods have been identified as the most important factors hindering the use of available cervical cancer screening services. Women health care worker are expected to have the most adequate and updated information regarding cervical cancer screening, however, studies have shown this suggestion may not be true (Genc et al 2013:6777; Ribeiro, Moura, Brandao, Nicolau, Aquino & Pinher 2013:466; Oranrantanaphan2010:3). Most women health care workers do not have adequate information regarding the risk factors regarding cervical cancer and even if they do, they do not routinely visit the gynaecologist and have a Pap smear (Can, Erdem, Oztekin, Celik, Onde, Celepkolu & Ongel 2014:6669).
2.11 HEALTH BELIEF MODEL (HBM)

The Health Belief Model (HBM) will be used to contextualise this study. The HBM was developed in the early 1950s by social scientists at the U.S. Public Health Service in order to understand the failure of people to adopt disease prevention strategies or screening tests for the early detection of disease. HBM is a widely used conceptual framework, to explain change and maintenance of health-related behaviours and as a guiding framework for health behaviour interventions (Champion & Skinner 2008:45). As a conceptual framework it is used to understand health behaviour and possible reasons for non-compliance with recommended health action (Julinawati, Cawley, Domegan, Brenner & Rowan 2013:678). HBM can provide guidelines for programme development allowing planners to understand and address reasons for non-compliance.

Many theories and models of behaviour postulate that beliefs play a major role in explaining behaviour. Assari (2011:581) states that the HBM is not optimal when the aim is to predict and not to explain behaviour. The reason being that risk perception is influenced by affect, memory and previous experience with that behaviour. The HBM posits that individuals will engage in preventive health behaviour if they believe themselves threatened by an illness or condition and believe that the benefits of taking preventive action outweigh the barriers to or costs of the said action (Burak & Meyer 1997:251). The model suggests that factors such as illness of self or relative or health messages from media or health professionals may motivate people to consider a change in behaviour; these are considered as ‘triggers for action’ (Watkins & Cousins 2010:104). According to Ersin and Bahar (2013:4997), the HBM can be used effectively in determining the impeding factors. In the HBM the individual considers the positive and the negative results of the behaviour in the perceived barrier. As a consequence individual turns the behaviour into an action or not. Champion and Skinner (2008:50), state that the most distinguishing part of the model is the perceived barriers. Perceived susceptibility is a stronger predictor of preventive health behaviour.

2.11.1 Description of HBM and key constructs

The HBM contains several concepts that predict why people will take action to prevent, screen for, or to control illness conditions; these include susceptibility, seriousness, benefits and barriers to a behaviour, or cues to action and most recently self-efficacy.
(Champion & Skinner 2008:47). According to Burak and Meyer (1997:252), the HBM postulates that feeling vulnerable to a condition is a motivation to take action for prevention in this case to screen for cervical cancer. Perceived severity is defined as a person’s interpretation of the degree of intensity of a disease, that is, the extent to which the person considers that the disease may make great demands on them, affect their interpretation of obstacles that could prevent or control advancement, access or progress (Guvenc, Akyuz & Acikel 2010:429). It is assumed that the more serious the health problem is, the more likely a person will take action against it.

This study aims to analyse the student nurses’ knowledge, attitudes and perception of contracting cervical cancer and this could be directly related to the HBM constructs of perceived threat, perceived benefits, perceived barriers and cues to action. According to Ingledue, Cottrell and Bernard (2004:29), lack of HPV knowledge coupled with misperceptions about susceptibility impacted college women’s attitudes and behaviours regarding cervical cancer prevention.

The HBM posits that the likelihood of taking action is determined by beliefs that barriers to action are outweighed by the benefits of action. Perceived benefits are actions taken to prevent disease or deal with an illness, an action that will result in a positive outcome or benefit to one’s health. Perceived barriers are characteristics of a treatment or preventive measure that may be seen as inconvenient, expensive, unpleasant, painful or upsetting (Guvenc et al 2010:429).

Despite the perceptions of susceptibility and severity, an individual may delay health behaviour until an instigating event sets the process in motion. Cues to action are those factors that serve to stimulate or prompt health-related behaviours. An individual’s cues may be internal or external events (Burak & Meyer 1997:252).
<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived susceptibility</td>
<td>Belief about the chances of experiencing a risk of getting a condition or disease.</td>
<td>Define population(s) at risk. Personalise risk based on a person’s characteristics or behaviour. Make perceived susceptibility more consistent with individual’s actual risk.</td>
</tr>
<tr>
<td>Perceived severity</td>
<td>Belief about how serious a condition and its sequelae are.</td>
<td>Specify consequences of risks and conditions.</td>
</tr>
<tr>
<td>Perceived benefits</td>
<td>Belief in efficacy of the advised action to reduce risk or seriousness of impact.</td>
<td>Define action to take; how, where, when; clarify the positive effects to be expected.</td>
</tr>
<tr>
<td>Perceived barriers</td>
<td>Belief about the tangible and psychological costs of the advised action.</td>
<td>Identify and reduce the perceived barriers through reassurance, correction of misinformation, incentives, assistance.</td>
</tr>
<tr>
<td>Cues to action</td>
<td>Strategies to achieve “readiness”.</td>
<td>Provide how-to information, promote awareness, use appropriate reminder systems.</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>Confidence in one’s ability to take action.</td>
<td>Provide training and guidance in performing recommended action. Use progressive goal setting. Give verbal reinforcement. Demonstrate desired behaviours. Reduce anxiety</td>
</tr>
</tbody>
</table>

(Champion & Skinner 2008:48).
### 2.11.2 Application of the HBM to cervical cancer screening behaviour

The HBM has been used extensively to determine the relationship between health beliefs and health behaviours as well as to inform interventions. An important consideration of this model is the recognition that prevention requires people to take action in the absence of illness. The HBM indicates that the ways of knowing and behaving are governed by beliefs and emotions, and they can change over time. Despite the perceptions of susceptibility and severity, an individual may delay health behaviour until an instigating event sets the process in motion (Burak & Meyer 1997:253). A study done on student nurses in Brazil revealed that in spite of having heard about the Pap smear students had inadequate knowledge about its real purpose (Ribeiro et al 2013:466). On the contrary students at a tertiary institution in Nigeria were found to be knowledgeable about Pap smear, however, they considered themselves not to be at risk for cervical cancer (Owoeye & Ibrahim 2013:54). The reasons given for low participation in cervical cancer screening by women in Botswana in a study done by Ibekwe et al (2010:1026) were that the at risk women did not perceive themselves as being susceptible to cervical cancer as they did not have symptoms, they lacked
information about the benefits of screening. They also had misconceptions of thinking that it was painful and that it affected virginity. Cervical cancer was perceived as serious and the thought of believing that there was no treatment made them uninterested in screening for cervical cancer.

2.11.2.1 Perceived susceptibility

Perceived susceptibility refers to beliefs about the likelihood of getting a disease or condition. Perceived risk of contracting a disease refers to individuals’ subjective perception of their susceptibility to the disease. The woman must believe there is a possibility of getting cervical cancer before they will be interested in getting screened. As such the model predicts that women will be more likely to adhere to cervical cancer screening recommendation if they feel that they are susceptible to cervical cancer (Champion & Skinner 2008:47). Most women perceive themselves as not being at risk of developing cervical cancer hence there is no need to screen (Shekar et al 2013:3644; Ibekwe et al 2010:1026; Oshima & Maezawa 2013:4317). In a study done by Mupepi et al (2011:950) in Zimbabwe women did not present for screening as they felt that they had no family history of cervical cancer and therefore it was not necessary to attend. However, McFarland (2003:174) in a study conducted in Botswana found that perceived susceptibility to cervical cancer did not influence use of screening services.

According to Ibekwe, Hoque and Ntuli-Ngcobo (2011:7), in a study also conducted in Botswana, the researchers found that the fact that women perceived themselves as having a low susceptibility to cervical cancer and they therefore believed that screening for cervical cancer was not necessary as they did not have any symptoms or had no family history of cervical cancer. There are obvious limitations to the use of the HBM in practice, in that a person must perceive that they are at risk before embarking on a journey of considering behaviour change (Watkins & Cousins 2010:105). In a study done by Abotchie and Shokar (2009:43) in Ghana, respondents understood that cervical cancer screening had benefits 64% believed that the test could find cervical cancer changes before becoming cancerous and that it could be easily cured. However, a study done in Nigeria revealed that the participants believed that screening for cervical cancer was not necessary (Ubujaka, Ukegbu, Ilikanu, Ibeh, Onyeonoro & Ezeanyim 2015:19). In another study done in Botswana by McFarland (2003:172) indicated that the majority of participants believed they were susceptible to cervical cancer. Being
sexually active, having other conditions or diseases and having inadequate knowledge about the disease were cited as factors most likely to predispose women to cervical cancer. Others believed that their risk of cervical cancer was low because they took preventive measures by getting Pap smear tests and avoiding the known risk factors.

2.11.2.2 Perceived severity

The perceived severity of a disease refers to the severity of a health problem as assessed by the individual. Feelings about the seriousness of contracting an illness or of leaving it untreated include evaluations of both medical and clinical consequences (for example, death, disability, and pain) and possible social consequences (such as effects of the condition on work, family life, and social relations). The combination of susceptibility and severity has been labelled as perceived threat (Champion & Skinner 2008:47). In a study done by Basu, Sarkar, S, Mukherjee, Mittal, Biwwas, Mandal and Sankaranarayanan (2006:372) in India, the reasons why women were not presenting for screening is because they thought it would be painful, and moreover they were scared of a positive diagnosis that, according to them, meant anxiety for the family, expenses and inevitable death. Although most participants perceived cervical cancer as serious, the thought of believing that there was no treatment for cervical cancer makes them uninterested to attend/present for cervical cancer screening (Ibekwe et al 2010:1026). There is also a misperception about the extent to which people can feel or detect cancer in their own bodies, as many women think that routine screening is unnecessary because they take good care of themselves and do not experience any symptoms (Ackerson & Preston 2009:1132).

In McFarland’s study in Botswana (2003:172) women believed that cervical cancer was a serious disease because it was fatal, incurable and could lead to a hysterectomy. They attributed its high mortality to its late discovery. They also reported that a loss of the uterus could lead to inability to produce children which could lead to divorce or failure to get a husband.

2.11.2.3 Perceived benefits

Even if a person perceives personal susceptibility to a serious health condition, (perceived threat), whether this perception leads to behaviour change will be influenced
by the person’s belief regarding the perceived benefits of the various available actions for reducing the disease threat (Champion & Skinner 2008:47). As such women must believe that a course of preventive behaviours available would be beneficial in reducing the risk of getting cervical cancer. Therefore individuals exhibiting optimal beliefs in susceptibility and severity are not expected to accept any recommended health action unless they also perceive the action as potentially beneficial by reducing the threat. In a study by Burak and Meyer (1997:255), participants were overwhelmingly positive in their beliefs that gynaecological screening and Pap tests were beneficial to their health. The women who took part in McFarland’s study (2003:173) perceived the Pap test to be beneficial as it could detect the hidden disease early and expressed the desire to be tested.

Students in Ghana understood that cervical cancer screening had benefits; they believed that the test could find cervical changes before they became cancerous and could be easily cured (Abotchie & Shokar 2009:413).

2.11.2.4 Perceived barriers

Perceived barriers to action refers to the negative aspects of health-oriented actions or which serve as barriers to action and or that arouse conflicting incentives to avoid action. Perceived barrier refers to the potential negative aspects of particular health action which may act as impediments to undertaking recommended behaviours. A kind of non-conscious, cost-benefit analysis occurs wherein individuals weigh the action’s expected benefits with perceived barriers such as it could help me, but it may be too expensive, have negative side effects, be unpleasant, inconvenient, or time consuming. Thus combined levels of susceptibility and severity provide the energy or force to act and the perception of benefits (minus barriers) provides a preferred path of action (Champion & Skinner 2008:49).

Emotion affects decision making, fear which is highly associated with uncertainty adaptively causes individuals to be risk averse by inhibiting action and causing them to make safer bets, avoiding uncertainty and potential threats. Applied to cervical cancer screening it would be expected that fear of cancer would produce risk aversion and motivate women to obtain screening. According to Al-Naggar and Isa (2010:438), barriers influencing Pap screening are embarrassment, fear of pain, cost, and access to
health care, being examined by a male, lack of awareness and fear of infection. In that study it was found that medical students were embarrassed and anxious about having a vaginal or pelvic examination done by male doctors. According to Watkins and Cousins (2010:105), fear is detrimental to people being able to perceive themselves at risk, and for this reason, victim blaming and fear tactics are unlikely to work.

A study done by Were and Buziba (2011:62) revealed that key barriers to screening included fear of a positive result, lack of awareness and lack of finances to access the services. Mupepi et al (2011:950) discovered that over and above the mentioned barriers, lack of access, poverty and hardships as well as lack of advice and encouragement from health workers affected the screening of women in Zimbabwe. Lack of knowledge of cervical cancer among health workers was seen as a prime barrier for access to cervical cancer prevention in Cameroon (McCarey et al 2011:2).

2.11.2.5 Cues to action

Early information of the HBM included the concept of the cues that can trigger actions. Readiness to action (perceived susceptibility and perceived benefits) could only be potentiated by other factors particularly by cues to instigate action such as bodily events or by environmental events such as media publicity (Champion & Skinner 2008:50). For example women would be more likely to have preventive behaviour like screening for cervical cancer if they can be reminded by their family members or health care providers. In a study by Burak and Meyer (1997:256), the college women responded that their mothers had talked to them about gynaecological examinations. Lack of support and encouragement from close family and friends may play a role in women attending cervical cancer screening (Julinawati et al 2013:682).

Documet, Bear, Flatt, Macia, Trauth and Ricci (2015:60) state that interpersonal factors such as social relationships and social support affect screening behaviour and promote healthy behaviour. Moreover women from low socio economic groups and minorities are much less likely to have access to quality, more likely to fear and mistrust health care providers and do not feel empowered to seek information (Ackerson & Preston 2009:1135). Studies have found that aspects of social support are directly related to cancer screening. Social support is seen as a buffer and may help diminish the negative influence of stressful events. Preventive practices are more common among those that
feel they have greater control over their future health. Family or peer group expectations may have more direct influences on behaviour or they may directly shape health beliefs. Students in Ghana reported very few cues in the media or from primary care physicians and other health care workers about the importance of cervical cancer screening (Abotchie & Shokar 2009:416). Demographic, social and psychological factors are understood to modify the health belief of individuals. Utilising the HBM in practice provides a framework on which nurses can base their practice. Providing health messages can act as a trigger and knowing that people will be undertaking a cost-benefit analysis associated with making a change allows the nurse opportunities to increase the client’s knowledge of the benefits and to help to identify the barriers and plan strategies to overcome these (Watkins & Cousins 2010:105).

2.11.2.6 Self-efficacy

Perceived self-efficacy is defined as the conviction that one can successfully execute the behaviour required to produce the outcomes. For behaviour change to succeed, people must feel threatened by the current behavioural pattern (perceived susceptibility and severity) and believe that change of a specific kind will result in a valued outcome at an acceptable cost (perceived benefit). They then must also feel themselves competent (self-efficacious) to overcome perceived barriers to take actions (Champion & Skinner 2008:50).

2.11.3 Other variables

Diverse demographic, socio-psychological, and structural variables may influence perceptions and thus, indirectly influence health-related behaviour. For example, socio-demographic factors, particularly educational attainment, are believed to have a direct effect on behaviour by influencing the perception of susceptibility, severity, benefits and barriers (Champion & Skinner 2008:50).

2.11.3.1 Knowledge

It is a well-established fact that knowledge does not always translate into behaviour but improved knowledge has been found to increase uptake of cervical cancer screening in most research settings (Ibekwe et al 2010:1022). Inadequate knowledge and lack of
awareness can become a barrier to cervical cancer prevention (Al-Naggar & Isa 2010:438; Mupepi et al 2011:950; Urasa & Darj 2011:54; Ibekwe et al 2010:1026). A study done by Mutandwa et al (2013:23) revealed that there was an association between knowledge about Pap smear and employment status which may affirm that women discussed cervical cancer screening at their places of work, or these women were educated and were more likely to be exposed to a vast array of literature and other forms of media. These results are contrary to those obtained by Hoque et al (2014:4) in a study conducted among South African students which found low awareness levels for the issues related to screening, as there were specific gaps in knowledge about risk factors. This result was not expected, given that literate young women in a college environment might have been exposed to public health education messages on sexually transmitted diseases, but mainly HIV/AIDS. In a study done by Denny-Smith, Bairan and Page (2006:67) in America, the participating female students were found to have relatively low knowledge levels for what would be expected of nursing students.

There are disparities that exist in cancer screening by socio-economic status. Women with lower incomes and fewer years of education are less likely to comply with recommended cancer screening guidelines. Studies done in America indicate that 69.45% of women aged 21 years and older with less than high school diploma reported having a Pap test in the past 3 years compared with 77.7% and 89.0% of those with a high school diploma and with some college respectively (Documet et al 2015:56).

A study done on Zimbabwean women on antiretroviral therapy (Pomerai et al 2015:3) revealed that cervical cancer knowledge was low, and this was attributed to lack of prioritisation of the disease by health workers as well as MOHCC. In a study done on women in Nigeria 63.7% of the participants were not aware of both cervical cancer and its screening (Emanuel, Adenoma, Oluwole, Matthew, Toyin & Aishatu 2015:123). College students in Ghana also displayed low knowledge on risk factors and very low knowledge of the link between HPV and cervical cancer, they were not aware of the recommended screening age and frequency (Abotchie & Shokar 2009:412). In another study done among nursing staff in rural India, revealed that less than a quarter 23.4% of the nurses knew HPV as a risk factor for cervical cancer, association between knowledge and self-screening was found to be significant. The participants perceived the precancerous stage of cervical cancer as incurable (Shekhar, Sharma, Thakur & Raina 2013:3644). Knowledge on cervical cancer and screening is low. This is further
strengthened by Goyal et al (2013:250) whose findings were that although nurses were able to identify certain aspects of cervical cancer, their knowledge was not complete. Being nursing personnel a better knowledge of preventable diseases like cervical cancer is expected from them.

In a study done in India by Basu et al (2006:372) cervical cancer screening was a concept totally unheard of, women had no baseline knowledge about cervical cancer and its prevention. The women did not appreciate the importance of getting the test done in the absence of symptoms. The word cancer was associated with suffering and death. To them anything to do with detection of such a dreadful disease had to be painful. Moreover they were scared of a positive diagnosis which meant anxiety in the family, expenses and inevitable death. Some of the women felt that they would be shunned by family and friends if detected positive as cancer is an infectious disease.

2.12 SUMMARY

This chapter has summarised literature related to cervical cancer, its aetiology and screening. It also highlighted the concepts of the HBM that can be applied for cervical cancer screening tests. Research reports regarding the impact of knowledge on health behaviours demonstrated a strong association with behaviour change. The HBM constructs have been found to predict participation in cervical cancer screening. The HBM provides a suitable framework for investigating factors affecting screening behaviours. A review of factors associated with the utilisation of cervical cancer screening has been provided and framed within the concepts of the HBM and with specific attention to knowledge and screening behaviours.

A quantitative research methodology will be used for this study. This will provide an in-depth investigation of factors influencing the utilisation of cervical cancer screening services have also been reviewed. The research methodology will be discussed in chapter 3.
CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the methodology that was used for this study, including the research design, setting, target population, sampling techniques, sample size, data collection plan and procedure, validity and reliability of the research instrument, data analysis procedures and ethical considerations. Ethical issues are also addressed.

3.2 RESEARCH DESIGN

A research design is defined as the blueprint for conducting a study that maximises control over factors that could interfere with the validity of the findings (Grove et al 2013:214). It also provides a representation of the researcher's beliefs about how knowledge is generated (Moule & Goodman 2014:170). According to LoBiondo-Wood and Haber (2010:159), the overall purpose of the research design is to aid in the systematic solution of research questions. The research design is influenced by the paradigm the researcher follows; it justifies the study, methods of data collection and analysis. According to Sim and Wright (2000:27), a design has the following operational aspects:

- What entities or variables to examine
- Under what conditions to examine these entities or variables
- What type of data to collect
- From whom to collect these data
- At what time points to collect the data
- What method to employ for data collection
- What implications ensue for subsequent data analysis

A cross-sectional exploratory descriptive study using the quantitative design was used in this study to analyse the knowledge, attitudes and perceptions of student nurses with regards to contracting cervical cancer.
3.2.1 Quantitative research

A quantitative design was used to conduct this study. Under this approach the researcher uses deductive reasoning to generate hunches that are tested in the real world. It involves a set of orderly procedures to gather information. Researchers move in a systematic fashion from the definition of a problem to the solution of a problem. The researchers then progress through a series of steps according to a pre-specified plan. The information is usually in numeric form that results from some type of formal measurement and that is analysed statistically (Polit & Beck 2014:8). The quantitative approach emerged from logical positivism, which operates on strict rules of logic, truth, laws and predictions. According to this approach, the truth is absolute and there is a single reality that can be defined by careful measurement (Burns & Grove 2011:20).

The features of quantitative methods

- Focuses on a small number of specific concepts
- Begins with preconceived ideas about how the concepts are interrelated
- Uses structured procedures and formal instruments to collect information
- Collects the information under conditions of control
- Emphasises objectivity in the collection and analysis of information

Advantages of quantitative methods

- Being able to demonstrate quantity is a powerful tool in producing reliable data on phenomena in the social and natural world.
- The methods adopted by quantitative researchers are transparent. The methods followed are demonstrable, logical and mathematically and statistically sound.
- The methods are able to explain phenomena with independent and dependent variables explaining cause and effect, or through inference and association depending on the method.
- The findings of the study can be generalised to a large population for example through sampling methods.
The study gathered quantitative data using a questionnaire which attempted to find out risk perception of student nurses with regards to contracting cervical cancer.

### 3.2.2 Cross-sectional design

In cross-sectional designs data are collected at one point in time. They are appropriate for describing phenomena at a fixed point (Polit & Beck 2010:239). Here the respondents are ordinarily reporting on past events, feelings and behaviour (Moule & Goodman 2014:315). Student nurses were asked to report on their feelings about contracting cervical cancer. Cross-sectional designs describe the phenomena of interest and observed associations in order to estimate population parameters.

### 3.2.3 Descriptive design

According to Wood and Ross Kerr (2011:121), descriptive designs must provide descriptions of the variables to answer the question. The data collected was predetermined. It allowed the researcher to gain different perspectives and draw attention to various factors that affect the screening choices of student nurses. Descriptive designs are used when the researcher seeks, observes and documents a naturally occurring phenomenon which cannot readily be ascribed a value. A descriptive survey collects detailed descriptions of existing variables and uses the data to justify and assess current conditions and practices or to make plans for improving health care practices (LoBiondo-Wood & Haber 2010:198). These designs are concerned with gathering information from a representative sample of the population and emphasise the use of structured observations, questionnaires and interviews or surveys. Descriptive designs also attempt to relate or define a subject often by creating a profile of a group of problems, people or events through the collection of data and the tabulation of the frequencies on research variables or their interactions. These designs also provide a picture of the phenomena as it occurs (Burns & Grove 2011:283). Variables of interest in the population were explored and described using descriptive statistics so as to provide useful information about the population, hence the choice of the design.
3.2.4 Paradigm

A paradigm is a framework for a set of beliefs about what should be studied, what methods should be used and how data should be interpreted for gaining knowledge of the natural or social world (Saks & Allsop 2013:19). In essence it frames the way in which the discipline’s concerns will be viewed and the direction that the research project will take. It implies standards or criteria for assigning value or worth to both the processes and the products of a discipline as well as the methods of knowledge development (Chinn & Kramer 2011:253). A paradigm for research is therefore a way of thinking about and doing research that rests on particular assumptions. In this study the positivist paradigm will be used.

3.2.4.1 Positivism

Research in the positivist paradigm tends to proceed on the basis of deductive reasoning. The researcher works from a particular body of theory and knowledge, in this study the HBM is used.

A fundamental assumption of positivists is that there is a reality out there that can be studied and known (Polit & Beck 2014:7). Phenomena are not haphazard or random but rather have antecedent causes. Positivists have tended to believe that through the controlled testing of variables, cause and effect relationships can be determined and the truth established. They argue that the scientific method can also be used to study social phenomena, and that universal laws exist that can explain human behaviour in an objective way (Moule & Goodman 2014:174), as such there are reasons why nursing students may or may not screen for cervical cancer. This approach therefore involves use of orderly, disciplined procedures with tight controls over the research situation to test hunches about the nature of the phenomena being studied and the relationship among them.

The specific criticisms against positivist methods are that the social world is different from the natural world and cannot be studied objectively. The positivist methods are also less good in determining why people act as they do and how decision making is embedded in the complexity of individual circumstance and relationships (Saks & Allsop 2013:24). In this study the researcher did not influence the findings in any way as the
researcher was independent of those being researched. The researcher focused on the objectives and quantification of the phenomena and statistical analysis methods were used.

3.3 STUDY SETTINGS

The setting is a location where the study is conducted (Grove et al 2013:372). These can be natural, partially controlled and highly controlled. A natural setting is one where the researcher does not manipulate or change the environment for the study. In this study no changes were made to the school of nursing for the purposes of this study. This study utilised a government teaching hospital no preferential treatment was given to the participants for the purposes of this study. The study was conducted at Mpilo School of Nursing located in Bulawayo. The rationale for the choice of study site was that is where most of the students stay and receive their lectures, and the researcher is conveniently based at this facility as her place of work. This helped to reduce the costs and time related to data collection.

3.3.1 Population

The target population is the entire set of cases about which the researcher would like to make generalisations (LoBiondo-Wood & Haber 2010:222). The researcher targeted student nurses training at one of the government teaching hospitals in Zimbabwe. Due to the high incidence of cervical cancer in Zimbabwe it is imperative to identify factors associated with student nurses' risk perception to contracting cervical cancer assuming that self-commitment to cervical cancer screening might be indicative of their commitment to informing patients and the general population about cervical cancer screening.

Student nurse training is a 3-year programme which is hospital based in Zimbabwe. There are 58 females in the first year, 52 in the second year and 63 in the third year. In total there are 173 female nursing students at the training hospital. The researcher targeted all female student nurses in training. Male student nurses were excluded as they are not susceptible to cervical cancer. There are 3 intakes each year in January, May and September.
3.3.2 Sample and sampling method

A sample is a subset of the population, selected through sampling techniques (Moule & Goodman 2014:291). Sampling is a process of selecting subjects who are representative of the population. For a sample to be representative it must be similar to the target population in as many ways as possible. For this study nonprobability sampling was used. It is characterised by use of nonrandom methods of selection to obtain sample members (Polit & Beck 2010:309). In nonprobability sampling, not every element of the population has an opportunity for selection to be included in the sample (Burns & Grove 2011:305). This approach decreases a sample’s representativeness of a population. Convenience sampling was used; it is also called accidental sampling. A convenient sample includes respondents that happen to be in the right place at the right time. According to DePoy and Gitlin (2011:169), convenience sampling involves the enrollment of available subjects or elements as they enter the study until the desired sample size is reached. The researcher established the inclusion and exclusion criteria and selects those individuals who fit these factors and volunteer to participate. Male student nurses were excluded as they did not meet the criteria. The students were recruited into the study until the desired sample size was achieved. A minimum sample size was calculated using a standard formula for known population size for a cross sectional study, the formula is:

\[
n = \frac{N}{(1 + N(e)^2)}
\]

Where \(n\)=sample size of adjusted population size and \(e\)=accepted level of error taking alpha as 0.05.

The total number of female student nurses training at Mpilo Central Hospital was 173. Substituting this figure into the formula above a sample size of 120 was obtained.

\[
n = \frac{173}{(1+173(0.05)^2)}
\]

\(n=120\)

However, since convenience sampling was used to get participants, the sample size was increased by 10% to 132 participants to increase the statistical power.
Convenience sampling was performed by approaching all eligible available student nurses since some were on rural secondment. One hundred and thirty-two (132) questionnaires were distributed and collected.

3.4 METHODS OF DATA COLLECTION

Data collection refers to the precise, systematic gathering of information relevant to the research purpose or the specific objectives, questions or hypothesis of the study (Burns & Grove 2011:52). A variety of techniques are used for measuring study variables such as interview or questionnaires. Researchers must obtain permission from an agency or setting to conduct the study as well as consent from the participants.

3.4.1 Data collection instrument

Research instruments are devices used to collect data. These can be in the form of questionnaire, test and observation schedule (Polit & Beck 2010:343). The research design guides the instrument of choice. A questionnaire was used, it is a printed self-report form designed to elicit information through written or verbal responses of the subject (Burns & Grove 2011:352). The questionnaire was written in English as it is the language of instruction at the school of nursing. Consequently it was expected that all student nurses would be able to understand English. It is used to gather information about beliefs, attitudes, opinions, knowledge or intentions of the subject. According to Sim and Wright (2000:74), Questionnaires comprise series of items that are presented in a written format in a fixed order where each respondent is requested to answer every item (unless directed to omit certain items). Questionnaires have closed ended questions in which the response alternatives are pre specified by the researcher. There are also open ended questions which allow participants to respond to questions in their own words.

There are advantages and disadvantages of self-completed questionnaires as described by Sim and Wright (2000:77).
Advantages

- Easy to complete if well-constructed and presented in a way suited to the target population
- Suitable for topics for which fixed response options can be predetermined
- Suitable for gathering much the same information from all respondents
- Can gather somewhat superficial data economically from a large number of individuals
- Anonymity of respondents is easy to guarantee

Disadvantages

- Developing a well-constructed questionnaire that produces valid and reliable data is difficult
- Limited use of topics where the nature or form of responses cannot be predicted
- Less suited to situation where different categories of information are required
- Participants’ answers are largely contained to fixed response options which may not be wholly appropriate
- The researcher cannot explore issues in depth by seeking clarification or elaboration

The wording and structure of individual items may bias responses (Sim & Wright 2000:77)

Data collection instrument

The questionnaire was developed by the researcher after an extensive literature review based on the objectives of the study and HBM constructs. It was also reviewed by the supervisor. The questionnaire comprised of 6 sections A to F with the following subsections: demographic socio-psychological, perceived susceptibility to cervical cancer, perceived severity or seriousness of cervical cancer, perceived benefits of being screened for cervical cancer, perceived barriers to cervical cancer screening and cues to cervical cancer screening.
The questionnaire comprised mainly of closed ended questions. Closed ended questions require the respondent to tick available responses and items. Items accompanied by true, false, do not know and Likert scale strongly agree, agree, neutral, disagree, strongly disagree responses to several declarative statements that express a point of view on the topic are also included.

Advantages of closed ended questions are that they enable more questions to be answered in a fixed period of time, require less writing and are useful when there is a fair amount of prior knowledge on a research topic and they are easy to analyse (Moule & Goodman 2014:325). The disadvantage is that they restrict the amount and breadth of information being collected.

**Section A: Modifying factors**

Diverse demographic, socio-psychological, knowledge, socio cultural, race, education, and structural variables may influence perception and thus indirectly affect heath related behaviour (Champion & Skinner 2008:50). Socio demographic factors such as education, age, parity, marital status and occupation can affect behaviour of cervical cancer screening. This section assessed individual’s socio-demographic information.

**Section B: Perceived susceptibility**

Section B included questions that assessed the student nurses’ subjective perception of their susceptibility to cervical cancer. Questions such as if they intended to screen for cervical cancer, whether they had been screened previously and if they believed they were at risk of contracting cervical cancer were included. Women must believe that they are at risk of contracting cervical cancer before they can undergo cervical cancer screening.

**Section C: Perceived severity/seriousness of cervical cancer**

This section determined if student nurses perceived the seriousness of cervical cancer. Questions which determined if they knew the meaning of a positive screen test, signs of cervical cancer and the risk factors were included. Having personal knowledge
regarding the importance of screening for cervical cancer has been evidenced as an important factor to take action to prevent the adverse outcome of cervical cancer.

**Section D: Perceived benefits of being screened for cervical cancer**

Section D determined perceived benefits of being screened for cervical cancer by nursing students. As such student nurses must believe that a course of preventive behaviours available would be beneficial in reducing the risk of getting cervical cancer. Questions which determined if they have knowledge on diagnostic procedures, if they perceived screening as something that can save their lives and if cervical cancer was perceived as curable were included. It is predicted that those with perceived benefits are more likely to take preventive measures.

**Section E: Perceived barriers to cervical cancer screening**

This section explored the perceived barriers to cervical cancer screening. Barriers such as embarrassment, lack of time, lack of awareness and test being painful were assessed.

**Section F: Cues to taking a cervical cancer screening test**

This section explored the cues to having cervical cancer screening test done by student nurses. Questions included determined student nurses’ sources of cervical cancer screening information as well as preferred methods of attaining information. It is said women are more likely to have preventive behaviour like screening for cervical cancer if they are reminded by their family members or health care providers.

**3.4.2 Data collection procedure**

Prior to data collection a pilot study was conducted on 5 student nurses to pretest the instrument. According to Burns and Grove (2011:49), a pilot study is a smaller version of a proposed study. The pilot study was done to refine the questionnaire as well as the data collection and analysis plans. The researcher obtained consent and administered the questionnaire. The aim of the pilot study was to identify inconsistencies and lack of
clarity in the questions. The problems identified were the phrasing of some questions and typing errors. The questionnaire was refined and typing errors corrected. This was done to ensure reliability. It also assisted the researcher to implement data analysis techniques. The questionnaire was personally administered by the researcher. With the permission of the Principal tutor the researcher was allocated time to administer the questionnaire during student nurses’ study periods. A structured self-administered questionnaire written in English was used to collect data.

Data collection is the precise, systematic gathering of information relevant to the research or the specific objectives, questions or hypotheses of the study (Burns & Grove 2011:52). Permission to gather data was obtained from the research ethics committee at Mpilo Central Hospital after having been approved by the ethics and research committee of the Department of Health Studies at the University of South Africa. The student nurses were asked to sign a consent form after full explanation by the researcher. The consent form described that the study promised them confidentiality and indicated that they were free to withdraw from the study at any time (see annexures).

3.5 METHODS OF DATA ANALYSIS

Data analysis reduces, organises and gives meaning to data (Burns & Grove 2009:44). According to Polit and Beck (2010:565), quantitative analysis is the statistical manipulation of numeric data for the purposes of describing phenomena or making inferences about how phenomena are related. The analysis of data from quantitative research involves the use of descriptive and exploratory procedures to describe the study variables and the sample statistical techniques to test proposed relationships, techniques to make predictions, analysis techniques to examine causality.

Data analysis was guided by the study objectives and questions derived from the HBM’s constructs. As this is a descriptive design, frequency distribution tables, charts, numbers and percentages were used to present data as well as more advanced statistics such as the Chi-square. The numerical data was analysed using the Computerised Statistical Package for Social Sciences (SPSS) version 21.0.
Data on the questionnaire is mostly ordinal which limited the analysis to summary statistics. Frequency distribution is the first strategy a researcher uses to organise data for examination (Burns & Grove 2009:470). To compare data from the present study with findings from other studies that have varying sample sizes the researcher used percentage distribution.

3.5.1 Chi-square test (\(x^2\))

Chi-squared was used and P-values were calculated. The Chi-square is defined as a test used to evaluate whether a relationship between variables is statistically significant. It is used when the data are nominal or ordinal; it uses proportions and percentages to evaluate group differences (DePoy & Gitlin 2011:260). According to Burns and Grove (2011:401), the Chi-square test of independence determines whether two variables are independent or related. The procedure examines the frequencies of observed values and compares them with the frequencies that would be expected if the data categories were independent of each other.

3.6 VALIDITY

Validity is the extent to which an instrument measures the attributes of a concept accurately (LoBiondo-Wood & Haber 2010:288). It truly reflects the concept it is supposed to measure. DePoy and Gitlin (2011:203) state that the closer an instrument comes to representing the ‘true’ definition of a concept the more valid the instrument. There are three major kinds of validity (LoBiondo-Wood & Haber 2010:288) namely:

- Content validity
- Criterion-related validity
- Construct validity

3.6.1 Content validity

Content validity examines the extent to which the measurement includes all the major elements relevant to the construct being measured (Burns & Grove 2011:335). According to LoBiondo-Wood and Haber (2010:288), the universe of content provides
the framework and basis for developing items that will adequately represent the content. The measurement instrument and the items it contains are representative of the content domain that the researcher intends to measure. To ensure content validity was met for this study a review of literature was done before developing the instrument to ensure that all variables were included in the instrument. The instrument was also evaluated by the research supervisor, a statistician and pre-testing of the instrument to ensure consistency and that it contained all attributes of the phenomenon to be measured.

### 3.6.2 Construct validity

Construct validity is based on the extent to which a test measures a theoretical construct, attribute or trait. It attempts to validate a body or theory underlying the measurement by testing the hypothesised relationships (LoBiondo-Wood & Haber 2010:290). According to DePoy and Gitlin (2011:205), construct validity is based on not only the direct and full measurement of a concept, but also the theoretical principles related to the concept. Therefore it is important to consider how the measurement of the selected concept relates to other indicators of the same phenomenon. Construct validity is used to explore the relationship between the results obtained by the instrument to the measures underlying the theoretical concepts of the instrument and in this study the HBM concepts of perceived susceptibility, perceived severity, perceived benefits and perceived barriers as well as cues to action. The questionnaire was based on literature reviewed guided by the relevance to the key constructs of the study. The questionnaire covered the main constructs measured namely knowledge, attitudes and beliefs with regards to cervical cancer.

### 3.7 RELIABILITY

Reliability of a research instrument is defined as the extent to which the instrument yields the same result on repeated measures. Reliability is concerned with consistency, accuracy, precision, stability, equivalence and homogeneity (LoBiondo-Wood & Haber 2010:295). Reliability is also an indicator of the ability of an instrument to produce similar scores on repeated testing occasions that occur under similar conditions. The reliability of an instrument is important to consider to ensure that changes in the variable under study represent observable variations and not those resulting from the measurement process itself (DePoy & Gitlin 2011:201). However, there is always some
error in measurement; the following steps were taken to increase reliability of the instrument:

- Pre-testing of the instrument was conducted to develop and refine the instrument. The questionnaire was pretested on students from Ingutsheni hospital who are attached to Mpilo hospital for their secondment. This helped to clarify some questions and correct those that were not clear and consistency of the responses was checked.
- Chronbach’s alpha coefficient was used to assess the internal consistency of the instrument. Chronbach’s alpha coefficient is the statistical procedure used for calculating internal consistency for interval and ratio level data. The reliability coefficient is essentially the mean of the inter item correlations and can be calculated using the SPSS. Chronbach’s alpha coefficient can range from 0.00 indicating no interval consistency or reliability to 1.00 indicating perfect internal reliability with no measurement error (Grove et al 2013:391). A reliability of 0.70 is considered acceptable for relatively new scales as the scale is being refined and used with a variety of samples (Burns & Grove 2011:334).

Table 3.1: Cronbach alphas for sections of the questionnaire

<table>
<thead>
<tr>
<th>Questions</th>
<th>Number of items</th>
<th>Cronbach alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1–2.4</td>
<td>4</td>
<td>0.68</td>
</tr>
<tr>
<td>2.5–2.8</td>
<td>14</td>
<td>0.71</td>
</tr>
<tr>
<td>3.3–3.9</td>
<td>7</td>
<td>0.87</td>
</tr>
<tr>
<td>3.10–3.17</td>
<td>8</td>
<td>0.6</td>
</tr>
<tr>
<td>4.1–4.6</td>
<td>7</td>
<td>0.59</td>
</tr>
<tr>
<td>4.7–5.9</td>
<td>13</td>
<td>0.62</td>
</tr>
</tbody>
</table>

3.8 ETHICAL CONSIDERATIONS

Ethics is concerned with the basic principles and concepts that guide human beings in thought and action which underpin their personal values (Marshall & Raynor 2010:12). The primary aim of research into health issues, namely the improvement of the quality of life of individuals and groups, situates research within the realm of the ethical: doing what is good and right (Van der Wal 2011:326). The fact that nursing research involves human subjects, utmost care needs to be taken to protect the rights of participants and the researcher has a professional, legal and social obligation to the participants. The
dignity, rights, safety and well-being of participants are paramount in any research project (Moule & Goodman 2014:48). The study has been approved by the ethics and research committee of the Department of Health Studies at the University of South Africa (Annexure A). Mpilo ethics committee (Annexure B) has also approved the study. Ethical principles of autonomy, informed consent, justice, beneficence and confidentiality were observed.

3.8.1 Self-determination

The principle of respect includes the right to self-determination and the right to full disclosure of information (Polit & Beck 2010:122). Self-determination means the prospective subjects have the right to voluntarily decide whether or not to participate in the study without the risk of incurring any penalties or prejudicial treatment. Subjects have the right to decide at any point to terminate participation, to refuse to give information or to ask for clarification about the purpose of the study or specific questions. Participants of this study were treated respectfully. As full disclosure and explanation of what the researcher intended to do were given, including the purpose of the study, type of data required and procedure for data collection, maintenance of confidentiality and contact information in the event of further questions.

3.8.2 Justice

The principle of justice means being fair to the participants and not giving preference to, or being discriminatory with, some participants over others. Being fair also means that the interests of participants must come before those of the researcher and before the objectives of the study. Justice also requires that there is no abuse or exploitation of the participants on the grounds of race, religion, sex, age, class or sexual orientation (Moule & Goodman (2014:59). In this study the selection of participants will be based on the research requirements and not the vulnerability of students. Convenience selection will be used. Participants have the right to privacy, research should not be more intrusive than it needs to be and participants’ privacy should be maintained all the time. The data that the students provided is kept in the strictest confidence. Signed consent forms were kept separately from questionnaires so that they will not be linked to any specific student.
3.8.3 Beneficence

Beneficence is the principle of ‘doing good’ for both the research participants and the society. The imperative of beneficence is to do good and prevent harm (Moule & Goodman 2014:60). The researcher must be prepared at any time during the study to terminate the research if continuation would result in distress. The researcher will ask personal views, weaknesses or fears, as such participants will be permitted to ask questions and written information will be on how to contact the researcher if having any questions. Participants were assured that their participation or the information they provided will not be used against them in any way as no names appeared on the questionnaire.

3.8.4 Informed consent

According to Sim and Wright (2000:40), an informed consent is the voluntary and revocable agreement of a competent individual to participate in a therapeutic or research procedure, based on adequate understanding of its nature, purpose and implications. Informed consent means that participants have adequate information regarding the research, are capable of comprehending the information and have the power of free choice enabling them to voluntarily consent to participate in the research or decline participation (Polit & Beck 2010:127). Participants signed a consent form prior to participating in the study. The consent form stated the purpose of the study and how much time was required.

3.8.5 Confidentiality

Confidentiality is the ethical principle of safeguarding the personal information which has been gathered in the study (Moule & Goodman 2014:60). It also relates to how the information gathered is treated, confidentiality is breached if the information is disseminated against their wishes (Sim & Wright 2000:40). Anonymity is concerned with whether or not what a person has said or done or other personal information is attributable to that person. To maintain confidentiality and anonymity no name appeared on the questionnaire, the students were informed that information will be shared and an informed consent was obtained. The data collected is kept in a locked cabinet, where only the researcher has access to.
3.8.6 Risk of harm

Participants in a study may undergo harm in a number of ways. Psychological harm may also arise in research that involves an examination of individual’s attitudes and beliefs particularly if it uncovers sensitive issues (Sim & Wright 2000:40). In this study sensitive issue such as number of sexual partners has been covered, the risk of harm was minimised by maintaining anonymity such that the participants were not linked to the information given.

3.9 SUMMARY

The research methodology and design was outlined in this chapter. A cross-sectional descriptive design with quantitative methodology was used. The instrument that was used was based on the HBM concepts. Convenient sampling was used to select a sample of 132 participants. Data was collected using a questionnaire to analyse student nurses’ risk perception of contracting cervical cancer. Data was analysed using the SPSS version 21.0.

The next chapter will present analysis and discussion of the data which was collected.
CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF
THE RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter presents data analysis and interpretation of the results of this study in order to obtain a better understanding of the student nurses’ risk perception of contracting cervical cancer. A self-completed questionnaire was used to gather information through written responses. A total of 132 respondents took part in the study. The results of the study are presented in this chapter.

4.1.1 Purpose of the study

The purpose of the study was to analyse the knowledge of, analyse attitudes and determine perceptions influencing cervical cancer screening behaviour of nursing students against their utilisation of screening services.

In order to meet the purpose of the study the following research questions needed to be answered:

- What is the knowledge of student nurses regarding cervical cancer screening?
- What are the student nurses’ attitudes towards screening for cervical cancer?
- What are the student nurses’ beliefs with regards to screening for cervical cancer?
- What is students’ commitment to self-screening for cervical cancer?
- What is the students’ perceived susceptibility to cervical cancer?

The interview schedule’s six sections were followed in analysing and discussing the data:
Section A – Demographic, socio-psychological data
Section B – Perceived susceptibility to cervical cancer
Section C – Perceived seriousness of cervical cancer
Section D – Perceived benefits of cervical cancer screening
Section E – Perceived barriers to cervical cancer screening
Section F –– Cues to taking a cervical screening test

As 132 students were given questionnaires the total number of responses will be indicated as N=132.

The following conventions were adopted to present and discuss the research findings:

- N=refers to total sample. In this study, N=132
- n=refers to sub-sections of the sample
- f=refers to frequencies within the samples and can refer to either N or n
- The labels for the Likert scale of Strongly Agree, through to Strongly Disagree have been abbreviated in all tables as SA, A, N, D, SD.

4.2 DATA ANALYSIS

According to Burns and Grove (2011:535), data analysis is the technique used to reduce, organise and give meaning to data. Quantitative analysis is the statistical manipulation of numeric data for the purpose of describing phenomena or making inferences about how phenomena are related (Polit & Beck 2010:565). Descriptive analysis was used to summarise and organise the data. The results were presented according to the study objectives and questions which were formulated consistent with the HBM’s constructs. In this study, the data collected was analysed using the SPSS computer program version 21.0. The obtained data was analysed using descriptive statistics and the results organised, summarised and presented in the form of frequency tables, percentages, charts, diagrams. Correlation analysis was also determined. Chi-square ($X^2$) was used to explore the significance and relationships between the variables in this study. All of this assisted in answering the research questions and hence attained the objectives.
4.3 MODIFYING FACTORS

Modifying factors as implied by the Health Belief Model (HBM) include demographic, socio-psychological and structural variables that may affect an individual’s perceptions and thus indirectly influence health-related behaviours (Champion & Skinner 2008:88). Socio-demographic factors such as age and marital status could affect one’s perceptions of susceptibility to cervical cancer. Perceived benefits expected from screening for cervical cancer are indicative of willingness to take action.

4.3.1 Demographic variables

The information presented in this section indicates the respondents’ demographic information. This was captured according to questions in section A of the questionnaire. Demographic data includes respondents’ ages, marital status, level of training, number of children, and age at first intercourse, contraceptive use, cigarette smoking and number of sexual partners. In this study, these demographic variables are among the modifying factors that could predispose one to take preventive action such as screening for cervical cancer or use of condoms to prevent human papillomavirus infection. The importance of these demographic variables was determined by correlating them with different items constituting student nurses’ knowledge, attitudes and perceptions towards contracting cervical cancer as contained in the questions.

4.3.1.1 Respondents ages

Table 4.1 indicates the respondents’ ages. The following were the frequencies and percentages of the different age groups:

- 20 years and below $f=10$ (7.6%)
- 21-25 $f=42$ (31.8%)
- 26-30 $f=50$ (37.9%)
- 31-35 $f=24$ (18.2%)
- Above 36 $f=6$ (4.5%)

The highest number of the respondents 37.9% ($f=50$) were aged between 26-30 years, the ages ranged from a minimum of 19 years to a maximum of 44 years. The mean age
of the respondents was 27 years. A woman’s age is necessary for interpreting of the current study results as it impacts on her risk perception of contracting cervical cancer. In America it was found that female adolescents aged 15-19 years have the highest rates of gonorrhoea and chlamydia and 20 to 29 year old women have the highest rates of primary and secondary syphilis (Denny-Smith et al 2006:64).

Table 4.1: Respondents’ ages (N=132)

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 years and less</td>
<td>10</td>
<td>7.6</td>
</tr>
<tr>
<td>21–25 years</td>
<td>42</td>
<td>31.8</td>
</tr>
<tr>
<td>26–30 years</td>
<td>50</td>
<td>37.9</td>
</tr>
<tr>
<td>31–35 years</td>
<td>24</td>
<td>18.2</td>
</tr>
<tr>
<td>36 years and above</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>132</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.3.1.2 Marital status of respondents

According to table 4.2 out of the 132 respondents, 55.3% (f=73) were single, 40.2% (f=53) were married, 2.3% (f=3) were co-habiting, 1.5% (f=2) were separated or divorced and 0.8% (f=1) were widowed. The majority 55.3% (f=73) were single. The high percentage of single respondents was expected as nursing as a profession is pursued by adolescents who have just finished high school. According to Igwilo, Igwilo, Hassan, Idanwekhai, Igbinomwanhia and Popoola (2012:95), multiple sexual partners and having sex at an early age are risk factors for cervical cancer, hence marital status of respondents is an important demographic variable in the current study against which to match the respondents sexual behaviour.

Table 4.2: Marital status of respondents (N=132)

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>73</td>
<td>55.3</td>
</tr>
<tr>
<td>Co-habiting</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Married</td>
<td>53</td>
<td>40.2</td>
</tr>
<tr>
<td>Separated/Divorced</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>132</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
4.3.1.3 Level of study of respondents

Figure 4.1 shows that out of the 132 respondents who answered the question, 48 (36.4%) were in the first diploma year, 42 (31.1%) were in the second diploma year and 41 (31.8%) were in their third diploma year of study. Only one respondent (0.8%) did not answer the question. Studies have shown that students with more years of study have better knowledge about cervical cancer in comparison with students beginning their courses (Ribeiro et al 2013:463). This is due to the fact that students with more years of study experience practices relevant to disciplines administered later in their courses.

![Figure 4.1: Respondents’ level of study (N=132)](chart)

4.3.1.4 Number of children

Table 4.3 shows that of the 132 respondents 50 (37.9%) had no children, 44 (33.3%) had one child, 17 (12.9%) had two children, 14 (10.6%) had three children and 7 (5.3%) of the respondents did not answer the question. The total fertility rate for Zimbabwe is 4.1 children per woman (ZDHS 2012:57). The number of children a woman has will influence her screening for cervical cancer since VIAC is offered at 6weeks postnatal visit. Women also come into contact with health workers when they deliver in health centres hence gaining access to information on screening for cervical cancer (Gundani & Chipfuwa 2013:027).
### Table 4.3: Number of children per respondent (N=132)

<table>
<thead>
<tr>
<th>Number of children</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>50</td>
<td>37.9</td>
</tr>
<tr>
<td>1</td>
<td>44</td>
<td>33.3</td>
</tr>
<tr>
<td>2</td>
<td>17</td>
<td>12.9</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>10.6</td>
</tr>
<tr>
<td>Did not answer</td>
<td>7</td>
<td>5.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>132</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

### 4.3.2 Socio-psychological variables

Student nurses’ knowledge, attitudes and perceptions regarding cervical cancer screening could be influenced by various socio-psychological factors as proposed by the health belief model.

#### 4.3.2.1 Age at first intercourse

Figure 4.2 shows that of the 132 respondents 81 (61.4%) had their sexual debut between the ages of 20-24, 21 (15.9%) had their sexual debut below the age of 20 years, 21 (15.9%) were still virgins, 8 (6.1%) were between 25-29 years and 1 (0.8%) was above 30 years. The majority of the respondents had their sexual debut between the ages of 20-24 years. The age at which women initiate intercourse more precisely marks the beginning of their exposure to reproductive risks such as cervical cancer. Women as young as 15 years old are dying from cervical cancer in Zimbabwe (Mupepi et al 2011:943).

![Figure 4.2: Respondents’ age at first intercourse (N=132)](image-url)
4.3.2.2 Contraception used

Table 4.4 indicates that out of 132 respondents 25% (f=33) did not use contraception, 20.5% (f=27) used implants, 18.9% (f=25) used oral contraceptives, 18.2% (f=24) used condoms, 6.8% (f=9) used injectable, and the rest of the students used more than one type of contraception at a time. The 25% of the respondents who do not use contraception could be attributed to the fact that 15.9% are still virgins and have no use for contraception as yet. A higher percentage of condom use was expected since more than 80% of the students are sexually active and the fact that it offers dual protection against pregnancy and sexually transmitted infections. According to ZDHS (2012:83), there is only 3.1% usage of condoms in Zimbabwe.

Table 4.4: Contraception used by respondents (N=132)

<table>
<thead>
<tr>
<th>Contraception used</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No contraceptives</td>
<td>33</td>
<td>25.0</td>
</tr>
<tr>
<td>Implants</td>
<td>27</td>
<td>20.5</td>
</tr>
<tr>
<td>Oral contraceptive pills</td>
<td>25</td>
<td>18.9</td>
</tr>
<tr>
<td>Condoms</td>
<td>24</td>
<td>18.2</td>
</tr>
<tr>
<td>Injectable</td>
<td>9</td>
<td>6.8</td>
</tr>
<tr>
<td>Condoms, oral contraceptive pills</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Did not answer</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Condoms, oral contraceptive pills, implants</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Condoms, injectable</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>132</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.3.2.3 Cigarette smoking

All the respondents 132 (100%) indicated that they did not smoke. In Zimbabwe almost all women more than 99% do not smoke (ZDHS 2012:43). Tobacco use was also uncommon in a study done in Kenya, less than 4% of the women used tobacco (Were et al 2011:60). Traditionally smoking is not a common habit for women in Zimbabwe.
4.3.2.4 Number of sexual partners

Figure 4.3 shows that the highest number of the respondents 56.8% \((f=75)\) had one sexual partner, 15.2% were virgins, 15.2% \((f=20)\) had 2 sexual partners, 3% \((f=4)\) had 3 sexual partners, 2.3% \((f=3)\) had 4 sexual partners, 2.3% \((f=3)\) had 5 sexual partners, 1.5% \((f=2)\) had 6 partners and 3.8% \((f=5)\) of the respondents did not answer the question. The fact that 24.3% \((f=32)\) had two or more partners is of concern. Studies have shown that college students engage in high risk sexual behaviour, and another study found as many as 60% of college women had some form of HPV which is causally linked to cervical cancer (Hoque & Hoque 2009:21). In the same study on university students it was found that 19.2% reported to having two or more sexual partners in the past year.

![Figure 4.3: Number of sexual partners in the past year (N=132)](image)

4.4 PERCEIVED SUSCEPTIBILITY TO CERVICAL CANCER

Perceived risk of contracting a disease refers to an individuals’ subjective perception of their susceptibility to the disease. Women must believe that there is a possibility of getting cervical cancer before they will be interested in screening. The health belief model predicts that women will be more likely to adhere to cervical cancer screening recommendation if they feel they are susceptible to cervical cancer (Champion & Skinner 2008:88). Perceptions of not being at risk of cervical cancer have been verified
as a reason for not obtaining a Pap smear test in previous studies (Basu et al 2006:372; Owoeye & Ibrahim 2013:54; Ibekwe et al 2010:1026).

Section B questions 2.1 to 2.18 of the questionnaire includes specific questions that assess the respondents' perceptions of being susceptible to cervical cancer. Questions are assessing the respondents' knowledge about the cause of cervical cancer, ever having been screened, intention of screening and perception of cervical cancer as a health concern.

4.4.1 Participation in health checks

The respondents were asked to respond to planning to participate in health checks. Table 4.5 indicates their responses as 31.1% (f=41) of respondents indicated that they planned to be tested for HIV, checked for blood pressure and be screened for cervical cancer all the three stated health checks. 3.1% (f=4) of the respondents did not answer the question.

Table 4.5: Participation in health checks in the coming year (N=132)

<table>
<thead>
<tr>
<th>Health checks</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV testing, blood pressure checking, cervical</td>
<td>41</td>
<td>31.1</td>
</tr>
<tr>
<td>cervical cancer screening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cervical cancer screening</td>
<td>36</td>
<td>27.3</td>
</tr>
<tr>
<td>HIV testing</td>
<td>19</td>
<td>14.4</td>
</tr>
<tr>
<td>HIV testing, cervical cancer screening</td>
<td>15</td>
<td>11.4</td>
</tr>
<tr>
<td>HIV testing, blood pressure checking</td>
<td>10</td>
<td>7.6</td>
</tr>
<tr>
<td>Blood pressure checking</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Did not answer</td>
<td>4</td>
<td>3.1</td>
</tr>
<tr>
<td>Blood pressure checking, cervical cancer screening</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>132</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.4.2 Screening for cervical cancer

Figure 4.4 indicates that only 34 (26%) had been screened for cervical cancer while 98 (74%) had not been screened. The number of respondents who had not screened was too high considering the fact that cervical cancer is the leading cause of deaths from cancer in Zimbabwe 34.6% (ZNCR 2012). Uganda 81% of eligible female respondents
had not screened, mostly because they did not feel vulnerable to the disease (Mutyaba et al 2006:1). Hence it is unlikely that these student nurses would advise others to screen when they have not done so themselves. In a study by Hoque and Hoque (2009:23) in South Africa only 9.8% of the participants had had a Pap smear test. Correlation between planning to participate in health checks during the coming year and having ever been screened for cervical cancer was significant (correlation co-efficient: – 0.236, p=0.007, N=129). There was no significant correlation between the other statements relating to perceived susceptibility to cervical cancer and intention to screen.

Figure 4.4  Screened for cervical cancer (N=132)

4.4.2.1 Correlation between screening for cervical cancer and age, marital status, level of training, parity and number of sexual partners

Figure 4.5 shows that there is an association between the screening for cervical cancer and age. The number of respondents who screened for cervical cancer increases with age. There was a significant negative correlation between having been screened for cancer and age of respondent (correlation co-efficient: - 0.377, p=0.0001, N=132).

As depicted in figure 4.6 there are more married respondents who screened for cervical cancer as compared to the single respondents. There was a significant negative correlation between having been screened for cervical cancer and marital status of the respondent (correlation co-efficient: - 0.272, p=0.002, N=132).
Figure 4.7 shows that the higher the level of training the more respondents screened for cervical cancer which could be attributed to information acquired later in their courses. There was a significant negative correlation between having been screened for cancer and level of training of the respondent (correlation co-efficient: -0.189, p=0.030, N=132).

The majority of respondents who had three children had been screened for cervical cancer. There was a significant negative correlation between having been screened for cervical cancer and the number of children of each respondent (correlation co-efficient: -0.329, p=0.0001, N=132).

All the respondents who indicated that they had no sexual partners in the previous year had not been screened for cervical cancer, a majority of those who had three partners and above (82.4%), one partner (68%) and two partners (65%) had not been screened. There was just a significant negative correlation between having been screened for cancer and number of sexual partners of each respondent (correlation co-efficient: -0.175, p=0.049, N=132).

Figure 4.5: Correlation of screening for cervical cancer with age group (N=132)
Figure 4.6: Correlation of screening for cervical cancer with marital status (N=132)

Figure 4.7: Correlation of screening for cervical cancer with level of study (N=132)
4.4.3 Transmission of HPV virus associated with cervical cancer

Figure 4.8 shows that the majority of respondents 97 (73.5%) correctly indicated that the virus associated with cervical cancer is transmitted by sexual intercourse, 28 (21.2%) indicated that they did not know and the rest of the respondents gave the wrong answers. Knowledge on HPV virus being associated with cervical cancer was good as indicated by the majority of respondents correctly responding to the question. In a study done in Tanzania most nurses (60.6%) correctly identified sexual intercourse as a mode of transmission of HPV (Urasa & Darj 2011:51). There was a significant relationship between a respondent’s knowledge of cervical cancer transmission and level of training; respondents in Level 3 were more knowledgeable compared to the respondents in Level 1 and Level 2. The Pearson Chi-square was significant with (F=13.23, df=3, p=0.004).

![Figure 4.8: Transmission of virus associated with cervical cancer (N=132)](image)

4.4.4 Virus associated with the presence of cervical cancer and pre-cancer cells

Figure 4.9 shows that majority of the respondents 73 (55.3%) correctly indicated that the virus associated with the presence of cervical cancer and pre-cancer cells was the human papillomavirus, 29 (22%) indicated that they did not know 6 (4.5%) did not indicate and a substantial percentage chose the wrong answers. Knowledge on the
virus associated with the presence of cervical cancer and pre-cancer cells was good as indicated by the results. More respondents in this study correctly identified the human papillomavirus as the virus associated with cervical cancer as compared to the study in Tanzania where only 47.4% correctly identified the virus (Urasa & Darj 2011:51). There was a significant relationship between a respondent’s knowledge of cervical cancer transmission and level of training; respondents in Level 3 were more knowledgeable compared to the respondents in Level 1 and Level 2. The Pearson Chi-square was significant with p<0.05 (F=13.23, df=3, p=0.004).

![Cervical cancer and pre-cancer cells are associated with the presence of:]

**Figure 4.9: Virus associated with cervical cancer (N=132)**

### 4.4.5 Perceived susceptibility to cervical cancer

Table 4.6 shows respondents’ answers to statements in relation to perceived susceptibility to cervical cancer. In response to the statement “I worry about getting cervical cancer”, majority of respondents 86.9% (f=106) strongly agreed or agreed with the statement. This means that most respondents perceived themselves to be susceptible to cervical cancer. The results also show that the respondents are worried about getting the human papillomavirus as indicated by 80% (f=100) who respondent with agree and strongly agree to the statement I worry about getting human papilloma virus, this is similar to the findings by McFarland (2003:172) in Botswana where the majority of the participants believed that they were susceptible to cervical cancer.
However, fewer respondents indicated that they believed they were at risk of developing cervical cancer, 57.9% (f=63) responded with agree and strongly agree. Some respondents worry about getting cervical cancer and human papillomavirus but do not believe they are at risk of developing cervical cancer. 24.6% (f=31) indicated neutral, meaning they were not sure whether they are at risk of developing cervical cancer or not. 25% (f=32) responded with neutral to being at risk of contracting HPV, this indicates that even though the respondents worry about getting HPV they are not sure if they are at risk or not.

Of the 128 respondents 54.7% (f=70) indicated strongly agree or agree to the statement 'all women have an equal chance of developing cervical cancer; it is beyond my personal control'. There seems to be an external locus of control. 31.3% (f=40) strongly disagreed or disagreed with this statement, meaning that it is not beyond them something can be done.

Responding to the statement ‘my chances of getting cervical cancer are high’ out of the 130 respondents 28.5% (f=37) strongly agreed or agreed, 30.8% (f=40) were neutral and 40.8% (f=53) disagreed or strongly disagreed, the majority felt not susceptible. However, the majority of the respondents 59.6% (f=63) disagreed or strongly disagreed with the statement ‘I am not at risk of contracting HPV’, 32.3% (f=41) were neutral meaning they were not sure and 18.1% (f=23) strongly agreed or agreed. This means that the majority of the respondents feel they are vulnerable to contracting HPV despite the fact that the majority felt that they were not susceptible to getting cervical cancer. It could be that the respondents are not linking HPV infection as a risk factor for cervical cancer or the negatively worded statement was a factor in their responses.

Of the 125 respondents 67.2% (f=84) believe they have the ability to avoid cervical cancer as they strongly agreed or agreed to the statement ‘I have the ability to avoid cervical cancer, whereas 21.6% (f=27) were not sure. Majority 48.9% (f=63) respondents strongly disagree or disagree to the statement ‘all women who develop cervical cancer must have their uteruses removed, whereas 34.1% (f=44) agreed or strongly agreed with the statement, the implication could be that the respondents are not aware of the treatment options available for cervical cancer.
A large number of respondents 92 (69.7%) strongly agree or agree with the statement ‘among the diseases I can think of getting, cervical cancer is among the most serious’, 20 (15.2%) are not sure. Responding to the statement ‘I believe HPV is curable with proper medical treatment 64 (56.5%) agree or strongly agree and 31 (23.7%) were neutral, in believing that HPV is curable could make the respondents feel that they are not susceptible to getting cervical cancer. However, this is not the case as 93 (73.2%) strongly agreed or agreed with the statement ‘HPV is a life threatening disease.

To the statement ‘cervical cancer is often curable with early detection and proper medical treatment’ of the 128 who responded 114 (89%) strongly agreed or agreed with this statement and none disagreed the rest were neutral. This means that respondents are aware that with early detection cervical cancer can be cured. The majority of the respondents 110 (83%) disagreed or strongly disagreed with the statement ‘no one dies anymore from cervical cancer, only 10 (7.7%) strongly agreed or agreed with this statement. Women continue to die from cervical cancer with 1286 women dying from cervical cancer in 2010 (Mutandwa et al 2013:19).

Of the 127 respondents 93 (73.2%) strongly agreed or agreed to the statement “HPV is a life threatening disease”, 19 (15%) were neutral and 15 (11.8%) disagreed or strongly disagreed. The majority agreed with the statement meaning that HPV is a life threatening disease. This is in contrast to a study done on American nursing students which indicated that they did not believe HPV or cervical cancer to be a serious disease and did not feel susceptible to contracting the disease (Denny-Smith et al 2006:67).

Out of 131 respondents 10 (7.7%) strongly agreed or agreed with the statement “no one dies anymore from cervical cancer” 11 (8.4%) were not sure, the majority 110(84%) strongly disagreed or disagreed with the statement, meaning that they are aware that many women still die as a result of cervical cancer. The respondents seem to be aware of the gravity of the situation in the country where more than 35.3 per 100.000 women die annually from cervical cancer in Zimbabwe (WHO 2012).
### Table 4.6: Perceived susceptibility to cervical cancer (N=132)

<table>
<thead>
<tr>
<th>Perceived susceptibility</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I worry about getting cervical cancer</td>
<td>86</td>
<td>66.2</td>
<td>20</td>
<td>19.7</td>
<td>14</td>
<td>10.8</td>
</tr>
<tr>
<td>I worry about getting human papillomavirus</td>
<td>75</td>
<td>60.0</td>
<td>25</td>
<td>20.0</td>
<td>21</td>
<td>16.8</td>
</tr>
<tr>
<td>I believe that I am at risk of developing cervical cancer</td>
<td>32</td>
<td>25.4</td>
<td>41</td>
<td>32.5</td>
<td>31</td>
<td>24.6</td>
</tr>
<tr>
<td>I believe I am at risk of contracting HPV</td>
<td>27</td>
<td>21.1</td>
<td>33</td>
<td>25.8</td>
<td>32</td>
<td>25.0</td>
</tr>
<tr>
<td>All women have an equal chance of developing cervical cancer, it is beyond my personal control</td>
<td>43</td>
<td>33.6</td>
<td>27</td>
<td>21.1</td>
<td>18</td>
<td>14.1</td>
</tr>
<tr>
<td>My chances of getting cervical cancer are high</td>
<td>17</td>
<td>13.1</td>
<td>20</td>
<td>15.4</td>
<td>40</td>
<td>30.8</td>
</tr>
<tr>
<td>I am not at risk of contracting HPV</td>
<td>14</td>
<td>11.0</td>
<td>9</td>
<td>7.1</td>
<td>41</td>
<td>32.3</td>
</tr>
<tr>
<td>I have the ability to avoid cervical cancer</td>
<td>52</td>
<td>41.6</td>
<td>32</td>
<td>25.6</td>
<td>27</td>
<td>21.6</td>
</tr>
<tr>
<td>All women who develop cervical cancer must have their uteruses removed</td>
<td>23</td>
<td>17.8</td>
<td>21</td>
<td>16.3</td>
<td>22</td>
<td>17.1</td>
</tr>
<tr>
<td>Among the diseases I can think of getting, cervical cancer is among the most serious</td>
<td>70</td>
<td>53.0</td>
<td>22</td>
<td>16.7</td>
<td>20</td>
<td>15.2</td>
</tr>
<tr>
<td>I believe HPV is curable with proper medical treatment</td>
<td>23</td>
<td>17.6</td>
<td>51</td>
<td>38.9</td>
<td>31</td>
<td>23.7</td>
</tr>
<tr>
<td>Cervical cancer is often curable with early detection and proper medical treatment</td>
<td>68</td>
<td>53.1</td>
<td>46</td>
<td>35.9</td>
<td>10</td>
<td>7.8</td>
</tr>
<tr>
<td>HPV is a life threatening disease</td>
<td>45</td>
<td>35.4</td>
<td>48</td>
<td>37.8</td>
<td>19</td>
<td>15.0</td>
</tr>
<tr>
<td>No one dies anymore from cervical cancer</td>
<td>6</td>
<td>4.6</td>
<td>4</td>
<td>3.1</td>
<td>11</td>
<td>8.4</td>
</tr>
</tbody>
</table>
4.5 PERCEIVED SERIOUSNESS/SEVERITY

Perceived severity/seriousness refers to how serious or severe an individual views a condition to be. According to the HBM individuals will be more likely to perform health-related behaviours if they perceive an illness as being serious, feel that there is a high risk of contracting the disease, believe that the health action will result in a positive outcome that will outweigh any barriers encountered and can use cues to action to trigger the process and take action (Denny-Smith et al 2006:64).

In section C of the questionnaire, questions were asked to assess the respondents’ perceived severity or seriousness of cervical cancer. Respondents were asked the meaning of a positive screen test, signs of cervical cancer and risk factors.

4.5.1 Meaning of a positive screen test

Of the 132 respondents 62 (47.0%) indicated that the meaning of a positive screen test is cervical cancer that is about to start and 31 (23.5%) indicated that it is full blown cervical cancer 34 (25.8%) did not know what a positive screen meant (Figure 4.10). The results are similar to a study by Awodele (2011:501) where 59% of the respondents knew that a positive result meant that cervical cancer is about to start. This knowledge results in increased responsibility to self-care since cervical cancer screening can find changes in the cervix before they become cancer and there is increased chances of early detection and therefore cure of cervical cancer (Ibekwe et al 2010:1022). There was a significant correlation between intention to screen in the coming year and the meaning of a positive screen test (correlation co-efficient: 0.234, p=0.008, N=128). There was no significant correlation between the other statements relating to perceived seriousness of cervical cancer and intention to screen. A significant percentage of respondents studying Level 1 compared to Level 3 and Level 2 did not know what a positive screen test means. The Pearson Chi-square was significant (F=20.56, df=6, p=0.002).
4.5.2 Signs of cervical cancer

The respondents were also asked to identify the signs and symptoms of cervical cancer. This question allowed the respondents to give multiple responses as shown in (Figure 4.11). A small percentage of the respondents 17 (12.9%) were able to correctly select post coital bleeding, irregular vaginal bleeding and foul smelling vaginal discharge as the signs of cervical cancer at once. Some of the respondents selected the signs individually or in pairs. The most commonly identified symptoms were foul smelling vaginal discharge and irregular vaginal bleeding, 15 (11.4%) did not know the signs and symptoms of cervical cancer. Similarly in a study done in India 73.5% the nurses identified foul smelling discharge as a sign of cervical cancer (Goyal et al 2013:249).

There was no significant relationship between a respondent’s knowledge of signs of cervical cancer and level of training. The Pearson Chi-square was insignificant with (F=7.032, df=6, p=0.318).
4.5.3 Perceived seriousness

In this section questions 3.3 to 3.9 respondents were also asked to respond with “True”, “False” or “Do not know” to statements concerning their perceptions regarding the seriousness of cervical cancer.

4.5.3.1 Fear of results

As shown in Figure 4.12 the majority of the respondents 98 (74.2%) indicated false to the statement ‘I will not screen for cervical cancer because of fear of the results, and 23 (17.4%) indicated this statement as true, 23 (17.4 %) of the respondents would not screen for cervical cancer for fear of abnormal results. Most of the respondents are not afraid of the results. In Kenya 11.4% of the respondents were afraid of abnormal screening results (Were et al 2011:61). Basu et al (2006:371) reported that some women would not test for cervical cancer because they thought they would inevitably die if cancer was detected.
4.5.3.1.1 Correlating fear of results and age groups

A majority of respondents across all age groups at least 65% \((f=86)\) indicated that they would be screened for cervical cancer regardless of the results, though 23.8% \((f=10)\) of those aged between 21–25 years would not be screened for fear of results (Figure 4.13).
4.5.3.1.2 Correlating fear of results and marital status

A significant number of those who were single 55 (75.3%), co-habiting 3 (100%) and married 39 (73.6%) indicated that they did not fear the cervical cancer screening results (Figure 4.14). A sizable number 11 (20.8%) of those who were married and all who were widowed agreed with the statement that they would not be screened for fear of results. There was no marked difference across marital status.

Figure 4.14: Correlation of fear of results with marital status (N=132)

4.5.3.1.3 Correlating fear of results and level of study

Respondents across all levels of study, first year 38 (79.2%) second year 26 (63.4%) and third year 34 (81.0%) did not agree with the statement (Figure 4.15). There was no marked difference with regards to level of training.
4.5.3.2 There is very little that one can do about cervical cancer

The majority of respondents 102 (77.3%) indicated that it was false to say that there is very little that one can do about cervical cancer and 20 (15.9%) indicated that it was true that there is very little one can do about cervical cancer (Figure 4.16). The respondents have indicated that they are not afraid of the results because there is something they can do about cervical cancer. These results are different from the study done by McFarland (2003:172) in Botswana where women believed that cervical cancer is serious because it is fatal, when detected one knows they are going to die because even if detected early it cannot be cured by any means.
4.5.3.2.1 Correlating there is very little that one can do about cervical cancer and age groups

Respondents across all age groups 20 years and below 8 (80%), 21–25 years 30 (71.4%), 26–30 years 41 (82%), 31–35 years 17 (70.8%) and 36 years and above 6 (100%) indicated that the statement that there is very little one can do about cervical cancer was false (Figure 4.17). There was not much of a difference across all ages.

Figure 4.16: There is very little that one can do about cervical cancer (N=132)

Figure 4.17: There is very little that one can do about cervical cancer with age (N=132)
4.5.3.2.2 Correlating there is very little that one can do about cervical cancer and marital status

Marital status did not change how the respondents felt about it being false that there is very little that one can do about cervical cancer (Figure 4.18).

![Figure 4.18: There is very little that one can do about cervical cancer with marital status (N=132)](image)

4.5.3.2.3 Correlating there is very little that one can do about cervical cancer and level of study

There was slight increase with level of study with a higher percentage (81%) of respondents in the third year indicating that it is false that very little can be done about cervical cancer compared to 80.5% (second year) and 72.9% (first year) (Figure 4.19). This slight increase could be due to more information acquired during study enabling them to know that several interventions can be done in view of a positive result.
Figure 4.19: There is very little that one can do about cervical cancer with level of study (N=132)

4.5.3.3 I would rather screen for cervical cancer

Of the 132 respondents 87.9% (f=116) indicated as “true” to the statement that “I would rather be screened for cervical cancer” 3.8% (f=5) indicated as false and 8.3% (f=11) did not know whether they would rather screen or not (Figure 4.20). The majority of the respondents would rather screen.

Figure 4.20: I would rather screen for cervical cancer (N=132)
4.5.3.4 It is possible to detect cervical cancer

Figure 4.21 shows that of the 132 respondents 91.7% (f=121) indicated as true that it is possible to detect cervical cancer 3.8% (f=5) as false and 4.5% (f=6) did not know.

![Figure 4.21: It is possible to detect cervical cancer (N=132)](image)

4.5.3.4.1 Correlating it is possible to screen for cervical cancer with age

Out of 132 respondents across all age groups, 36 years and above and 20 years and below 16 (100%), 26–30 years 48 (94%), 21–25 years 37 (88.1%) and 31–35 years 21 (87.5%) indicated as true that cervical cancer can be detected (Figure 4.25). A small percentage of 12.5% (31–35 years) and 7.2% (21–25 years) indicated that they did not know if cervical cancer could be detected. Respondents across all age groups are aware that it is possible to detect cervical cancer.
Section 4.5.3.5: Early detection can increase survival chances

Of the 132 respondents 95.4% (*f*=126) indicated as true that early detection of cervical cancer increases survival chances and 2.3% (*f*=3) indicated as false and another 2.3% (*f*=3) did not know (Figure 4.23). A high number of respondents believe that early detection of cervical cancer increases survival chances. These findings are similar to the study done by Burak and Meyer (1997:255) where 90% of the participants agreed that regular gynaecological examinations were essential for reproductive health.
4.5.3.6  *It is possible to prevent cervical cancer*

Of the 132 respondents 84.8% \( (f=112) \) indicated as true that it is possible to prevent cervical cancer, 5.3% \( (f=7) \) indicated false and 9.8% \( (f=13) \) did not know (Figure 4.24). Therefore most of the respondents believe it is possible to prevent cervical cancer.

![Figure 4.24: It is possible to prevent cervical cancer (N=132)](image)

4.5.3.7  *Seeing someone suffering from cervical cancer would encourage women to go for screening*

Figure 4.25 shows that of the 132 respondents 84.8% \( (f=112) \) indicated “True”, 10.3% \( (f=14) \) stated it was “False” while 4.6% \( (f=6) \) stated “Do not know”, to the statement “seeing someone suffering from cervical cancer would encourage women to go for screening. For most of the respondents it would take another woman’s suffering to motivate them to go for screening.
4.5.3.8 Knowledge of risk factors of cervical cancer (n=132)

This section of the questionnaire dealt with the knowledge that the respondents have on risk factors for cervical cancer. Knowledge on risk factors for cervical cancer development has been observed to be associated with better uptake of screening services (Were et al 2011:62).

4.5.3.8.1 Multiple sex partners

The majority of respondents 94.7% (f=125) indicated that having multiple sex partners is a risk factor in having cervical cancer 1.5% (f=2) indicated “no” and 3.8% (f=5) did not know (Figure 4.26). All the respondents in level 3 correctly indicated that having multiple sex partners was a risk factor for cervical cancer (Figure 4.27). There was a just significant relationship between a respondent’s identification of multiple sex partners as a risk factor for cervical cancer and level of training. The Pearson Chi-square was just significant (F=8.03, df=3, p=0.045).
4.5.3.8.2 Having genital warts

Of the 132 respondents 49.2% (f=65) correctly indicated that having genital warts was a risk factor for cervical cancer, 23.5% (f=31) did not agree and 27.3% (f=36) indicated that they did not know (Figure 4.28). A majority of respondents (60.9%) studying level 1 indicated that genital warts was a risk factor for cervical cancer, compared to level 2 (48.8%) and level 3 (41.5%). Cross tabulation of respondents’ knowledge, indicated that there was no significant relationship between a respondent's identification of having
genital warts as a risk factor for cervical cancer and level of training. The Pearson Chi-square was insignificant (F=6.02, df=6, p=0.421).

![Figure 4.28: Having genital warts as a risk factor (N=132)](image)

**4.5.3.8.3 Having sex at an early age**

As indicated on (Figure 4.29), 88.6% (f=117) of the respondents correctly indicated that having sex at early age was a risk factor for cervical cancer 7.6% (f=10) indicated “no” and 3.8% (f=5) did not know. Most of respondents across all levels of training, Level 3 (95.2%), Level 2 (87.8%) and Level 2 (85.1%) correctly indicated that having sex at early age was a risk factor for cervical cancer. There was no significant relationship between a respondent’s identification of having sex at an early age as a risk factor for cervical cancer and level of training. The Pearson Chi-square was insignificant (F=3.31, df=3, p=0.346).
4.5.3.8.4 Smoking cigarettes

As shown in Figure 4.30, 47.7% \((f=63)\) of the respondents correctly indicated that smoking cigarettes was a risk factor, 31.8% \((f=42)\) indicated that it was not and 20.5% \((f=27)\) did not know if it was a risk factor or not. A higher percentage of respondents who were in level two identified smoking as a risk factor compared to those in level 3 and 1. Cross tabulation indicated that there was a significant relationship between a respondent’s identification of smoking cigarettes as a risk factor for cervical cancer and level of training. The Pearson Chi-square was significant \(p (F=17.27, df=3, p=0.001)\).
4.5.3.8.5 Using oral contraceptives

As indicated in Figure 4.31, 37.9% ($f=50$) of the respondents indicated that the use of oral contraceptives was a risk factor for cervical cancer 36.4% ($f=48$) indicated as “No” and 25.7% ($f=34$) did not know. A greater percentage of the respondents are not aware that oral contraceptives are a risk factor for cervical cancer. A higher percentage of respondents who were in Level 2 (57.5%) identified use of oral contraceptives as a risk factor compared to those in level 3 (48.8%) and 1 (45.7%). There was a significant relationship between a respondent’s identification of the use of oral contraceptives as a risk factor for cervical cancer and level of training. The Pearson Chi-square was significant $p (F=22.26, df=3, p=0.0001)$.

![Figure 4.31: Use of oral contraceptives as a risk factor (N=132)](image)

4.5.3.8.6 Human papillomavirus infection

Of the 132 respondents 87.1% ($f=115$) correctly indicated that the human papillomavirus was a risk factor for cervical cancer 5.3% ($f=7$) of the respondents indicated as “No” and 7.6% ($f=10$) did not know (Figure 4.32). The majority of respondents across all the three levels of training, Level 3 (95.2%), Level 2 (85.4%) and Level 1 (83%) correctly indicated that the human papillomavirus infection was a risk factor for cervical cancer. There was no significant relationship between a respondent’s identification of having the human papillomavirus as a risk factor for cervical cancer and level of training. The Pearson Chi-square was insignificant ($F=4.20, df=3, p=0.241$).
Figure 4.32: HPV infection as a risk factor (N=132)

4.5.3.8.7 Family history of cervical cancer

Of the 132 respondents 75.8% (f=104) indicated that family history of cervical cancer was a risk factor, 15.1% (f=20) of the respondents indicated that family history was not a risk factor and 9.1% (f=8) did not know (Figure 4.33). A woman’s chances of developing cervical cancer are 2 to 3 times higher than the one who has no family history of cervical cancer (Bankes 2007:73). A higher percentage of respondents who were in Level 3 (88.1%) correctly indicated that having a family history of cervical cancer as a risk factor compared to those in Level 2 (82.9%) and 1 (58.4%). There was a significant relationship between a respondent’s identification of having a family history of cervical cancer as a risk factor for cervical cancer and level of training. The Pearson Chi-square was significant (F=12.89, df=3, p=0.005). The results indicate that those in level 3 were more knowledgeable compared to other levels of training.
4.5.3.8.8 Taking illegal drugs

Of the 132 respondents 34.9% \((f=46)\) indicated they did not know if taking of illegal drugs was a risk factor or not for cervical cancer, 31.8% \((f=42)\) indicated that it was a risk factor and 33.3% \((f=44)\) indicated that it was not a risk factor (Figure 4.34). Taking illegal drugs has no effect on developing cervical cancer as such most of the respondents were not aware of this fact. There was no significant relationship between a respondent’s identification of taking illegal drugs as a risk factor for cervical cancer and level of training. The Pearson Chi-square was insignificant \((F=1.56, df=3, p=0.558)\).
4.6 PERCEIVED BENEFITS OF CERVICAL CANCER SCREENING

Even if a person perceives personal susceptibility to a serious health condition (perceived threat), whether this perception leads to behaviour change will be influenced by the person’s belief regarding the perceived benefits of the various available actions for reducing the disease threat (Champion & Skinner 2008:47). As such women must believe that a course of preventive behaviours available such as screening for cervical cancer, quitting smoking and using condoms would be beneficial in reducing the risk of getting cervical cancer.

4.6.1 Diagnosis of cervical cancer at an early stage

The majority of respondents 96.9% ($f=128$) indicated that cervical cancer can be diagnosed at an early stage and only 3.1% ($f=4$) indicated “No” (Figure 4.35). Most of the respondents are aware that early stage diagnosis is possible. Although it is known that cervical cancer can be cured if diagnosed early by screening in Sub-Saharan African countries disease screening is not routine, instead people tend to access healthcare when they have disease symptoms (Mupepi et al 2011:944). There was no significant relationship between a respondent’s response to the question that can cervical cancer be diagnosed at early stage and level of training. The Pearson Chi-square was insignificant ($F=1.00, df=3, p=0.573$).
4.6.2 When to start having cervical cancer screening tests

Of the 132 respondents 49.2% \( (f=65) \) indicated that a woman should start having cervical cancer three years after commencement of sexual intercourse, 26.5% \( (f=35) \) of the respondents indicated that a woman should start screening at 21 years of age and 21.8% \( (f=29) \) did not know when one should start and 1.5% \( (f=3) \) indicated more than one variable (Figure 4.36). According to the cancer association of Zimbabwe women should start screening three years after commencing sexual intercourse or after the age of 21 years. There was no significant difference in the knowledge of the respondents at different levels of training to when a woman should start having cervical cancer screening tests. The Pearson Chi-square was insignificant \( (F=3.25, df=3, p=0.354) \).
4.6.2.1 Correlation of commencement of screening with level of study

More respondents in the third year of study 54.8% indicated that screening should commence three years after sexual debut. Knowledge slightly improved with more years of study (Figure 4.37).

Figure 4.36: Commencement of cervical cancer screening tests (N=132)

Figure 4.37: Commencement of cervical cancer screening tests with level of study (N=132)
### 4.6.3 Knowledge of screening techniques for cervical cancer

The respondents gave multiple responses to the question, 112 (84.8) indicated that Pap smear, 92 (69.7%) Visual inspection with acetic acid (VIA) and 55 (41.7%) HPV/DNA test as screening techniques for cervical cancer (Table 4.7). 84 (63.7%) indicated that they did not know about Colposcopy, which is a diagnostic procedure following abnormal screening results of cervical cancer. A majority of the respondents (47.7%) were aware that x-ray and the urine test were not screening tests for cervical cancer. However, HPV/DNA was not a well-known screening test. There was a significant relationship between a respondent’s knowledge of screening techniques for cervical cancer and level of training. A higher percentage of respondents who were in level 3 correctly identified the screening techniques compared to those in level 2 and 1. The Pearson Chi-square was significant (F=10.86, df=3, p=0.013).

**Table 4.7: Screening techniques for cervical cancer (N=132)**

<table>
<thead>
<tr>
<th>Technique</th>
<th>True</th>
<th>False</th>
<th>Do not know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Pap smear</td>
<td>112</td>
<td>84.8</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>HPV/DNA Test</td>
<td>55</td>
<td>41.7</td>
<td>28</td>
<td>21.2</td>
</tr>
<tr>
<td>Visual Inspection with Acetic Acid (VIAC)</td>
<td>92</td>
<td>69.7</td>
<td>9</td>
<td>6.8</td>
</tr>
<tr>
<td>Colposcopy</td>
<td>23</td>
<td>17.4</td>
<td>25</td>
<td>18.9</td>
</tr>
<tr>
<td>X ray</td>
<td>17</td>
<td>12.9</td>
<td>63</td>
<td>47.7</td>
</tr>
<tr>
<td>Urine test</td>
<td>12</td>
<td>9.1</td>
<td>63</td>
<td>47.7</td>
</tr>
</tbody>
</table>

### 4.6.4 Who should be screened for cervical cancer?

Table 4.8 shows that 8.3% of the respondents correctly indicated that all women over 21 years of age should be screened for cervical cancer. A majority of the respondents (39.4%) selected the option ‘Every woman’. Every woman above the age of 21 should be screened assuming that they are not celibate. There was no significant difference in the knowledge of the respondents at different levels of training to who should be screened for cervical cancer. The Pearson Chi-square was not significant (F=3.26, df=6, p=0.776).
Table 4.8: Who should be screened for cervical cancer? (N=132)

<table>
<thead>
<tr>
<th>Who should be screened?</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every woman</td>
<td>52</td>
<td>39.4</td>
</tr>
<tr>
<td>Every woman, all women over 21 years of age, single women, married women, sex workers</td>
<td>26</td>
<td>19.7</td>
</tr>
<tr>
<td>All women over 21 years of age</td>
<td>11</td>
<td>8.3</td>
</tr>
<tr>
<td>Every woman, all women over 21 years of age</td>
<td>10</td>
<td>7.6</td>
</tr>
<tr>
<td>Every woman, married women, sex workers</td>
<td>7</td>
<td>5.3</td>
</tr>
<tr>
<td>Every woman, all women over 21 years of age, married women, sex workers</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Every woman, sex workers</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>All women over 21 years of age, single women, married women, sex workers</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Did not answer</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Every woman, all women over 21 years of age, sex workers</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Every woman, single women, married women, sex workers</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Every woman, married women</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Married women, sex workers</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Every woman, all women over 21 years of age, single women, married women</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Every woman, all women over 21 years of age, married women</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Every woman, single women, sex workers</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Single women, married women, sex workers</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>132</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.6.5 How often should a woman be screened for cervical cancer?

Table 4.9 indicates that 30 (22.7%) t of the respondents correctly indicated that HIV positive women should be screened annually and HIV negative women every three years. The screening guidelines for Zimbabwe recommend that HIV positive women should screen annually and those who are HIV negative should screen every three years. There was no significant difference in the knowledge of the respondents at different levels of training to how often a woman should be screened for cervical cancer. The Pearson Chi-square was insignificant with (F=2.89, df=6, p=0.823).
Table 4.9: How often should a woman screen for cervical cancer? (N=132)

<table>
<thead>
<tr>
<th>Frequency of screening</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every 2 years</td>
<td>30</td>
<td>22.7</td>
</tr>
<tr>
<td>Every 2 years, HIV positive women annually</td>
<td>30</td>
<td>22.7</td>
</tr>
<tr>
<td>HIV positive women annually, HIV negative women every 3 years</td>
<td>29</td>
<td>22.0</td>
</tr>
<tr>
<td>Every 2 years, HIV positive women annually, HIV negative women every 3 years</td>
<td>9</td>
<td>6.8</td>
</tr>
<tr>
<td>Every 5 years, HIV negative women every 3 years</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>HIV negative women every 3 years</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Every 5 years</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Did not answer</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Every 2 years, every 5 years</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>HIV positive women annually</td>
<td>3</td>
<td>.3</td>
</tr>
<tr>
<td>Every 2 years, every 5 years, HIV positive women annually, HIV negative women every 3 years</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Every 2 years, HIV negative women every 3 years</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Every 5 years, HIV positive women annually, HIV negative women every 3 years</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Every 2 years, 2, HIV positive women annually</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Every 5 years, HIV positive women annually</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>132</td>
<td>97.9</td>
</tr>
</tbody>
</table>

4.6.6 Abnormal cervical screening result

Out of the 132 respondents half of them 50% (f=66) correctly indicated that an abnormal cervical cancer screening result means precancerous cells 23.5% (f=31) did not know (Figure 4.38). There was a significant difference in the knowledge of the respondents at different levels of training to what an abnormal cervical screening result means. A higher percentage of respondents who were in level 3 correctly identified the meaning of an abnormal cervical screening result compared to those in level 2 and 1. The Pearson Chi-square was significant (F=11.203, df=3, p=0.011).
There were 69% respondents in third year second year 48.8% first year 35.4% who correctly indicated that an abnormal cervical screening result means precancerous cells (Figure 4.39). A majority of respondents (37.5%) who were in the first year indicated that they did not know what an abnormal cervical screening result means. There was a significant difference in the perception of the respondents at different levels of training to what an abnormal cervical screening result means. A higher percentage of respondents who were in level 3 correctly identified the meaning of an abnormal cervical screening result compared to those in level 2 and 1. The Pearson Chi-square was significant (F=11.203, df=3, p=0.011).

**Figure 4.38: Meaning of abnormal screen results (N=132)**

4.6.6.1 Correlation of meaning of an abnormal result to level of training

There were 69% respondents in third year second year 48.8% first year 35.4% who correctly indicated that an abnormal cervical screening result means precancerous cells (Figure 4.39). A majority of respondents (37.5%) who were in the first year indicated that they did not know what an abnormal cervical screening result means. There was a significant difference in the perception of the respondents at different levels of training to what an abnormal cervical screening result means. A higher percentage of respondents who were in level 3 correctly identified the meaning of an abnormal cervical screening result compared to those in level 2 and 1. The Pearson Chi-square was significant (F=11.203, df=3, p=0.011).
4.6.7 Benefits of cervical cancer screening

Table 4.10 shows the responses to the benefits of screening for cervical cancer. The majority of respondents 96.2% (f=127) believe that cervical cancer screening would save lives if detected at an early stage, 2.3% (f=3) indicated that they did not know and 1.5% (f=2) indicated that it was not true.

A majority of the respondents correctly indicated that cervical cancer is curable if detected early 87.9% (f=116), 5.3% (f=7) indicated “false” and 6.8% (f=9) did not know.

Of the 132 respondents 75.8% (f=100) indicated as “true” that regular cervical cancer screening decreases the risk of cancer 18.2% (f=24) as “false” and 6% (f=8) did not know. The majority of the respondents perceive screening for cervical cancer as beneficial. As stated before the health belief model predicts that those with perceived benefits are more likely to take preventive measures than those with no perceived benefits. Hence it is most likely that the low uptake of cervical cancer screening among respondents in this study is due to other factors other than lack of perceived benefits. Ibekwe et al (2010:1025) had similar findings where 75% believed screening could find changes in the cervix before full cancer sets in and 84% believed when found early cervical cancer can be easily cured. There was a significant correlation between intention to screen in the coming year and the perception that regular cervical cancer
screening decreases the risk of cancer (correlation co-efficient: -0.174, p=0.050, N=127). There was no significant correlation between the other statements relating perceived benefits of cervical cancer screening and the intention to screen p.

<table>
<thead>
<tr>
<th>Perceived benefits</th>
<th>True</th>
<th>False</th>
<th>Do not know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Cervical cancer screening would save life if detected</td>
<td>127</td>
<td>96.2</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>early</td>
<td></td>
<td></td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Cervical cancer is curable if detected early</td>
<td>116</td>
<td>87.9</td>
<td>7</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>6.8</td>
</tr>
<tr>
<td>Regular cervical cancer screening decreases the risk</td>
<td>100</td>
<td>75.8</td>
<td>24</td>
<td>18.2</td>
</tr>
<tr>
<td>of cancer</td>
<td></td>
<td></td>
<td>8</td>
<td>6.0</td>
</tr>
</tbody>
</table>

4.7 PERCEIVED BARRIERS TO CERVICAL CANCER SCREENING

Understanding and identifying barriers can be used to enhance participation rates in prevention programmes even when offered free of charge (Julinawati et al 2013:679). This section of the questionnaire posed statements to determine what respondents perceived as barriers to cervical cancer screening. Respondents were required to indicate “True”, “False” or “Do not know” to the statements posed to them. These statements covered issues regarding stigma, awareness, fear, and socio economic.

Being seen at a cervical cancer screening clinic by friends or colleagues would not be a barrier to 107 (81.1%) of the respondents, although fewer respondents 20 (15.2%) felt that they would not want to be seen. Young Hispanic women refuse to attend screening as they would not want to admit engaging in sexual intercourse (Julinawati et al 2013:681).

Table 4.11 shows that of the 132 respondents 110 (83.3%), 111(84.1%) indicated as false that cervical screening was humiliating and embarrassing respectively. These findings are similar to the Ibekwe study, where 68% of the participants believed that cervical cancer screening was not embarrassing (Ibekwe et al 2011:5). Contrary to these findings due to a sense of modesty women in India were found to be generally shy of gynaecological examination even if the examiner is a woman (Basu et al 2006:372).
Respondents believe that they have the time to do the test as 108(81.8%) responded as “False” to the statement “I have no time for doing the test”. Therefore time is not a barrier to screening. Similar results were found by Al-Naggar and Isa (2010:437) where only 1% of the participants did not have the time for the procedure.

Of the 132 respondents 119 (90.2%) are aware of the tests, only 9(6.8%) were not aware of any test. This is contrary to the findings of the study by Were et al (2011:62) where participants reported that one of the key barriers to access was lack of awareness about the screening services.

The majority of the respondents 100 (75%) knew where the test is done, only 27(20.5%) were not aware. Not knowing where the test is done could hinder some women from accessing the cervical cancer screening services.

To the statement “the test is too expensive” the majority of the respondents 100 (75.8%) indicated “False”, 29 (21.9%) do not know and 3 (2.3%) indicated “true”. Respondents know that the readily available test which is VIAC is offered free of charge in public health centres in Zimbabwe.

The majority of the respondents 119 (90.2%) believed they were not too young for the test. Being screened by a male health care provider would not discourage 84 (63.6%) of the respondents, however, 44 (33.3%) of the respondents would be discouraged by this fact. In various studies it has been reported that the gender of the health worker would be an issue for most participants (Al-Naggar & Isa 2010:437; Mutyaba et al 2006:1). However, a study done in Botswana had similar findings to the current study where ‘most women stated that they would prefer a male provider because ‘men are caring’, ‘men are more tender than women are’, and ‘men can keep your secret’ (McFarland 2003:173).

Very few respondents 6.1% ($f=8$) indicated as ‘True’ that cervical cancer screening is too painful, 55.5% ($f=73$) indicated ‘False’ and 38.6% ($f=51$) did not know. Most of the respondents believe that screening for cervical cancer is not painful. These findings are similar to the study by Ibekwe et al (2011:5) where most of the respondents disagreed.
that screening for cervical cancer is painful. However, various studies report that fear of pain during screening is a barrier (Julinawati 2013:680).

There was no significant correlation between the intention to screen and the perceived barriers to cervical cancer screening.

**Table 4.11: Perceived barriers to cervical cancer screening (N=132)**

<table>
<thead>
<tr>
<th>Barriers</th>
<th>True</th>
<th>False</th>
<th>Do not know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>I would not want to be seen in a cervical cancer screening clinic by my friends or colleagues</td>
<td>20</td>
<td>15.2</td>
<td>107</td>
<td>81.1</td>
</tr>
<tr>
<td>It is too embarrassing to have a cervical cancer screening test</td>
<td>17</td>
<td>12.9</td>
<td>111</td>
<td>84.1</td>
</tr>
<tr>
<td>I have no time for doing test</td>
<td>20</td>
<td>15.2</td>
<td>108</td>
<td>81.8</td>
</tr>
<tr>
<td>I am not aware of any test</td>
<td>9</td>
<td>6.8</td>
<td>119</td>
<td>90.2</td>
</tr>
<tr>
<td>Do not know where the test is done</td>
<td>27</td>
<td>20.5</td>
<td>100</td>
<td>75.8</td>
</tr>
<tr>
<td>The test is too expensive</td>
<td>3</td>
<td>2.3</td>
<td>100</td>
<td>75.8</td>
</tr>
<tr>
<td>I am still too young for the test</td>
<td>6</td>
<td>4.5</td>
<td>119</td>
<td>90.2</td>
</tr>
<tr>
<td>Being screened by a male health care provider would discourage me</td>
<td>44</td>
<td>33.3</td>
<td>84</td>
<td>63.6</td>
</tr>
<tr>
<td>Cervical cancer screening is too painful</td>
<td>8</td>
<td>6.1</td>
<td>73</td>
<td>55.3</td>
</tr>
</tbody>
</table>

**4.8 CUES TO ACTION**

Readiness to (Perceived susceptibility and perceived benefits) could only be potentiated by other factors particularly by cues to instigate action such as bodily events or by environmental events such as media publicity (Champion & Skinner 2008:48). This section covered the respondents’ sources of information on cervical cancer screening services.
4.8.1 Sources of information

The major sources of information indicated by the respondents were tutors 39 (29.5%), friends 29 (21.9%), health care provider 51 (38.6%), television 26 (19.6%) and radio 19 (14.4%) (Table 4.12). The most named source of information was the health care provider.

Table 4.12: Sources of Information about cervical cancer (N=132)

<table>
<thead>
<tr>
<th>Sources of information</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutors, friends, health care provider, television, radio, posters, magazines, newspapers, books</td>
<td>11</td>
<td>8.3</td>
</tr>
<tr>
<td>Health care provider</td>
<td>9</td>
<td>6.8</td>
</tr>
<tr>
<td>Tutors, friends, health care provider</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Friends</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Tutors</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Tutors, friends, health care provider, television, radio, magazines</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Did not answer</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>Tutors, health care provider, books</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Friends, health care provider</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Friends, health care provider, television</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Radio</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>Tutors, friends, health care provider, television, radio, books</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Tutors, health care provider, television, radio, posters, magazines, newspapers, books</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Tutors, health care provider, television, posters</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Tutors, health care provider, television, posters, magazines, newspapers</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Tutors, television</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Friends, books</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Health care provider, posters, books</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Magazines</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Newspapers</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Other combinations chosen by one respondent</td>
<td>57</td>
<td>43.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>132</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.8.2 Best methods for providing information

Table 4.13 shows that majority of respondents 60 (45.5%) indicated that they thought the best method of providing information about cervical cancer and screening were health care providers followed by television 26 (19.7%), followed by community leaders 17 (12.9%) and a combination of television, radio health care providers and community
leaders (9.1%). In Japan coupons for a free Pap smear are distributed nationwide to women in various age groups, but despite these measures there is a low rate of participation in cancer screening programs (Oshima & Maezawa 2013:4313).

Table 4.13:  Best methods for providing information about cervical cancer and screening (N=132)

<table>
<thead>
<tr>
<th>Preferred method</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health care providers</td>
<td>60</td>
<td>45.5</td>
</tr>
<tr>
<td>Television</td>
<td>26</td>
<td>19.7</td>
</tr>
<tr>
<td>Community leaders</td>
<td>17</td>
<td>12.9</td>
</tr>
<tr>
<td>TV, radio, health, community</td>
<td>12</td>
<td>9.1</td>
</tr>
<tr>
<td>TV, radio, health</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Health, community</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Radio</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>TV, health, community</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Did not answer</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>TV, social media</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>132</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.9 SUMMARY

In this chapter, the data obtained through a self-administered questionnaire are presented. The presentation follows the format of the questionnaire and the set objectives for the current study and relate to the socio-demographic data, cervical cancer knowledge, attitudes and beliefs. Associations among different variables are determined via Chi-square ($\chi^2$) calculations. The conclusion based on these results will be presented in the next chapter.
CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The purpose of this study was to analyse the knowledge and attitudes as well as to determine beliefs influencing the cervical cancer screening behaviour of nursing students against their utilisation of screening services. It is hoped that this knowledge will increase the number of women screening for cervical cancer and hence reduce the mortality ratio of women dying from cervical cancer. There is need to generate information that can be utilised by nurses, nurse educators and health care planners to implement interventions directed at improving the rate of screening.

In this chapter the objectives of the study will be evaluated to determine whether they have been achieved. The HBM will underpin the conclusions of the study as discussed in chapter 2 of this dissertation. Students’ health seeking behaviour is based on how at risk they perceive themselves to be of contracting cervical cancer. Also presented in this chapter are the limitations impacting on generalisability of the findings, and recommendations for clinical practice and future research.

The specific objectives of this study are to

- determine the level of **knowledge** of cervical cancer screening among female student nurses
- analyse the female student nurses **attitudes** towards screening for precancerous lesions
- determine **perceptions** influencing cervical cancer screening behaviour of female student nurses
- determine female student nurses’ **attitudes towards their own utilisation** of cervical cancer screening
5.2 MODIFYING FACTORS

Modifying factors such as age, gender, level of understanding and knowledge can affect a person’s perceived susceptibility and perceived seriousness of a given health problem. These modifying factors also affect the perceived benefits and barriers to a health action. For example young adults often have a low perceived susceptibility in relation to health problems and this can lead to not taking appropriate health action such as screening for cervical cancer. In this study demographic variables that could influence the respondents to take steps to prevent contracting cervical cancer include age, marital status and level of education.

Age

The study indicated that the respondents were between the ages of 19-44 years, the mean age was 27 years. There was an increase in the number of students who screened with an increase in age. The mean age was above the expected college age. The wide age range means that if preventive health education is implemented it would reach a large population of the at-risk. Students in colleges engage in high risk sexual behaviour putting them at risk of contracting cervical cancer as they are at the ages of sexual interest and experimentation, this is in line with findings from other studies (Hoque et al 2014:1).

Marital status

The majority (55.5%) of the respondents in the current study were single and (40.2%) were married. Marital status is one of the demographic variables that predispose one to take preventive action against cervical cancer. Due to repeated exposure to unprotected sexual intercourse and change of sexual partners among unmarried young adults, there is an increase in the risk of contracting cervical cancer. In the current study more married students screened for cervical cancer as compared to the single ones.

Previous studies have indicated that marital status predisposes one to take action as also shown by the results of this current study. In view of the fact that there are more single students who might be having more than one partner, engaging in unprotected sexual intercourse; there is need for health education on cervical cancer prevention. In
a study done by Yi (2004:197) on Vietnamese women, marital status played a role in screening behaviour, the women held the belief that screening was important for married women as they were viewed as more susceptible to cervical cancer. However, in a study done by Mutandwa et al (2013:20) there was no association between marital status and screening.

**Level of education**

All the respondents were student nurses in different levels of training. Women with low educational achievement and low awareness of the risk factors for cervical cancer have been seen to have poor uptake of screening services. A high level of academic achievement has influence on the age of sexual initiation and makes health education messages more meaningful. The results of this study indicate that there were more students who screened for cervical cancer in the third year of study than in the first and second years. In a study done by McFarland (2003:172) in Botswana knowledge about cervical cancer was greater among women with high socio-economic status such as High income and university education. In another study done in Nigeria participants with a higher level of education were found to be more aware of cervical cancer screening than those of lower levels of educational status (Emanuel et al 2015:125).

**Parity**

The results indicate that 37.9% of the respondents had no children and the rest of the respondents had 1-3 children. The number of children that a woman has influences her screening behaviour. If the women deliver at a health institution they come into contact with health care providers. In Zimbabwe VIAC is offered to eligible women at 6 weeks postnatal visit. Hence parity is also likely to influence women’s screening behaviour (Gundani & Chipfuwa 2013:027). Shekar et al (2013:3644) found that married and parous women were more likely to be screened because women are more likely to approach a health facility for obstetric and gynaecological reasons where they would be offered opportunistic screening.
Age at first intercourse

The results of the study indicated that majority (61.5%) of the respondents had their sexual debut between the ages of 20-24 years. The peak mean age at first sexual intercourse in American college students was found to be 16.3 years (Burak & Meyer 1997:255). This age group is at risk of contracting cervical cancer. Hoque et al (2014:4) had similar findings where the mean age at sexual debut was found to be 18.20 and the range was 12-22. The participants in these studies had their sexual debut at an even earlier age than the current study.

Contraceptive use

Condom use was not high among the respondents most of the respondents used oral contraceptives and implants perhaps explaining the low rate of condom use. As many as (25.0%) were not on any contraception, this can perhaps be explained by the fact that (15.9%) of the respondents indicated that they were still virgins. This is consistent with the findings of a study done by Denny-Smith et al (2006:66) only13% of the student nurses always used condoms and 63% never used condoms. In a study done in Japan university students commented that they used condoms only to prevent pregnancy and not infection (Ghotbi & Anai 2012:900).

Cigarette smoking

All the respondents indicated that they did not smoke cigarettes; hence cigarette smoking as a risk factor does not apply to all the respondents. Other studies reported similar findings indicating that cigarette smoking is not a common social habit for women in Africa, contrary to these findings in a study done by Ingledue et al (2004:30) 22% of the participants who were college students in America smoked cigarettes.

Number of sexual partners

The results of the study indicate that as many as 20.2% of the respondents have two or more sexual partners, some stated that they had up to six partners in the previous year. College students have a higher risk of acquiring sexually transmitted infections because of the high risk sexual behaviour that they engage in (Ingledue et al 2004:28). Therefore
some of the respondents in this study are also at risk of contracting cervical cancer as well. In a study done in Japan by Ghotbi and Anai (2012:899) 14% of the participants had more than 5 sexual partners.

5.3 KNOWLEDGE RELATING TO CERVICAL CANCER

Knowledge is a structural variable that has influence on risk perception as it enables individuals to recognise the risk of an illness and take steps to prevent illness, this population of students needs to be knowledgeable about HPV and cervical cancer in order to counsel future patients (Denny-Smith et al 2006:67).

5.3.1 Knowledge of cervical cancer

As shown in Figure 4.8 the majority of respondents 97 (73.5%) knew the route of transmission of the virus associated with cervical cancer. These findings were similar to those of a study done in Tanzania where 83 (60.6%) of the nurses correctly indicated the route of transmission (Urasa & Darj 2011:50).

Fewer students 73 (55.3%) correctly indicated that pre-cancer cells are associated with the presence of HPV. Although the majority of the respondents knew the answer the percentage was lower than expected for nursing students. Goyal et al (2013:249) and McCarey et al (2011:2) had similar findings in their studies.

Knowledge about the meaning of a positive screen was slightly lower with 62 (47.0%) knowing the answer, 34 (25.8%) did not know. A study in Nigeria revealed that 59% of the respondents knew that a positive screen result meant cervical cancer which was about to start whilst 34.5% felt the positive result meant full-blown cervical cancer (Awodele et al 2011:501).

Only 17 (12.9%) were able to correctly identify all the signs of cervical cancer. The most commonly known signs were foul smelling vaginal discharge and irregular vaginal bleeding. In a study done in India foul smelling discharge was identified by 73.5% of the nurses as well as post coital bleeding 45% (Goyal et al 2013:250). The most commonly known sign is foul smelling discharge despite it being a very late sign.
As indicated from Figure 4.26 to Figure 4.34 the commonly known risk factors were multiple sex partners, having sex at an early age and human papillomavirus infection. The least known risk factors were use of oral contraceptives, smoking cigarettes and having genital warts. The fewer students identifying smoking as a risk factor could be explained by the fact that smoking is commonly associated with lung cancer and not with other types of cancer in anti-smoking campaigns and besides smoking is not a common practice among Zimbabwean women (ZDHS 2010-2011) Of note is that some of the students thought taking illegal drugs could predispose one to cervical cancer. Medical workers in Thailand had low knowledge on cervical cancer risk factors, 82.2% knew that multiple sexual partners was a risk factor as well as young age at first sexual intercourse 76.6%. But other risk factors such as smoking, multiparity and oral contraceptives were not known (Oranratanaphan et al 2010:2). Multiple sexual partners was also correctly identified as being a risk factor by 71% of the respondents in a study by McCarey et al (2011:2).

As shown in Fig 4.35, 96.6% of the respondents knew that cervical cancer can be diagnosed at an early stage and only 3.1% did not know. This knowledge should motivate the respondents to screen regularly for early detection and treatment. On when women should start having screening tests 21.8% did not know. Not knowing when to screen could put the respondents at risk as they could only show up when they have symptoms of the disease. Africans traditionally do not access healthcare check-ups and screening because the concept of check-up is not known and is not common practice (Gundani & Chipfuwa 2013:27). This also has implications on the health information that they will give to the women under their care. In the studies conducted by Shekar et al (2013:3644), Goyal et al (2013:250) and Oranratanaphan et al (2010:2) health workers were aware that cervical cancer can be detected at an early stage.

Fewer respondents 65 (49.2%) knew when screening test should commence; this is despite the existence of national guidelines for cervical cancer screening. The main reason for this lack of depth of knowledge could be delay in disseminating information by MOHCC.

The most widely known screening technique is Pap smear (84.8%) followed by VIA (69.7%). The fact that Pap smear is the most known screening test is understandable considering that it has been in existence for longer than the other methods and has
been in use in Zimbabwe for decades. HPV/DNA is more recent and is used in
developed countries; it is not widely available in Zimbabwe because of high financial
and technological requirements. VIA was the second most known screening test, it is
the most widely used screening test in this country and accessible for free in most
public institutions in urban areas. The lower level of knowledge on VIA could be that it
has not been in existence for long and has not been widely publicised. In various
studies done Pap smear was the most well-known screening technique (Awodele et al

The majority of the respondents were not sure who should be screened for cervical
cancer and how often the women should be screened. Knowledge of the screening
guidelines in Zimbabwe was below average as most of the students did not know that
HIV –ve women are screened every 3 years and HIV +ve women annually. Similarly in
Uganda in a study done among hospital health workers it was found that less than half
of them had adequate knowledge regarding screening interval (Mutyaba et al 2006:2).
These results are a reflection of the fact that the screening policy is not widely
publicised for all women to know.

Only half of the respondents 50% know that an abnormal screen indicates
precancerous cells, 23.5% indicated that they did not know what it meant and the rest
chose the wrong answers. In a study done by Shekar et al (2013:3644) nearly a third of
the participants perceived the precancerous stage as incurable and a fatal illness.

The results of this study show that a literate population of future nurses lacks complete
information on cervical cancer and its risk factors. The student nurses demonstrated
relatively average knowledge levels for what one would expect for student nurses. This
population needs to be knowledgeable of cervical cancer in order to counsel future
patients. Various studies reviewed by the researcher indicate that there is a general low
level of knowledge amongst women when it comes to cervical cancer (Mutyaba et al
2006:2; Oranratananaphan et al 2010:2; Shekar et al 2013:3644; Hoque et al 2014:5;
Urasa & Darj 2011:53; Ghotbi & Akai 2012:900). Knowledge is an essential first step in
the development of behaviour. Although knowledge is considered as a precursor of
behaviour it is not a clear one intermediary factor like attitude play an important role in
formulating behaviour (Shekar et al 2013:3644).
5.4 ATTITUDES TOWARDS SCREENING FOR PRECANCEROUS LESIONS

The objective is to analyse the attitudes student nurses have towards screening for precancerous lesions. Figure 4.12 to Figure 4.25 indicates the respondents' attitude towards screening for cervical cancer. Most of the respondents showed a positive attitude towards screening. 87.9% indicated that they would rather screen for cervical cancer, the majority 95.4% agreed that early detection could increase survival chances. They also perceived that it was possible to prevent cervical cancer and it was also possible to detect it. The majority of the respondents felt that fear of result was not a factor which would deter them from screening, 77.3% of the respondents believe that something can be done about cervical cancer. With such a positive attitude it means that if whatever barriers are removed more students would screen for cervical cancer. Contrary to the study findings a large section of the study population by Basu et al (2006:372) believed cancer was synonymous to suffering and death. To them anything to do with detection of such a dreadful disease had to be painful. Moreover they were scared of a positive diagnosis which only meant anxiety. In another study done by Ribeiro et al (2013:464) student nurses were seen to have a positive attitude towards screening for cervical cancer as they felt it was a necessary examination and they did it to know that everything was okay. However, despite the positive attitudes the student nurses had inadequate knowledge about cervical cancer.

5.5 PERCEPTIONS WITH REGARDS TO SCREENING FOR CERVICAL CANCER

The objective was to determine the perceptions student nurses have with regards to screening for cervical cancer. The majority of the students (96.2%) believed cervical cancer was curable with early detection and proper medical care. They also believed that they had the ability to avoid cervical cancer and that women were still dying from cervical cancer. However, despite the fact that (57.9%) believed that they were at risk of developing cervical cancer quite a large percentage (40.8%) believe they were not at risk. The respondents believed it was not embarrassing to screen and they were not worried about being seen by friends and colleagues at screening clinics neither were they too young for the test and it was not too expensive.

Some of the students did not believe they were susceptible to cervical cancer despite being sexually active and not using protection. Beliefs concerning lack of personal
vulnerability could have dire consequences for the student nurses. Some students believed themselves to be at risk of developing cervical cancer but not at risk of contracting HPV, this indicated that some of the students were not aware of the association between sexually transmitted HPV and cervical cancer. The results of this study indicate that beliefs provide important but not sufficient explanations for student nurses’ attitudes towards screening for cervical cancer. In a study done by Owoeye & Ibrahim (2013:54) in Nigeria most of the respondents considered themselves not to be at risk for cervical cancer. Such beliefs do not pose a good picture for effective control of cervical cancer, as women who do not consider themselves to be at risk have no reason to take up a screening programme.

5.6 STUDENTS ATTITUDES TOWARDS OWN UTILISATION OF SCREENING SERVICES

The objective was to find out students’ commitment to self-screening for cervical cancer. Most of the respondents 70.5% (f=93) intend to have cervical cancer screening in the coming year. No significant correlation to intention to screen and perceived barriers to screening was found (p≥0.05). Findings from this study indicate that students have a high commitment to self-screening for cervical cancer. Barriers indicated do not have an effect on their commitment to screening. According to Al-Naggar & Isa (2010:438) the greatest barrier to effective cervical cancer screening is inadequate knowledge about the test. Utilisation of screening services will not increase unless knowledge is improved and barriers removed. According to Urasa & Darj (2011:55) utilisation of screening services is dependent on an individual’s awareness of the importance of cervical cancer screening. Since the student nurses in the current study seem to be aware of the importance of screening the finding is encouraging and suggests that a programme of public education within the context of national screening programme is likely to result in increased screening uptake.
5.7 SUMMARY OF CONCLUSIONS CONTEXTUALISED WITHIN THE MAJOR COMPONENTS OF THE HEALTH BELIEF MODEL (HBM)

The HBM has been used to analyse the knowledge, attitudes and beliefs relating to cervical cancer screening at a nursing school in Zimbabwe. Several conclusions have been reached during this current study. These conclusions are discussed according to the components of the HBM.

5.7.1 Perceived susceptibility to cervical cancer

The objective was to find out their attitudes towards cervical cancer screening. The students’ attitude towards screening is determined by how they perceive themselves to be susceptible to cervical cancer.

The results of the current study indicate that the student nurses have a low perception of being susceptible to cervical cancer. On being asked if they intended to participate in the specified health checks, 70.5% of the respondents indicated that they would screen for cervical cancer in the following year. By believing one to be at risk would motivate the students to screen. Of the 132 respondents 98 had not screened and only 34 had screened. Of the 98 who had not screened 93 indicated that they intended to screen, meaning that 5.1% still had no intention to screen. These students do not view themselves to be susceptible to cervical cancer.

Knowledge does influence perception and affects health related behaviour such as screening, hence knowing how HPV transmitted and that it is associated with the pre-cancer cells could influence the students’ decision on whether to screen or not. 86 % of the students worry about getting cervical cancer meaning that they perceive themselves to be susceptible to cervical cancer. However, fewer students 80% of the students worry about getting HPV, this difference could mean that some students may not know the association between HPV and cervical cancer.

Fewer respondents 57.9% believe they are at risk of developing cervical cancer as compared to them being worried about getting cervical cancer. In spite of being worried most of the respondents do not believe they are at risk of developing cervical cancer or
contracting HPV. This could be as a result of knowledge gaps on cervical cancer.

Out of the 132 respondents, 54.7% are of the view that all women have an equal chance of developing cervical cancer it is beyond their control. There seems to be lack of understanding of risk factors for cervical cancer, they hold fatalistic attitudes associated with fate. Such a view indicates that the students might not be inclined to screen if the disease is beyond their control. 40.8% of the students disagreed with the statement that their chances of getting cervical cancer were high despite the fact that they were sexually active and some not using protection. This lack of vulnerability can result in grave consequences for the student nurses as they may not be inclined to screen for cervical cancer. As previously highlighted perception of susceptibility to a disease can influence screening practices (Urasa & Darj 2011:55).

The majority of respondents 67.2% believed that they were able to avoid cervical cancer; this is a positive attitude in that if the students believed that it is within their control to avoid cervical cancer they can take the necessary steps such as screening regularly to avoid the disease. Majority of students are aware that women are still dying from cervical cancer; this awareness can be a motivator for the students to screen.

Some of the students had inadequate knowledge about the transmission of HPV and that it causes cervical cancer as well as their risk status for cervical cancer. Lack of understanding of how HPV is contracted and their risk status, might impact negatively on the students’ abilities to prevent cervical cancer and to utilise screening services for early detection and treatment of cervical cancer. Students who do not perceive themselves as being at high risk of contracting HPV might not take the necessary steps to protect themselves from cervical cancer. These findings are similar to those of a study done by Baskaran et al (2013:7696) which found that only respondents who perceived themselves as being susceptible to cervical cancer were more likely to take preventive actions compared to those who perceived themselves as not being susceptible. Some of the respondents in this study might have perceived themselves as not being at risk of contracting cervical cancer because they were not sexually active, though this situation might change.
5.7.2 Perceived seriousness/severity of cervical cancer

This variable refers to feelings about the seriousness of contracting an illness or leaving it untreated includes evaluations of medical or clinical consequences like death or disability. If a woman thinks cervical cancer is a severe disease and believes that getting cervical cancer would have serious medical consequences for her, it is more likely she will obtain a cervical cancer screen.

The results indicate that most of the respondents 69.7% consider cervical cancer to be one of the most serious diseases although they do not consider themselves to be at risk. 87.9% of the students would rather screen for cervical cancer regardless of the results. This indicates that the students regard cervical cancer as a serious condition that they would want to know the outcome of the screen. Having personal knowledge regarding the importance of the screen has been evidenced as an important factor to take action to prevent adverse effects of cervical cancer. Most of the students 84.8% indicated that seeing someone suffer from cervical cancer would encourage them to go for screening. 77.3% of the students indicated that something can be done about cervical cancer; it is highly likely that in view of the perceived seriousness of cervical cancer the students would be motivated to screen. However, the data revealed that some students still have some misconceptions about cervical cancer as some 15.9% still believe that there is very little that one can do about it, that it is not possible to detect it or prevent it and that it is false that early detection can increase survival chances. Student nurses perceive cervical cancer as a serious condition; this could lead to them taking measures to prevent getting the disease. However, in a study done by Igwilo et al (2012:97), the findings were that respondents who felt they were not susceptible to cervical cancer were more willing to go for screening and take vaccines than those who were at risk.

5.7.3 Perceived benefits of cervical cancer screening

One of the decisive factors in adopting proactive health behaviours, according to the health belief model, is obtaining benefits from the said behaviour (Ibekwe et al 2010:1022). The majority of the students in this study perceive screening for cervical cancer as beneficial. 96.9% indicated that cervical cancer can be diagnosed at an early stage; this is an advantage in that treatment can be sought before the cancer
metastases. The majority 127 (96.2%) believe that if detected at an early stage lives would be saved. The other benefits which the respondents believe are true; are that regular screening decreases the risk of cancer and that cervical cancer is curable if detected early. The majority of the respondents overwhelmingly agree that it is essential to screen for cervical cancer. However, the respondents lacked complete knowledge on the screening techniques. In a study done by Ibekwe et al (2010:1025) the majority of women believed screening was beneficial as it could find changes in the cervix before full cancer sets in and they also believed that when found early cervical cancer could be easily cured.

5.7.4 Perceived barriers to cervical cancer screening

Perceived barriers to cervical cancer screening are major factors that determine the likelihood to participate in screening. Individuals may reconsider attending cervical cancer screening if barriers are identified and subsequently dealt with. The study indicated that most respondents (81.1%) do not mind being seen in a cervical cancer screening clinic by friends or colleagues. The majority (83.3%) do not find the screening embarrassing neither humiliating. 81.8% are not hindered by time, they can make the time for screening. Many of the respondents (90.2%) are aware of the test and where the test is done and do not believe the test is too expensive, hence cost is not a barrier; neither did the respondents believe they were too young for the test. However, (33.3%) would be discouraged to do the test if it is done by a male health provider. (55.5%) of the respondents believed that screening for cervical cancer was not painful, a significant percentage (38.6%) stated that they did not know because they had not screened before.

Some of the students are concerned to be seen at a cervical cancer screening clinic by friends or colleagues, indicating possible stigma attached to cervical cancer screening, especially since it is a sexually transmitted disease. This might prevent the students who intend to be screened from using these services for fear of being labelled as promiscuous. There is no significant correlation between intention to screen and perceived barriers; hence the specified barriers would not hinder the students from screening for cervical cancer. The findings of this study are similar to those of a study done by Ibekwe et al (2011:8) where most participants did not have perceived barriers
to cervical cancer screening. However, some young women refused to attend screening as they did not want to admit engaging in sexual intercourse (Julinawati et al 2013:681).

5.7.5 Cues to action

Readiness to take action can be potentiated by other factors particularly by cues to instigate action such as media publicity (Champion & Skinner 2008:45). Women would be more likely to take action such as screening for cervical cancer if reminded by a family member or health care provider. Most of the respondents 38.6% \((f=51)\) indicated health care providers as their source of information about cervical cancer screening services. Also cited were tutors 29.5% \((f=39)\), which means that the students are being given information on cervical at school. A considerable number 21.0% \((f=29)\) indicated friends as a source of information, television and radio were also noted as other sources. The best methods of providing information about cervical cancer and screening were indicated as health talks by health care providers 45.5% \((f=60)\) and television 19.7% \((f=26)\). The radio was also cited as a preferred method of information.

Most respondents cited health care providers to be the source of cervical cancer and screening information. Some respondents also felt friends played a role in sharing of information. Print media is not a popular with the students as posters, magazines newspapers and books were the least cited, one could say students are not keen on reading material. In a study done by Oshima and Maezawa (2013:4315) most participants did not get screened because they did not feel pushed or encouraged to do so and thus did not bother to visit a screening centre. It can be concluded from the findings that students would benefit more from health talks by health care providers, television and radio as well as friends.

5.8 CONCLUSION

The researcher has concluded that student nurses have a low risk perception of contracting cervical cancer, lack complete information on cervical cancer and its risk factors. They, however, showed a positive attitude towards screening. Noteworthy among beliefs is that the majority of the respondents did not believe that they were susceptible to cervical cancer despite perceiving the disease to be of a serious nature. Not all of them practice safe sex and quite a number have multiple sexual partners.
They have very few barriers to screening and hence these did not seem to influence their screening attitude. They are very much aware of the benefits of screening for cervical cancer and they get their information mostly from health care providers and tutors. Their risk perception of contracting cervical cancer is, however, low.

5.9 RECOMMENDATIONS

Based on the findings of the study the following broad recommendations are made to improve knowledge, attitudes and beliefs regarding risk perception of contracting cervical cancer. Recommendations with regards to future research are also proposed.

- More emphasis on cervical cancer should be put on curricula taught in undergraduate education earlier on in training as knowledge seemed to improve with more years of study; only through proper education of health care workers can the burden of cervical cancer be reduced.
- Provisions for screening should be made available for student nurses when attending health clinics for any condition, the health care worker at the clinic can educate these students on cervical cancer and screening.
- Health care providers need to be targeted first in educating them on cervical cancer because of their pivotal role in any future screening programmes.
- The MOHCC should develop cervical cancer screening policy for health workers including student nurses.
- Credible programmes on cervical cancer should be presented on radio and television as this seems to be the preferred source on information many adolescents have access to this source of information. Adolescents should be involved in these programmes to ensure that information needs of other adolescents are met.
- In-service nurse educator training programmes should be provided to ensure up to date information on cervical cancer as students lacked complete and up to date information.
- The MOHCC should acknowledge and recognise that cervical cancer is a major public health concern and accord its prevention and treatment priority in resource allocation.
• Health education from high school to college and beyond need to provide information concerning information and prevention of human papillomavirus and cervical cancer.

5.9.1 Recommendations for further research

The researcher recommends further research into the following:

• The scarcity of research in this area in Zimbabwe with this population indicates a need for further research. This study serves as an impetus for future researchers to replicate the study with a larger sample size thus adding to the knowledge base and bringing policy makers a step closer to understanding screening attitudes and beliefs in this population.

• Further studies should be done to find out why student nurses are reluctant to undergo cervical cancer screening; these findings might be useful in formulating policy to address this important public health issue.

• Qualitative research on student nurses’ perceptions on cervical cancer would assist to understand their attitudes and beliefs and hence improve uptake of screening services by this population.

5.10 LIMITATIONS OF THE STUDY

• The interpretation of these study findings is limited in several ways. The findings are only referable to student nurses who agreed to participate. It is likely that those who declined to participate and those who were on leave or secondment were significantly different from those who participated hence curtailing the generalisability of the study.

• The key parameters of knowledge, attitude and perception were based on self-report questionnaire. Self-administered questionnaires for health seeking behaviour are known to be susceptible to social desirability bias. Nevertheless the study will still provide some insights into risk perceptions of contracting cervical cancer of student nurses. The bias could also be minimised by the fact that the study was anonymous.
• The strength of the study is that it was able to access a population that has not widely been studied and that this is one of the first studies describing knowledge, attitudes and perceptions about cervical cancer in this population.

• The study was limited by its cross-sectional design and convenience sampling at one training hospital and hence it may be difficult to generalise to other students in Zimbabwe.

• The age of the respondents in the study could have been a limitation in that the mean age of the respondents is greater than the typical college student.

5.11 SUMMARY OF THE STUDY

The study concentrated on student nurses risk perception of contracting cervical cancer through analysing knowledge, attitudes and beliefs on cervical cancer. A quantitative exploratory, descriptive and correlational design was used. A questionnaire was used to collect data from 132 female student nurses. The findings indicated that there was low risk perception of contracting cervical cancer, and the students had knowledge gaps on various aspects of cervical cancer.

Some of the key aspects in prevention of cervical cancer are through screening for the presence of pre-cancerous lesions and control of risk factors such as early sexual debut and having multiple sexual partners. Sexual intercourse is the mode of transmission and student nurses are particularly at high risk of contracting cervical cancer due to their risky sexual behaviour such as multiple sexual partners and non-use of protection. There is need to provide accurate and up to date information on cervical cancer and prevention, so that the students can accurately perceive their risks of contracting cervical cancer. The findings and recommendations of this study should contribute immensely to the prevention of cervical cancer.
REFERENCES


Rogers, NM & Cantu, AG. 2009. The nurses role in the prevention of cervical cancer among underserved and minority populations. *Journal of Community Health* 34:135-143.


Visual inspection with acetic acid and cervicography (VIAC) based cervical cancer screening practical manual. 2011. MOHCC.


ANNEXURES
UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

REC-012714-039

Date: 10 December 2014
Student No: 3473-603-4

Project Title: Analysis of student nurses’ risk perception of contracting cervical cancer in Zimbabwe.

Researcher: Mpata Patience Chishamiso

Degree: MA in Nursing Science

Supervisor: Prof ZZ Nkosi
Qualification: PhD
Joint Supervisor: Mrs A Masalo

Code: MPCHS94

DECISION OF COMMITTEE

Approved ✓ Conditionally Approved 

Prof L Roets
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Prof MM Moleki
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES
Telephone: 09-212011
Fax: 09-205078
Email: mpiholohospital.org

MINISTRY OF HEALTH
AND CHILD WELFARE
MPILOCENTRAL HOSPITAL
P O BOX 2096
Vera Road
Mzilikazi
BULAWAYO

ZIMBABWE

13 February 2015

Mpilo School of Midwifery
P O Box 2096
Bulawayo

Attention: Patience Mpata

RE: REQUEST PERMISSION TO CARRY OUT A STUDY ON STUDENT NURSES KNOWLEDGE ATTITUDES AND BELIEFS REGARDING CERVICAL CANCER SCREENING AT MPILO CENTRAL HOSPITAL

Reference is made to your minute in connection with the above matter.

The Institution has no objection in you undertaking your study.

May you give us the results of your study.

Thank you

Mr S Ngwenya
MBChB (UZ), DFSRH (UK) MRCOG (UK)
Consultant Obstetrician & Gynaecologist
Head of Department Obstetrics & Gynaecology
A/Clinical Director

Board Members: Mrs Sichelesile Moyo Ncube-Chairperson, Dr L.O.S. Mantiziba-Chief Executive Officer, Mr Siqokoqela Mphoko Hilabangana, Mr Prince Kunaka, Dr Nomathemba Ndweni Dr Goodness N. Msimanga
APPENDIX C: INFORMED CONSENT

By completing this questionnaire I willingly give consent to participate in a study related to understanding attitudes and beliefs of student nurses regarding cervical cancer screening services. Patience Mpata is a student pursuing a Masters degree in Nursing Science with University of South Africa. I understand that I will be part of a research study focusing on “Analysis of student nurses’ risk perception of contracting cervical cancer in Zimbabwe”. I understand that the information obtained will be used to improve understanding of attitudes and beliefs of student nurses with regards to cervical cancer screening.

I understand that I will be required to respond to a questionnaire. I understand that it will take approximately 20-30 minutes. I have been informed that my name or other identifying information will not appear on any forms and will not be used when the results are presented.

Participation is entirely voluntary and that I am free to withdraw at any time. My decision not to participate will not affect my training in any way whatsoever.

Further information regarding this study can be obtained directly from:

Patience C Mpata (00263 772380204) or Prof Z.Z.Nkosi (0836457899)
Mpilo School of Midwifery
Mpilo Central Hospital
Box 2096
Bulawayo

I have been provided with contact details and can contact the researcher (Mrs P C Mpata) if further information is required.

Date of participation……………………

Respondents signature……………………
APPENDIX D: LETTER TO MPILO CENTRAL HOSPITAL REQUESTING PERMISSION TO DO THE STUDY

7 Garfield Road
PO Northend
Tegela
Bulawayo

The Chief Executive Officer
Mpilo Central Hospital
Box 2096
Bulawayo.
Zimbabwe

Dear Sir

RE: PERMISSION TO CONDUCT RESEARCH

I am a tutor at Mpilo School of Midwifery. I am a registered Masters student at the University of South Africa (UNISA).

I wish to apply for permission to carry out a study on **Student nurses Knowledge, Attitudes and Beliefs regarding cervical cancer screening at Mpilo Central hospital**. This is part of the requirement for my Masters of Arts degree in Health Studies.

To ensure the highest quality of education for students and their full integration into higher education culture, there is the need to learn about knowledge, attitudes and beliefs towards cervical cancer screening.

It is my hope that the findings from this study will assist in understanding the attitudes exhibited and how they can be helped. Furthermore the findings of the study will be disseminated to stakeholders in nursing education so that the data informs the development of policies, programmes and practices to improve the quality of students at schools of nursing.

I shall be very pleased if you can grant me the permission to carry out the study. Should you have any queries, please do not hesitate to contact me.

Yours sincerely

Mpata Patience
00263 772380204
APPENDIX E: RESEARCH QUESTIONNAIRE

ANALYSIS OF STUDENT NURSES’ RISK PERCEPTION OF CONTRACTING CERVICAL CANCER IN ZIMBABWE

RESPONDENTS NUMBER..........................

Instructions

1. Your name will not be written on this paper therefore you will remain anonymous to the researcher.
2. All information will be treated with strict confidentiality.
3. Be as objective as possible, respond to all questions honestly.
4. Tick the most appropriate box.

You are free to withdraw at any stage of the research.
SECTION A: DEMOGRAPHIC, SOCIO-PSYCHOLOGICAL DATA

1.1 State your age ..................................... years.

1.2 Marital status
   Single     □
   Co-habiting □
   Married    □
   Separated/divorced □
   Widowed    □

1.3 What is your current level of study? ........................................... specify

1.4 What is your religion?
................................................................. specify

1.5 How many children do you have? □

1.6 What is your tribe?
................................................................. specify

1.7 Age at first intercourse
   less than 20 years □
   20 - 24 □
   25 - 29 □
   Above 30 years □

1.8 Which contraception do you use?
   Condoms □
Oral contraceptive pills
Injectables
No contraceptives
Implants

1.9 Do you smoke cigarettes?
Yes
No

1.10 How many sexual partners have you had in the past year? …………………

1.11 Have you ever screened for cervical cancer?
Yes
No

SECTION B: PERCEIVED SUSCEPTIBILITY TO CERVICAL CANCER

2.1 Do you plan to participate in the following health checks during this coming year?
HIV testing
Blood pressure checking
Cervical cancer screening

2.2 Have you ever been screened for cervical cancer?
Yes
No

2.3 The virus associated with cervical cancer is transmitted by:-
Sexual intercourse
Maternal-fetal transmission
Blood transfusion
I do not know
2.4 Cervical cancer and pre-cancer cells are associated with the presence of:-

Epstein-Barr virus
Herpes simplex virus
Human papillomavirus
Human immunodeficiency virus
I don’t know

Please respond to the following questions by ticking strongly agree (SA), agree (A), neutral (N), disagree(D), or strongly disagree(SD).

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<td>2.19</td>
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</table>
SECTION C: PERCEIVED SERIOUSNESS OF CERVICAL CANCER

3.1 What is the meaning of a positive screen test?
- Full blown cancer of the cervix
- Cervical cancer that is about to start
- Cancer of the breast
- I do not know

3.2 What are the signs of cervical cancer?
- Dysmenorrhoea
- Post coital bleeding
- Irregular vaginal bleeding
- Foul smelling vaginal discharge
- Do not know

Please state whether these statements are “true” or “false”

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TRUE</th>
<th>FALSE</th>
<th>DO NOT KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3</td>
<td>I will not screen for cervical cancer because of fear of the results.</td>
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<td>3.4</td>
<td>There is very little that one can do about cervical cancer.</td>
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<td>3.5</td>
<td>I would rather screen for cervical cancer</td>
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<td>3.6</td>
<td>Loss of cervix or uterus through surgery would affect my sexuality.</td>
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<td>3.7</td>
<td>It is possible to detect cervical cancer</td>
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<td>3.8</td>
<td>Early detection can increase survival chances</td>
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<td>3.9</td>
<td>Is it possible to prevent cervical cancer</td>
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<td>3.10</td>
<td>Seeing someone suffering from cervical cancer would encourage women to go for screening.</td>
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</tbody>
</table>
Please identify which of the following are risk factors of cervical cancer (answers yes, no, don’t know)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>YES</th>
<th>NO</th>
<th>I DON’T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.11 Multiple sex partners</td>
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<td>3.12 Having genital warts</td>
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<td>3.13 Having sex at an early age</td>
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<td>3.14 Smoking cigarettes</td>
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<td>3.15 Use of oral contraceptives</td>
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<tr>
<td>3.16 Human papillomavirus infection</td>
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<tr>
<td>3.17 Family history of cervical cancer</td>
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<td>3.18 Taking illegal drugs</td>
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</tbody>
</table>

SECTION D: PERCEIVED BENEFITS OF CERVICAL CANCER SCREENING

4.1 Can cervical cancer be diagnosed at an early stage?
   Yes
   No

4.2 When should a woman start having cervical cancer screening tests?
   At 21 years
   Three years after commencement of sexual intercourse
   I do not know

4.3 Which of these are screening techniques for cervical cancer

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TRUE</th>
<th>FALSE</th>
<th>DO NOT KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap smear</td>
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<tr>
<td>HPV/DNA test</td>
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<td>Visual inspection with acetic acid (VIA)</td>
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<td>Colposcopy</td>
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<tr>
<td>x-ray</td>
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<tr>
<td>Urine test</td>
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<td></td>
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</tbody>
</table>
4.4 Who should be screened for cervical cancer? (More than one answer can be given).

Every woman
All women over 21 years of age
Single women
Married women
Sex workers

4.5 How often should a woman be screened for cervical cancer? (Mark one only).

Annually
Every 2 years
Every 3 years
After 5 years

4.6 What do you think an abnormal cervical screening result means?

Precancerous cells
Cervical cancer
Sexually Transmitted Infection
Do not know

Please state if the following statements are “true” or “false”

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TRUE</th>
<th>FALSE</th>
<th>DO NOT KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7</td>
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<td>4.8</td>
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<tr>
<td>4.9</td>
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</tbody>
</table>
SECTION E: PERCEIVED BARRIERS TO CERVICAL CANCER SCREENING

Please answer the following questions with “true” or “false”

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TRUE</th>
<th>FALSE</th>
<th>DO NOT KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>I would not want to be seen in a cervical cancer screening clinic by my friends or colleagues.</td>
<td></td>
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<tr>
<td>5.2</td>
<td>It is too embarrassing to have a cervical cancer screening test.</td>
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</tr>
<tr>
<td>5.3</td>
<td>Cervical cancer screening is humiliating.</td>
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<tr>
<td>5.4</td>
<td>I have no time for doing test.</td>
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<tr>
<td>5.5</td>
<td>I am not aware of any test</td>
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<tr>
<td>5.6</td>
<td>Do not know where the test is done</td>
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<tr>
<td>5.7</td>
<td>The test is too expensive</td>
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<tr>
<td>5.8</td>
<td>I am still too young for the test</td>
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<tr>
<td>5.9</td>
<td>Being screened by a male health care provider would discourage me from being screened for cervical cancer.</td>
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<tr>
<td>5.10</td>
<td>Cervical cancer screening is too painful</td>
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</tbody>
</table>

SECTION F: CUES TO ACTION

6.1 If you know about cervical cancer screening services, how did you obtain this information?
(More than one can be given)

- Tutors
- Friends
- Health care provider
- Television
- Radio
- Posters
- Magazines
- Newspapers
- Books
6.2 What do you think are the best methods for providing information about cervical cancer and screening?

- Campaign advertisement on television
- Campaign advertisement on radio
- Health talks by health care providers
- Health talks by community leaders

THANK YOU