Cape Peninsula
University of Technology

FEMALE STUDENTS' KNOWLEDGE, BELIEFS, ATTITUDE AND PRACTICE OF BREAST SELF-EXAMINATION IN A UNIVERSITY IN THE WESTERN CAPE

BY

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DECLARATION

I, Mavis Bobie Ansah, declare that the contents of this dissertation/thesis represent my own unaided work, and that the dissertation/thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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Signed **Date**

ABSTRACT

The most common cancer in women worldwide is breast cancer. It is also the leading cancer affecting women in South Africa. When breast cancer is detected early, it improves the outcome of the disease and reduces mortality. The aim of this study was to determine the knowledge, beliefs, attitude and practice of breast self-examination among female university students. The objectives were, to explore the levels of knowledge of female university students on breast cancer and breast self-examination; to ascertain the beliefs of female university students on breast cancer and breast self-examination; to examine the attitudes of female university students toward breast cancer and breast self-examination and to determine if female university students regularly practice breast self-examination. A Mixed method descriptive design was used for this study. The selected site for this study was a higher education institution in the Western Cape. The population included all female university students in the Western Cape. The sample was female university students studying in the selected higher education institution who reside on the institution's campus. Convenience sampling was used to select the sample. Two methods were used to collect data; these were questionnaires and face-to-face interviews. Questionnaires were analysed by the use of Microsoft Excel and Statistical Package for Social Sciences. Frequency Distribution was used to analyse descriptive statistics. Interviews were transcribed and analysed by using coding and thematic analysis. Participants lacked knowledge on breast cancer risk factors, as majority of them only knew about family history being a risk factor. Majority of the participants had never been educated by their healthcare provider on breast cancer and its screening. Most of the participants had never examined their breast before. Most of the participants who did not examine their breast did not have any knowledge on how to do BSE. Education on breast cancer and cancer as a whole should be initiated in high schools and higher institutions of learning as part of their curriculum. Posters on breast cancer screening and breast self-examination should be put up at public places and campuses. Breast awareness campaigns must be done every month not only in October which is the breast cancer awareness month. Health care professionals should give information on breast cancer to women when they visit the hospital or health centre.

Key words: breast cancer, breast cancer screening, female, university students, Cape Peninsular University of Technology, breast self-examination, Cape Town.

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DEDICATION

This thesis is firstly dedicated to God.

I dedicate this thesis to my parents:

MR KWAKU BOBIE ANSAH AND MRS THERESAH BOBIE ANSAH

Thank you for the love and sacrifices that you have made for me to get this far, and for instilling the fear of God and discipline in me!

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Definition of Terms

Attitude	A settled way in which an individual thinks or feels
Belief	A firmly held opinion or views
Behaviour	The way in which an individual responds to a stimulus or situation
Breast cancer	A type of cancer which occurs in the breast cells
Cancer	A disease which is caused by an uncontrolled division of cells which are abnormal in any part of the body
Framework	An essential supporting or fundamental structure
Incidence rate	The number of new cases of a disease in a particular population over a given period of time
Knowledge	Information or skills that have been acquired through experience or education.
Mortality Rate	The measure of the frequency of occurrence of death in defined population over a specific period of time
Student	A person who is studying at a place of higher education or in a university

Abbreviations

AWHONN	Association of Women's Health, Obstetric and Neonatal Nurses
BSE	Breast Self-Examination
BRCA	Breast Cancer Gene
CANSA	Cancer Association of South Africa
CDC	Centres for Disease Control and Prevention
CPUT	Cape Peninsula University of Technology

HBM	Health Belief Model
HSRC	Human Science Research Council
IARC	International Agency for Research on Cancer
UN	United Nations
UNFPA	United Nations Population Fund
WCFRI	World Cancer Research Fund
WHO	World Health Organisation

CHAPTER 1
INTRODUCTION

1.1 Introduction to chapter one

This chapter gives an overview of the research study. This chapter gives a description of the background to the research, the statement of the research problem, the research questions, purpose and justification of the study. The aims and objectives of the study have also been described. Detailed descriptions of the conceptual and theoretical frameworks of the study have been given. A list of terms and definitions which applies in the research, research design, methods of data collection, ethical considerations, data analysis and a layout of the subsequent chapters in the thesis conclude this chapter.

1.2 Background of the study

The most common cancer in women worldwide is breast cancer. It has become a major public health issue throughout the world. Of all newly diagnosed cancer cases worldwide, breast cancer forms one tenth of these cases. Breast cancer is the main cause of cancer death in women worldwide (Li, 2009: 1). Of the new breast cancer diagnosis, five per cent (5%) occurs in women who are less than 40 years of age. There may be aggressive tumours which have low rate of response to treatment. These may lead to higher breast cancer mortality rates in younger women. When compared to women who are 40 and older, the 5-year relative survival of young women who are 40 or less is at a slighter lower rate. It is critical for young women to screen for early detection and to have knowledge about risk reduction (Kratzke, Vilchis & Amatya, 2013: 560).

According to the National Cancer registry, breast cancer is the leading cancer in South African women with a life time risk of 1:35 (CANSA, 2014). South African women often present to the hospital with advance cancer. This occurs especially among black women. The cancer related health seeking behaviours of South African women are influenced by cultural beliefs such as witchcraft, mistrust of medical services and the risk factors of cancer, such as smoking and alcoholism (Maree & Wright, 2010: 190-192).There is a racial variation in the ages at which South African women present with breast cancer. Coloured, Indian and Black women are diagnosed at a younger age than their white counterparts. However, Black women report to the hospital at advance stages of the disease, Coloureds at a stage considered being intermediate and Whites report at an early stage (Krombein & De Villiers, 2006:14).

When breast cancer is detected early, it improves the outcome of the disease and reduces mortality (Smith, Duffy & Tabar, 2012: 471). Breast cancer screening involves the use of a mammogram, clinical breast examination and breast self-examination (Sauter & Daly, 2010: 117; American Cancer Society, 2014). Breast self-examination (BSE) is a painless and free method of breast cancer screening which can easily be practiced. BSE is recommended as an approach which can be used to increase the breast cancer awareness. BSE has the potential for allowing early detection of any abnormalities of the breast (Suh, Atashili, Fuh & Eta, 2012: 1).

In my years of experience as an oncology nurse, I noticed that breast cancer was diagnosed in women as young as eighteen years (18). Young women between 16-30years usually presented with breast lumps. Although the risk of breast cancer is high in postmenopausal women, in recent years, women as young as 18 are being diagnosed with breast cancer. My interest in assessing the knowledge, beliefs, attitude and practice of breast self-examination in female university students, is geared towards creating awareness of breast self-examination (BSE) in female university students in order to encourage screening for early detection of breast cancer.

1.3 Statement of the research problem

According to the World Health Organization (WHO), breast cancer incidence rates are increasing in most African countries (WHO, 2014). There has been a decrease in the rate of breast cancer mortality and the reason behind this is breast cancer screening which makes early treatment possible. There is a recognized role that breast self-examination plays in breast cancer detection (Ma, Dueck, Gray, Wasif, Guirescu, Pizzitola & Pockaj, 2012: 1484). Breast cancer receives a lot of publicity on awareness. Screening programs are often carried out in South Africa (CANSA, 2014). The month of October has been set aside as breast cancer month worldwide and this is celebrated in South Africa as well (Cape Town Magazine, 2014). However, women still report to the hospital with advanced breast cancer (Tessfamariam, Gebremichael & Mufunda, 2013: 526-528).

In younger women, breast cancer is accompanied with a number of outcomes which have unfavourable characteristics. This makes early detection in younger women more important, hence my interest in this study. (Stojadinovic, Moskovitz, Gallimidi, Fields, Brooks, Brem, Mucciola, Singh, Maniscalco-Theberge, Rockette, Gur & Shriver, 2006: 179). Therefore, there is a need to assess the knowledge, beliefs, attitudes and practices of breast self-examination among female university students.

1.4 Research questions

- What is the level of knowledge of female university students on breast cancer and breast self-examination?
- What are beliefs of female university students regarding breast cancer and breast self-examination?
- What is the attitude of female university students towards breast cancer and breast self-examination?
- Do female university students practice regular breast self-examination?

1.5 Purpose and justification

1.5.1 Purpose

The purpose of this study is to examine the knowledge, beliefs, attitudes and practices of breast self -examination among female university students.

1.5.2 Justification of the study

African women are more likely to be diagnosed with breast cancer at an early age, which is premenopausal. Research has shown that breast cancer tend to be aggressive in young women and is more advanced at the time of diagnosis with a poor outcome, particularly in women less than 30 years of age (Kruger & Apffelstaedt, 2009: 29-31). By conducting this study, the level of knowledge, the beliefs, attitudes and practice of breast self-examination amongst female university students will be identified.

1.6 Aim and objectives of the study

1.6.1 Aim

The aim of this study is to explore the knowledge, beliefs, attitudes and practices of breast self-examination among female university students.

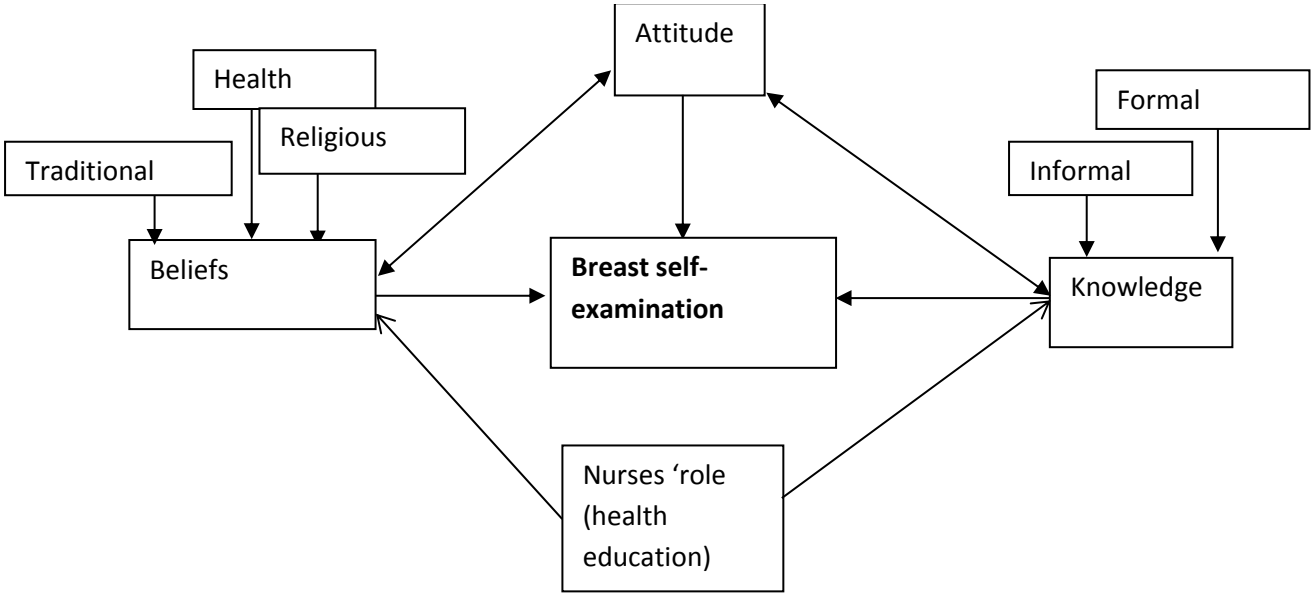
1.6.2 Objectives

- To describe the levels of knowledge of female university students on breast cancer and breast self-examination.

- To ascertain the beliefs of female university students on breast cancer and breast self-examination
- To examine attitudes of female university students, toward breast cancer and breast self-examination.
- To determine if female university students regularly perform breast self-examination.

1.7 Conceptual model developed by researcher:

Figure 1.1: Conceptual model



The relationships between the variables in the conceptual model above are discussed below;

The central focus of this study is breast self-examination. The variables that affect breast self-examination are as follows: knowledge, beliefs and attitudes. Beliefs affect breast self-examination. An individual's traditional, religious and health beliefs can have an impact on her health. The beliefs of an individual affect her attitude toward breast self-examination. An attitude can be either negative or positive. Likewise, attitude affects a person's health seeking behaviour, in this case, breast self-examination.

Knowledge can be gained formally and informally. Knowledge about breast cancer affects the attitude towards breast self-examination. Also the attitude of an individual affects her knowledge. If an individual has a positive attitude towards breast self-examination, she would want to find out more about it. This in effect may encourage her to examine her breast

frequently for any unusual signs. The nurses' role in breast self-examination is to impart knowledge to young females.

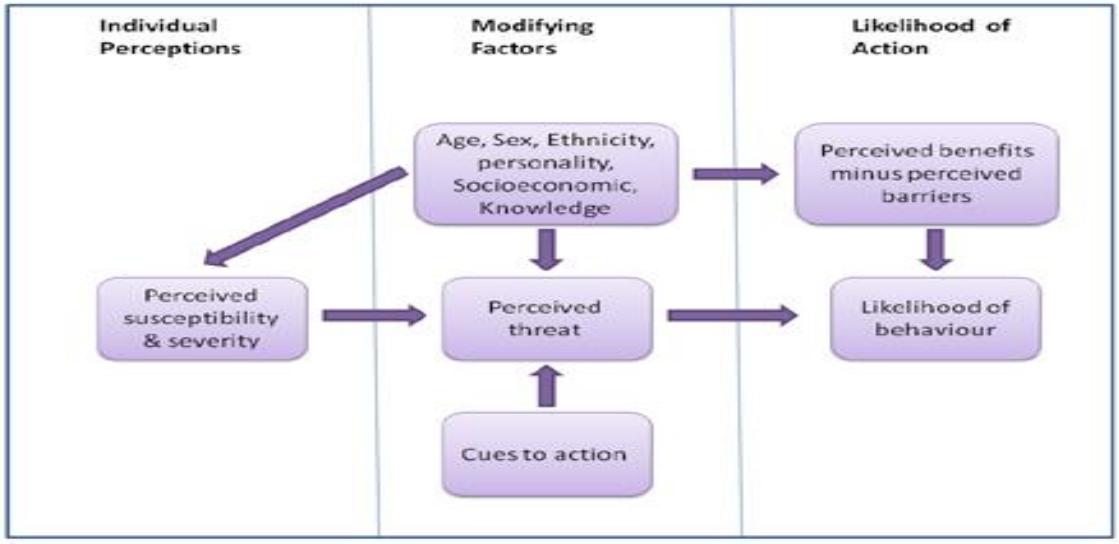
1.8 Theoretical framework

The theoretical framework of this study was based on theories on belief, attitude and knowledge. The oxford dictionary defines belief as something that an individual accepts as true or real and that, it is a firmly held opinion (OED, 2009:123). Health beliefs are individual opinions that have an influence on health behaviours (Medical Dictionary, 2014). Health behaviours are any undertaken activities by an individual purposely for the maintenance or enhancement of health, for the prevention of health problems and for the achievement of a body image that is positive (Levin, Hurd & Hanson, 2008: 63).

There are various theories underpinning health beliefs and behaviours. A theory that is intrapersonal places emphasis on individual factors that influence behaviour. This includes beliefs, knowledge, attitudes, motivation and self-concept (National Cancer Institute, 2005 cited by Hayden, 2014: 3). Amongst others, these theories include, Theory of Reasoned Action/Planned Behaviour, Self-Efficacy Theory, The Health Belief Model, the Trans-theoretical Model and Attribution Theory (Hayden, 2014: 3).

The health belief model (HBM) and the traditional concept of knowledge were used as the basis of a theoretical framework for this study. A key concept in the HBM is barriers. Each woman's perceived benefits minus perceived barriers determine whether she will do breast self-examination or not (Burke, 2011:1-3; Whaley, 2006: 4; Turner, Hunt, DiBrezzo & Jones, 2004:115-121). The HBM thus was used as the theoretical framework to study the knowledge, beliefs, attitude and practices of breast self-examination (BSE) among young women.

Figure 1.2: The Health Belief Model Flow (Source Glanz, Rimer & Lewis, 2002)



The three major components of the HBM are perceived susceptibility and severity, perceived benefits and perceived barriers (Whaley, 2006: 4; Burke, 2011:1-3). Perceived susceptibility is when an individual (young woman) recognizes that she can get breast cancer. Therefore, it might be sufficient reason for this young woman to do BSE as she might be concerned about her health. Perceived benefit deals with the individual realizing that a specific behaviour adjustment or performing a precise behaviour will reduce a threat that a condition poses (Whaley, 2006: 4). Breast self-examination increases the chance of detecting this disease at an early stage, therefore, reducing the disease burden. Perceived barriers are the factors that could lead to not doing BSE, because of fear of detecting a lump, not feeling vulnerable, inadequate knowledge and training on how to do BSE (Whaley, 2006: 4; Krombein & De Villiers, 2006:14). It can be deduced from the HBM that, the greater an individual's perceived susceptibility to breast cancer and the benefits of BSE, the higher the probability of the individual's prospect of doing BSE. The greater the individuals perceived barriers to BSE, the higher the probability that she will not do BSE.

The consistency of a person's behaviour or actions can be explained by the concept of attitude (Oskamp & Schultz, 2005: 4-5). The behaviours that an individual exhibits have underlying cause. This underlying cause may be a state of willingness, a disposition to respond favourably or unfavourably towards persons, objects, events or institutions. Attitude is the underlying cause. That is, how an individual evaluates the action which he is considering to take (Pratkanis, Breckler, & Greenwald, 2014; Ajzen, 2005: 3; Oskamp & Schultz, 2005: 4-5; Cobley & Schultz, 2011:277).

Attitudes toward BSE are dependent on the level of knowledge women have about the disease. Also, by evaluating how susceptible they are to breast cancer, women can have a favourable attitude towards BSE. If a woman feels she is not susceptible to the disease, she may have unfavourable attitude to it. The attitude of an individual is influenced by the knowledge and belief that she has. The need to express one's values, be protected and to fit into the society, affects an individual's attitude. Thoughts, feelings and behaviours are involved in attitudes (Dowrick, 2001: 140).

Information and skills that have been gained through education or practice can be known as knowledge (OED 2009: 789). The concise oxford dictionary, (2009: 789), gives a further explanation of knowledge as "true, justified belief, as opposed to an opinion". There are different kinds of knowledge. These are procedural knowledge, acquaintance knowledge and propositional knowledge. Scientific, geographical, mathematical, self-knowledge and knowledge about other things, are all encompassed in propositional knowledge (Truncelliti, s.a: Online).

Epistemology is the theory of knowledge. Epistemology, which is a central topic of philosophy, is concerned with the nature and possibility of knowledge (O'Brien, 2006: 1-4).The concept of knowledge, evidence, reasons to believe, justification, probability, things one has to believe, is what is involved in epistemology. "The traditional conception of knowledge" emanates from the Cartesian account of knowledge. Three conditions must be satisfied in order to gain knowledge according to this concept. A belief or approval condition, a truth condition and a justification or reason (Bonjour, 2010:23). In order for women to gain knowledge on BSE, they have to accept that breast cancer exists. They must get to know that other women have had breast cancer. Women must have a reason to do BSE. This reason could be that, they are susceptible.

Health education is a combination of learning experiences which has been planned and designed in a particular way. It can affect, enable and reinforce voluntary behaviour which is conducive for the health of individuals, groups and communities (Green & Kreuter, 2005: G-4 cited by Sharma & Romas, 2012: 6). According to Sharma and Romas (2012: 7), the primary objective of health education is to help people develop healthy behaviours themselves by influencing the precursors of behaviour such as knowledge, beliefs and attitudes.

1.9 Research Design

A descriptive qualitative and quantitative design was used. Rather than seeking to explain relationships, the focus of descriptive design is to find out what is happening in a particular

circumstance or situation. Descriptive designs can also be used quantitatively (Macnee & McCabe, 2008: 213).

1.10 Methods of data collection

Two data collection tools were used in this study. For qualitative, face-to face or one-on-one interview was used to collect data. Quantitative data was collected by the use of self-administered questionnaires (refer to appendices C and D respectively).

1.11 Data Analysis

Data from questionnaires and interviews were analysed separately. Responses from questions were analysed by the use of statistical package for the social science (SPSS) and Microsoft Excel. Responses from interview were audio recorded. The researcher then listened to the responses and transcribed them into a Microsoft Word document .Thereafter, coding of the transcriptions were done and thematic content analysis was applied.

1.12 Ethical considerations

The following ethical considerations were applied in this research (World Medical Association, 2013: 1-8; Medical Research Council (MRC) of South Africa 2004: 9; Human Sciences Research Council (HSRC), 2014; CPUT, 2008);

- Informed Consent
- Autonomy
- Beneficence and Non-Maleficence
- Confidentiality
- Justice

All of the above have been discussed in detail in Chapter 3.

1.13 Chapter divisions

Chapter 1:
This chapter gives an overview of the research study.

Chapter 2:
The review of literature in this chapter places emphasis on publications, articles, books and internet sources that deals with findings on breast cancer, breast cancer screening,

knowledge, beliefs and attitudes towards breast cancer screening. The literature has been reviewed under the following major headings; Health services in South Africa; Education of women; the anatomy and physiology of the breast; Breast and womanhood; Cancer; Breast cancer; Health education; National and provincial breast cancer screening; Breast self-examination; Knowledge; beliefs; attitudes and the role of the nurse in breast cancer screening.

Chapter 3:

This chapter describes the research methodology used in this study. The methodology has been discussed under the following major headings: qualitative research approach; research design; population and sampling; methods of data collection; presentation of results; validity and reliability; benefit and some possible limitations of the study and ethical considerations.

Chapter 4:

This chapter presents and discusses the results from questionnaires and interviews. The responses from questionnaires have been presented in charts and tables while the responses from interviews have been adequately described.

Chapter 5:

This chapter deals with the conclusions, recommendations and limitations of the study.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

The review of literature in this chapter places emphasis on publications, articles, books and internet sources that deal with findings on breast cancer, breast cancer screening, knowledge, beliefs and attitudes toward breast cancer screening. The literature has been reviewed under the following major headings; Health services in South Africa; Education of women; The anatomy and physiology of the breast; Breast and womanhood; Cancer; Breast cancer; Health education; National and provincial breast cancer screening; Breast self-examination; Knowledge; Beliefs; Attitudes and The role of the nurse in breast cancer screening.

2.2 Health Services in South Africa

The overall responsibility for healthcare in South Africa lies on the Department of Health. There is a specific responsibility for public sector healthcare. To ensure access to healthcare for all, South Africa's healthcare is undergoing reforms that are far-reaching in order to revitalise and restructure the system (Government of South Africa, 2014). Rather than a right, healthcare was considered a privilege prior to the post-1994 health reforms. Those who had the ability to pay, mostly medically insured and wealthy white people, were the main beneficiaries of healthcare (van Rensburg, 2012: 127).

The constitution of the Republic of South Africa, under the Bill of Rights (Constitution of South Africa, 1996) makes it clear that, every citizen has the right to access health care, which includes reproductive health services. The constitution also charges the state to achieve the progressive realization of this right by taking reasonable legislative and other measures (Constitution of South Africa, 1996). Respect for human rights, equality under the law and social justice values are translated into the sector of healthcare by the constitution (De Waal, Curie & Erasmus, 1999).

Strategies that have been used to reform the health system after 1994 include: Free Healthcare Policy 1994; Policy for development of a district health system for South Africa; White Paper for the Transformation of the health system for South Africa 1997; and Patients' Right Charter 1999. The most important, predominant health legislation to implement the rights that the constitution gives on health is the National Health Act 61 of 2003. The Act

provides a framework for a uniform structure in the health system within the Republic (van Rensburg, 2012: 135). It takes into account the obligations given by the constitution. It also considers other laws with regard to health services on the national, provincial and local governments and provides for matters that are connected therewith (Republic of South Africa 2003: 2).

2.2.1 National Department of Health

Health service delivery, strategic health programs and finance are the three main divisions in the National Department of Health. The Director-General of health is the head of the National Department of Health and is accountable to the Minister of Health. The department provides leadership in the formulation of policies and legislations and quality assurance. It builds capacity for provincial departments of health and municipalities and ensures that there is equity in the allocation of resources. The department also provides leadership in the provision of services which cost-effectively cannot be delivered elsewhere. Leadership on information system development, progress monitoring in terms of the achievement of national health goals, are provided by the department. The department regulates both public and private health sectors and liaises with international agencies and other countries' health departments (van Rensburg, 2012:133,138).

2.2.2 Provincial Departments of Health

The 9 Provincial Departments are responsible for the provincial health services. According to the National Health Act 61 of 2003, some functions of the provincial health department include being mainly responsible for: the provision of hospital services which are specialised; provincial health information systems planning and management; co-ordination of the funding of district health systems and its financial management; provision of logistics and technical support to district health councils; planning, co-ordinating and monitoring of health services and the evaluation of services rendered (Republic of South Africa 2003:35).

The departments are also responsible for: the planning, management and development of human resources for health service rendering; public and private hospitals' development planning, health agencies and other establishments of health; controlling and managing the financing and cost of public health establishments and agencies; the facilitation and promotion of port health service provision, community hospital and comprehensive primary health services (Republic of South Africa 2003: 35). The provision of emergency medical services, forensic pathology, forensic clinical services, medico-legal mortuaries and services,

quality control, equipment, vehicles, health care facilities, occupational health services, environmental pollution control services and ensuring health systems research, are the responsibilities of the provincial departments of health(Republic of South Africa 2003: 35).

2.2.3 District health systems

The structure and functions of the local government with regards to health are framed in terms of health districts and municipal health services. Each district whether metro or district municipality attends to health and has at its disposal, certain management structures and core governance. Each district health system has a responsibility towards the comprehensive management and control of its health budget. Healthcare, financial and human support services, administration, planning and human resources are the main functions of the district health systems (van Rensburg, 2012:133).

2.3 Education of women

The United Nations (UN)'s Millennium Development Goals (MDGs) include achieving universal primary education by 2015 and promoting gender equality and women empowerment (UN, 2014). The most important means by which women can be empowered with skills, knowledge and self-confidence, which is needed to participate in the development process fully, is education. For girls and women, education has a significant importance although, education is necessary for everyone. One of the most effective ways of reducing poverty is investing in a girl's education. When it comes to marriage, women who are educated are most likely to marry later and have families which are small and healthy. The importance of healthcare can be recognized by educated women. They also know how to seek healthcare for their children and themselves. Women and girls are able to know their rights and have the confidence in claiming their rights because of education. In spite of this, in most developing countries, the literacy rate of women is significantly low (UNFPA, 2008; Dlodlo, 2009: 168-175).

According to the country report on South Africa on MDGs (2013: 37-50), the goal of universal primary education for all was achieved in 2010. The gap between female school enrolment and male school enrolment for primary education as at 2011 has decreased to less than 0.5%. On the goal of promoting gender equality and women empowerment, the fourth target which was set by the South African government was to eliminate the gap between the education of girls and boys in primary and secondary education by 2013 at all levels of education. By 2011, this goal had been achieved at the secondary and tertiary education

levels. Also the ratio of female literacy to male literacy has become 1:1 indicating an achieved goal (Republic of South Africa, 2013: 51-60).

2.4 The anatomy and physiology of the breast

Before performing Breast self-examination (BSE), a woman must be familiar with what her normal breasts look like (Langhorne, Fulton & Otto, 2007: 105). The American Cancer Society and the International Agency for Research on Cancer (IARC) recommend that, every woman should know how her breasts look normally, so that she can be able to report any abnormal change. Knowledge on the anatomy and physiology of the breast then becomes important in BSE (American Cancer Society, 2014; IARC, 2002).

2.4.1 The anatomy of the breast

The breast forms part of the reproductive system of the female. It also exists in males in an undeveloped form. The breasts are the same in both males and females until the female reach puberty. The breast of the female develops after puberty (Smeltzer, Bare, Hinkle & Cheever, 2010:1472; Waugh & Grant, 2010:446). The breast is implanted in the superficial fascia of the chest anteriorly and overlying the pectoralis muscles. On the anterior chest wall, the breast extends superiorly from the second rib level to the seventh rib level inferiorly (Moses, Banks, Nava & Peterson, 2005: 161). The breast shares medial borders with the lateral part of the sternum and reaches the mid-axillary line laterally. An extension of the breast tissue is superiorly directed towards the axilla creating a tear drop shape. This is clinically important because abnormal breast masses can be enclosed there. The retromammary space is posterior to the breast. This allows the breast to move on the chest wall. Suspensory ligaments which are oriented in a fashion that is radial are formed by the breast fascia. The weight of the breast is supported by well-developed suspensory ligaments of the superior breast. The fibrous rim, thus, the inframammary ridge, supports the breast inferiorly (Ellis, 2009: 114; Moses *et al,* 2005: 161).

According to Waugh and Grant (2010: 446), each breast has about 20 lobes. However, Smeltzer *et al* (2010: 1472) maintain that each breast contains 12-20 lobes. Each of these lobes is made of lobules which are glandular structures which contain clusters of acini. Acini are small structures which end in a duct called the lactiferous ducts. In each lobule, the entire duct empties into an ampulla. After narrowing, the ampulla then opens into the nipple. The nipple is a small cone shaped eminence located at the centre of the breast. It is surrounded by the areola, which is a pigmented area. Sebaceous glands called Montgomery's tubercles

are found on the areola surface. During lactation, the sebaceous glands lubricate the nipples. Fatty tissue forms about 85% of the breast (Waugh & Grant, 2010: 446; Smeltzer *et al*, 2010: 1472).

2.4.2 Blood supply, lymph drainage and nerve supply

The breast is supplied with blood by three major arteries. The pectoral arteries, the lateral thoracic arteries and perforating branches of the internal thoracic artery are the major arteries that supply blood to the breast. Contributing minor amounts to the blood supply are the branches of the subscapular artery and the lateral perforating branches of the intercostal arteries. The perforating branches of the internal thoracic arteries supply arterial blood to the medial and central breast. Fifty per cent (50%) of blood supplied to the breast is by these arteries. The lateral breast is supplied by the lateral thoracic artery. Arterial supply to the posterior surface of the breast is by the pectoral arteries. The intercostal arteries and the internal thoracic arteries supply blood to the nipple-areolar area. A sub dermal plexus formed by glandular tissue perforators nourishes the skin of the breast. Deep venous drainage of the breast corresponds with the arterial blood supply. There is a rich anastomotic network of subcutaneous veins which are superficial and drains mainly into the mammary vein (Gabka & Bohmet 2009: 4; Fischer & Bland, 2007: 485).

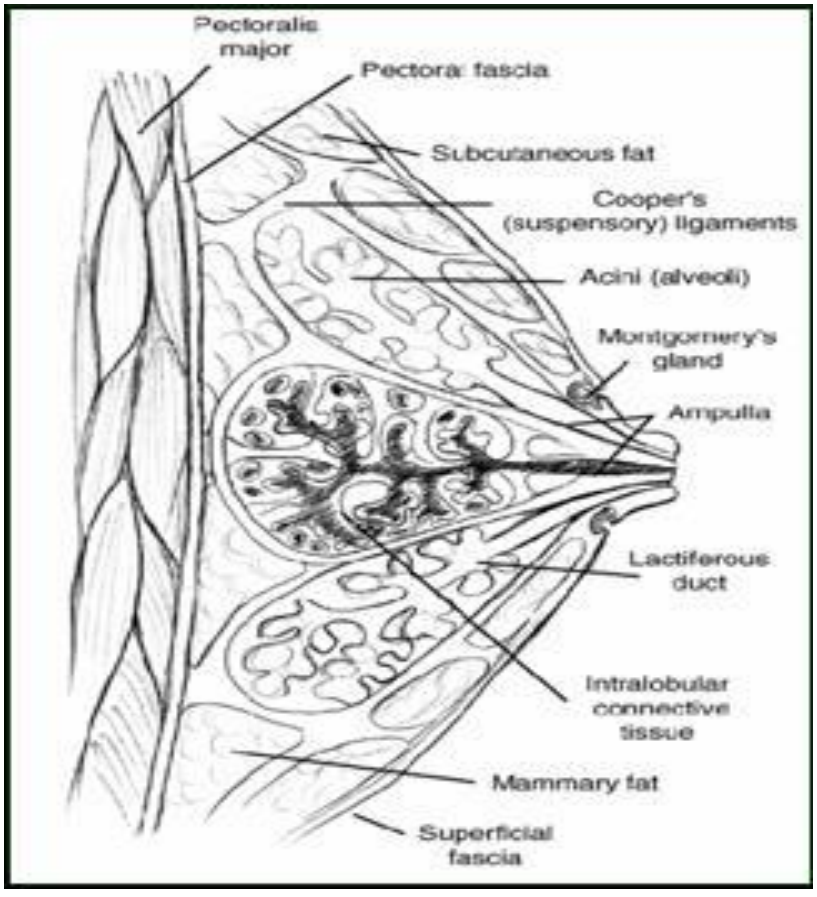
According to Shiffman (2009: 452), the nerves of the breast laterally originate from the rami of the third to sixth intercostal nerves. Medially, the nerves come from the second to sixth intercostal nerves. The nipple areola complex is innervated by the fourth intercostal nerve. The supraclavicular nerve which arises from the cervical plexus innervates the upper part of the breast.

Superficial and deep lymphatic plexus drains lymphatic fluid from the breast. The axillary lymph nodes drain more than ninety five per cent (95%) of the breast lymphatic fluid into the one or two larger lymph channels. The remaining five per cent (5%) is drained by internal mammary nodes through the intercostal spaces. There is a small amount of lymph drainage through the pectoral and rectus fascia. Twenty (20) to thirty (30) axillary lymph nodes that drain the majority of lymph from the breast have been grouped according to how they relate with the pectoralis minor muscle. Lateral to the muscle lies level 1 nodes; level 2 nodes are behind and medial to the muscle are level 3 nodes (DeVita, Lawrence & Rosenberg 2008:1606; Barber & Thomas, 208: 3). Knowledge of the anatomy of the axillary lymph nodes is very crucial in the treatment of breast cancer (Barber & Thomas, 2008: 4).

2.4.3 The development of the breast

The development of the breast has been grouped into three stages by Ellis and Mahadevan (2013:11). From birth until puberty, the breast has no alveoli and contains lactiferous ducts. The ducts begin to multiply and terminate from solid masses of cells at puberty. These will become breast lobules in future. Secreting alveoli appears during pregnancy. Sprouting of the duct and lobular multiplication happens during the early weeks of pregnancy. The areola becomes pigmented and the nipple increases in size. Secretory cells surround a lumen displayed by the alveoli. Colostrum which is a yellowish, serous fluid which is sticky is secreted by the breast at the last days of pregnancy. This will be replaced by the proper secretion of milk. The glandular tissue returns to its latent state after lactation stops. After menopause, the amount of collagen in the breast decreases, the breast connective tissue becomes less cellular and there is an atrophy of the glandular tissues. At this stage, marked fatty infiltration of the breast occurs in some women while in others, there is a considerable shrinking of the breast.

Figure 2.1: Anatomy of the Breast. Source Andolina, Willison & Lille, 2001



2.4.4 Physiology of the breast

The breast is immature in both males and females before puberty. However, after puberty, the female breast begins to grow and mature. This growth and maturity is as a result of the influence of the hormones oestrogen and progesterone. Oestrogen induces the ductal system to proliferate and causes the nipple to be prominent and mature. At the alveoli ends of the ducts, oestrogen together with progesterone, cause the development and multiplication of the acini. Further growth of the breast during pregnancy is stimulated by these hormones. Transforming growth factor β, epidermal growth factor and insulin-like growth regulators are paracrine factors within the breast which effect cell division and differentiation(Ellis & Mahadevan, 2013: 12-14: Waugh & Grant 2010: 447).

Lactation is the primary function of the female breast. Lactation is the production, secretion and release of milk. From the anterior pituitary, prolactin stimulates the production of milk after birth. Oxytocin which is from the posterior pituitary stimulates milk release. This happens when the nipple is stimulated by a positive feedback mechanism when a baby sucks the nipples. The sensory innervation of the female breast makes it a secondary feature sexually (Ellis & Mahadevan, 2013: 12-14: Waugh & Grant 2010: 447).

2.5 Breast and womanhood

The breast of women is celebrated by society as the primary figure of female sexuality, motherhood and womanhood (Sulik, 2010: 15). The breast is viewed as the most vital symbol that shows the femininity of a woman. The complete or partial removal of the breast surgically, is considered as an attack on womanhood and is traumatic, although women may feel unsure about their real breast. The breast not only represents the ability of the woman to nourish a baby, it is also a key sexual feature (Erickson, 2008: 17).

2.5.1 The importance of breast to the self-image of a woman

Breast forms an important part of the self-image of most women, due to this fact, women hardly have a neutral feeling about their breast. Femininity, motherhood and sexuality are societal connotations of the breast (Khan, Sehgal, Mitra, Agarwal, Lal & Malik, 2000: 65-71). The breast is considered as a sign of being a female outwardly and may be considered as a taboo, exploited or worshipped depending on a woman's culture. Sexual attractiveness is often associated with the size and shape of the breast. Most women feel that they are evaluated and judged by these characteristics. The accessibility of surgical procedures emphasizes the importance of breast appearance as these offer flawless shape and size of

the breast. Sexual pleasure and nourishment are both provided by the breast. This may prompt the beliefs that the breast of a woman does not only belong to her, but also belongs to her baby and sexual partner. How a woman reacts to a breast condition, is subject to how much her breast means to her (Schuiling & Likis, 2013: 377). The emotional wellbeing and concept of self of women may be distressed by the disruption of the breast appearance, since it is considered an important aspect of the sense of femininity and body image of a woman (Helms, O'hea & Corso, 2008: 313-325).

A woman with a breast mass or breast cancer may have to undergo surgery, thus, lumpectomy or mastectomy. Most of these surgeries may cause breast deformity or the breast may be completely removed. Marked psychological distress may be caused by breast disfigurement after breast cancer treatment(Helms *et al*, 2008: 313-325).To help preserve the body image of women with breast cancer, surgical procedures that conserve breast have been implemented. Surgery that is breast-conserving has been shown by multiple studies to have an impact that is positive on the self-image of breast cancer patients after treatment (Yeung, Escalante & Gagel, 2009: 650).

In a study to determine the body image and sexual problems in young women diagnosed with breast cancer in California, where 546 women with breast cancer were studied after treatment, it was revealed that substantial proportion of the women experienced body image and sexual problems in the early months after they were diagnosed. Mastectomy and possible breast reconstruction were associated with greater body image problems in the women who were sexually active (Fobair, Steward, Chang, D'onofrio, Banks & Bloom, 2006: 579-594). Another study conducted in New York where the relationship between body image, age and distress was studied in women facing breast cancer surgery, revealed that prior to breast cancer surgery, both older and younger women have equivalent levels of body-image. It was also found that heightened emotional distress occurs in younger women with poor body image. However, older and younger women, who have good body image, approach breast cancer surgery with less emotional distress (Miller, Schnur, Weinberger-Litman & Montgomery, 2013: 1-5).

2.6 Cancer

According to the WHO (2014), cancer "is a generic term for a large group of diseases that can affect any part of the body". Neoplasms and malignant tumours are other terms used for cancer (WHO, 2014). Ruddon (2007: 4) defines cancer as "an abnormal growth of cells caused by multiple changes in gene expression leading to deregulated balance of cell proliferation and cell death and ultimately evolving into population of cells that can invade

tissues and metastasize to distant sites, causing significant morbidity and, if untreated, death to its host". Damage to the deoxyribonucleic acid (DNA) of a cell makes it cancerous. In normal cells, a damaged DNA is repaired or dies, whereas in cancerous cells, the damage is not repaired and the DNA does not die as it is supposed to (American Cancer Society, 2014).

Some behavioural and dietary factors account for about 30% of cancers. These include low fruit and vegetable intake, a body mass index which is high, tobacco and alcohol use and lack of bodily exercise. The most important risk factor for cancer is tobacco use. It causes over 20% of cancer deaths globally. About 70% of the population dies of cancer of the lung. In middle and low income countries, viruses such as Hepatitis B and C virus and the Human papilloma virus cause about 20% of cancer deaths (WHO, 2014).

2.6.1 Incidence of cancer

According to the WHO (2015), the global burden of cancer is such that, 8.2 million people died worldwide from cancer in the year 2012. Of the total number of new cases of cancer reported annually, 60% occurs in Africa, Asia, Central and South America. In the United Kingdom (U.K), in 2011 alone, 331,487 new cases of cancer were diagnosed with an incidence rate of 396.2 per 100,000 using the European age-standardised incidence rate (Cancer Research U.K, 2012). Cancer is the second most common cause of death in the United States (U.S). It accounts for nearly 1 in 4 of every death. It is estimated that, there will be 1,665,540 new cases of cancer diagnosed in 2014 in the U.S with 587.720 expected deaths from cancer (American Cancer Society, 2014).

In 2008, about 715,000 new cases of cancer and 542,000 cancer related deaths occurred in Africa, according to the International Agency for Research on Cancer (IARC) (American Cancer Society, 2011: 2). Nigeria which has the highest population in Africa has about 100,000 new cases of cancer reported every year (Jedy-Agba, Curado, Ogunbiyi, Oga, Fabowale, Igbinoba, Osubor, Otu, Kumai, Koechlin, Osinubi, Dakum, Blattner & Adebamowo, 2012: 271-278). Malawi recorded 18,946 new cancer cases from 2007 to 2010 (Msyamboza, Dzamalala, Mdokwe, Kamiza, Lemari, Dzowela & Kathyola, 2012: 1-8). According to the National Cancer Registry, approximately 30,461 new cases of cancer were reported in South Africa in 2007 (CANSA, 2014).

2.6.2 Common types of cancer

More than 200 different types of cancer exist (Cancer Research U.K, 2014). Each year, throughout the world, the most common cancer deaths results from lung with 1.59 million; liver with 745,000; stomach with 723,000; colorectal 694,000; breast 521,000 and oesophageal cancer with 4,000,000 deaths. However, the most common types of cancer vary for men and women (WHO, 2014). The most common cancer in the U.K is breast cancer. Breast cancer together with lung, prostate and bowel cancer accounted for 53% of all cancer cases in the U.K in 2011 (Cancer Research U.K, 2014). The most common cancer in the U.S is breast cancer, with estimated new cases of 235,000 expected in 2014 alone. Prostate, lung and colorectal cancers follow respectively (National Cancer Institute, 2014).

Based on the 2008 IARC statistics on cancer in Africa, the most common types of cancer in females are breast, cervix uteri, liver and colorectal with more deaths resulting from cervix and uterine cancers. The most common types of cancer in males are prostate, liver, Kaposi sarcoma and Non-Hodgkin's lymphoma with more deaths resulting from liver cancer (American Cancer Society, 2011: 4). Breast cancer is the most common cancer affecting South African women. This is followed by cervical cancer, cancer of unknown primary and Kaposi sarcoma. The most common cancer affecting South African men is prostate cancer, cancer of unknown primary follows then lung cancer and Kaposi sarcoma (CANSA, 2014).

2.7 Breast cancer

Breast cancer is a type of malignancy that starts from the breast cells. Breast cancer mostly occurs in women but can also occur in men (American Cancer Society, 2014). There are several types of breast cancer. The most common ones are ductal carcinoma in situ, lobular carcinoma in situ, invasive ductal, invasive lobular, inflammatory, Paget's disease and other rare types of breast cancer (Cancer Research United Kingdom (UK), 2012).

Breast cancer usually starts either in the breast ducts or lobules. Breast cancer is the most common female cancer in the world and is the leading cause of cancer death in women (Youlden, Cramb, Dunn, Muller, Pyke & Baade, 2012: 237). Breast cancer rarely occurs in men, with less than 1% of all breast cancers occurring in men (Canadian Cancer Society, 2015).

2.7.1 Aetiology of breast cancer

The cause of breast cancer like all other cancers is unknown. However, there are identifiable risk factors of breast cancer. The identified risk factors are age, gender, race, personal and family history, genetics, dietary factors, alcohol, hormonal factors, reproductive factors, obesity, breast density and benign breast disease and radiation (Sauter & Daly, 2010: 4-10; Winchester & Winchester, 2006: 47-58). Some risk factors can be amendable while others cannot. Excess weight, inactive lifestyle, alcohol consumption, obesity and dietary fat intake are modifiable risk factors of breast cancer (Lewis, Dirkson, Hietkemper & Buchner, 2013: 1243).

Breast cancer risk increases with age. Of all breast cancers, 78% occurs in women who are older than 50 years. Eighty per cent (80%) of breast cancer mortality occurs in women who are older than 50 years (Cauly, Song, Dowsett, Mershon & Cummings, 2007: 181).

Just being a female is considered the most important breast cancer risk. Ninety nine per cent (99%) of breast cancer cases are reported in women. This has been attributed to the ever growing cells of the female breast and the density of it (Lewis *et al*, 2013: 1243).

According to the Centre for Disease Prevention and Control (CDC), in 2010, the rate of getting breast cancer in the United States of America (USA) was highest in White women, followed by Black women then Asian/Pacific Islander, Hispanic and American Indian/Alaska native women (CDC, 2013). In South Africa, there is a racial variation in the ages at which women present with breast cancer. Coloured, Indian and Black women are diagnosed at younger ages than their White counterparts (Krombein & De Villiers, 2006:14).

The reproductive history of a woman has been shown as a contribution to the breast cancer risk. Reproductive factors that increase a woman's breast cancer risk are early menarche, shorter length of menstrual cycle, late menopause and null parity or low parity (Horn, Asvold, Opdahl, Tretli & Vatten, 2013). The use of oral contraceptives which are exogenous hormones increase the risk of breast cancer. Research studies have shown that the risk of breast cancer increases in women less than 35 years who use oral contraceptives (Legato, 2010: 460). A study carried out in Vermont University in the USA revealed that, there is a strong association of risk of breast cancer in women who are nulliparous and women who give birth late. They also found out that the use of hormones post-menopausal is associated with invasive breast cancer (Reinier, Vacek & Geller, 2007: 343-348).

Family history is a key risk factor for breast cancer. Women who have first-degree relatives (i.e. mother or sister) with breast cancer have 1.7-2.5 risk for developing breast cancer and women with second-degree relatives (i.e. grandmother or aunt) with breast cancer have 1.5 risk of developing breast cancer. Personal history of breast cancer increases a woman's risk of contracting this disease. Benign breast disease has also been associated with breast cancer (Halperin, Perez & Brady, 2008: 1178-1180). In a study to determine the family history and ductal carcinoma in situ and triple negative breast cancer risk among Han Chinese women in China, it was revealed that, participants who had a strong family history of breast cancer, had a higher risk of getting breast cancer than those who did not have any family history (Zhou, Pan, Liang, Xia, Liang, Xue, Cheng, Xue, Cheng, Liu, Ding, Ling & Wang, 2013: 1-7).

Women who have breast cancer genes, BRCA1 and BRCA2 inherited mutation are at higher risk of breast cancer. It is estimated that BRCA1 and BRCA2 carriers have lifetime risk which vary from 30% to 80% (Pijpe, Manders, Brohet, Colee, Verhoef, Vasen, Hoogerbrugge, Asperen, Dommering, Ausems, Aalfs, Gomez-Garcia, Veer, Leeuwen & Rookus, 2010: 235). A study undertaken in Korea with 775 breast cancer patients with a family history identified 21.7% BRCA mutations, with BRCA 1 having 9.3% and BRCA 2 with 12.4%. This represented 168 out of the 775 participants who had a family history of either breast or ovarian cancer (Korean Hereditary Breast Cancer (KOHBRA) research group & Korean Breast Cancer Society, 2012: 75-81).

Dietary factors like high-fat diet, beef and high-fat milk products particularly, have been linked to an increase in the risk of breast cancer. Women who have a high total fat intake have 13% increased risk of breast cancer. Also, high intake of saturated fat increases the risk of getting breast cancer (Cancer Research UK, 2014). Alcohol is an established risk factor of breast cancer. In epidemiological studies, it was proved that alcohol consumption at higher levels and to an extent moderate level, has been linked to increased breast cancer risk (Park, Kolonel, Lim, White, Henderson & Wilkens, 2014: 1504). A study conducted in Uruguay by Ronco & Stefani (2011:72) revealed that, breast cancer risk has a direct association with the number of years of drinking alcohol.

There is a high risk of breast cancer associated with adult weight gain. Obesity affects the development of breast cancer. The percentage of body fat has a positive link with breast cancer risk (Carmichael, 2006:1160).

Breast cancer risk from radiation increases with the dosage given. If a woman is exposed to ionizing radiation at a young age, for the treatment of other diseases, it increases her risk of

getting breast cancer. There is a reported increased risk of breast cancer in women treated with radiation before age 30 and an added risk in those before 15 years (Yarbro, Frogge, Goodman & Groenwald, 2011: 1096).

There are myths in the media and internet about some factors that are thought to be causes of breast cancer. These factors include the use of antiperspirants, underwire bras and wearing bras to sleep in the night. The proponents of this myth base their arguments on the fact that, the skin absorbs the chemicals from antiperspirants which blocks toxins to be released through sweating, therefore causing a build-up of toxins in the breast. Also, they argue that bras blocks lymph drainage from the bottom of the breast to the rest of the body thereby causing breast cancer (BreastCancer.Org, 2015; Cancer Research UK, 2014).

There is no scientific evidence to support these arguments and myths. All perspiration in the armpit cannot be blocked by even the most powerful antiperspirants. The kidneys and liver are responsible for removing toxins from the body, sweating is not the body's significant way of releasing toxins. Also, bras do not cause breast cancer. The only scientific study that examined the link between wearing a bra and breast cancer risk did not find any significant difference in the risk between women who wore bras and those who did not (BreastCancer.Org, 2015, Cancer Research UK, 2014).

2.7.2 Incidence of breast cancer

Breast cancer is the most common cancer in women in the world. According to the World Cancer Research Fund International (WCRFI), in 2012 alone, nearly 1.7 million new cases of breast cancer were recorded worldwide, which makes it overall, the second most common cancer. This accounted for 12% of all new cancer cases and 25% of all cancers affecting women (WCRFI, 2013). The National Cancer Institute estimated 232,670 new cases of female breast cancer and 40,000 deaths resulting from female breast cancer in the United States in 2014 (National Cancer Institute, 2014).The most common cancer in women in the United Kingdom (U.K) is breast cancer. It accounts for 30% of all new cases of cancer in females. The year 2011 recorded 50,285 new cases in the whole of U.K., 49, 936 of which occurred in women making 99% of new cases of breast cancer recorded (Cancer Research U.K, 2014).

According to WHO (2014), breast cancer incidence rates in Africa are increasing .The leading cause of death among West African women is breast cancer. Approximately, 30,000 new cases and 16,000 cases of death were recorded in 2008. Eastern Africa recorded 18,000 new cases and 10,000 deaths in 2008 (Abdulrahman & Rahman, 2012: 1-5).

According to the National Cancer Registry, breast cancer is the leading cancer among South African women. The lifetime risk of getting breast cancer in South African women is 1:35. The last available cancer report in South Africa is the 2007 National Cancer Report. According to this report, 5, 720 new cases of breast cancer were recorded in 2007 (CANSA, 2014).

2.7.3 Staging of breast cancer

The provision of consistency for both clinical and scientific basic research is the primary reason why staging is done. Staging is also important for outlining a plan for treatment and providing information regarding prognosis (Sabel, 2009: 134; Taghian, Smith & Erban, 2010 68). The tumour-node-metastasis (TNM) classification system is mostly used to stage breast cancer. In this system, the tumour size (T), involvement of the lymph nodes (N) and the extent of metastasis (M) are evaluated (Larghorne, Fulton & Otto, 2007: 108). Staging is done at two levels, the first being clinical staging, which is done with physical examination and radiological studies. After surgery, the patient is restaged with the use of pathologic findings. Pathologic staging gives a better stratification of the patient and is generally more important. However, clinical staging is used to determine the treatment decisions, especially, for surgery and chemotherapy. Staging allows planning of the right therapy, determines the overall outcome of the disease and for research results which are treatment related to be compared (Larghorne *et al*, 2007: 108; Sabel 2009; 134; Taghian *et al*, 2010: 68) .

The classification is as shown in the table below:

Table 2.1: Staging of breast cancer Source (Larghorne et al, 2007: 108; Sabel 2009; 134; Taghian et al, 2010: 68)

Stage	TNM classification	Description
Stage 0	T_{is}N0M0	Carcinoma in situ
Stage I	T1N0M0	Tumour size less than 2cm, no lymph node involvement. It includes micro invasiveT1 which is less than 0.1cm
Stage IIA	T0-N1, T1-N1, T2-N0, all M0	Tumour size of 0 to 2cm with lymph node involvement. This includes micro metastasisN1 or less than 2mm, or tumour size of 2-5cm without lymph node involvement.
Stage IIB	T2-N1, T3-N0, all M0	Tumour size of 2-5cm with lymph node involvement or tumour size greater than 5cm with no lymph node involvement.

Stage IIIA	T0-N2, T1-N2, T2-N2, T3-N1, T3-N2, all M0	No primary tumour evident or tumour size less than 2cm with the involvement of fixed lymph nodes, or tumour size greater than 5cm with the involvement of lymph nodes which are movable or non-movable.
Stage IIIB	T4-any N, T-N3, all M0	Any size of tumour with chest wall or skin extension, with or without the involvement of lymph nodes, all any tumour size with internal mammary lymph nodes involvement.
Stage IV	Any size of tumour, Any status of lymph node, Any distant metastasis	Any distant metastasis. This includes the ipsilateral supraclavicular nodes

2.7.4 Signs and symptoms of breast cancer

Early stage breast cancer usually presents as a slightly tender or painless breast mass. This is accompanied by an abnormal mammogram. Microscopic changes which are indications of breast cancer for example micro calcifications, small, irregular mass skin thickening, unclear margins and unevenness in anatomical structures can be detected with a mammogram in women who do not show any symptoms. Patients whose diseases are advanced, may present with breast masses which are palpable, skin and nipple retraction, breast tenderness, nipple discharge that may be bloody or serous in nature (Halperin, Perez & Brady, 2008:1187, Yarbro, et al , 2011:1096; Langhorne *et al*, 2007: 107).

There may be a change in size, texture and shape of the breast. Other clinical features are redness, ulceration, dilated veins or oedema, skin changes called “peau derange” and lymph node enlargement in the axilla. The patient may have distant metastasis, which is a spread of the disease to other parts of the body and lymphadenopathy in the axilla (Halperin *et al* 2008:1187, Yarbro *et al*, 2011:1096; Langhorne et al, 2007: 107). Over 80% of women, who participated in a study in a low resourced community in South Africa, were uninformed about warning signs of breast cancer (Brinton, Figueroa, Awuah, Yarney, Wiafe, Wood, Ansong, Nyarko, Wiafe-Addai & Clegg-Lamptey, 2014: 467-478).

2.7.5 Early detection and Screening

The most important means for breast cancer control is early detection. The stage at which the disease is diagnosed has a direct relation to survival. Early detection regimens that have been widely used to detect breast cancer are mammography, clinical breast examination and

breast self-examination (Langhorne et al, 2007: 104). The immediate aim of breast cancer screening is to detect cancers before they become evident clinically. A wide spectrum of breast cancer, which ranges from ductal carcinoma in-situ, which is low grade to high grade invasive carcinoma, is detected by screening (IARC, 2002:4, 8).

For cancer screening to be effective, it requires consistent, precise and easy-to-administer test. This should be a test that is able to detect cancers that are clinically important at a stage that is asymptomatic. Treatment should be available, if cancer is detected (Hoffman, 2011: 2). It has been revealed in research studies on actual exposure to screening and related tumour characteristics, that cancers which are detected by screening have tendencies to be at a stage considered to be earlier in their development than those detected by other means. This reduces the mortality which results from breast cancer (Biesheuval, Czene, Orgeas & Hall, 2011: 545).

The American Cancer Society and the International Agency for Research on Cancer (IARC) have the following recommendations for breast cancer screening. They recommend that women who are 40 years and above should have a mammogram every year. This must continue as long as the health of the woman is good. Also, women who are between age 20 and 30 should have a clinical breast examination every 3 years and women at 40 and above every year. They again recommend that every woman should know how her breasts look normally, so that she can be able to report any abnormal change. BSE is the recommended option for breast cancer screening in women who are below 30 years of age (American Cancer Society, 2014; IARC, 2002).

The Cancer Association of South Africa recommends that women do BSE once every month. The association also recommend that women should ask for clinical breast examination any time they visit a medical practitioner if it is not part of the routine physical examination. CANSA recommends that high risk women over the age of 40 years have a mammogram every 2 to 3 years (CANSA, 2012: 2). Over one third of women who participated in a breast cancer study in South Africa did not have knowledge on screening tests for breast cancer, this lack of knowledge was reported among women who were older and came from rural areas (Brinton *et al.* 2014: 467-478).

2.7.6 Treatment of breast cancer

Surgery, chemotherapy, radiotherapy, hormone therapy and biological treatments are the main treatments for breast cancer (Cancer Research UK, 2014). The treatment of breast cancer depends on the stage of the disease and other characteristics of the disease such as

hormone receptor status. Tumours have different therapy responses and clinical outcomes depending on their biological features (DeVita *et al*, 2008: 1633). Surgical treatment with mastectomy or breast conservation needs to proceed once a diagnosis of early breast cancer is made. Breast conservation includes wide local excision with negative surgical margins and radiation to the breast. This is used to treat most small invasive breast cancers. Mastectomy is recommended for patients with contra-indications for breast conservation. This may be with or without reconstruction of the breast. Some of these contra-indications include pregnancy, extensive micro-calcification and previous radiation treatment to the breast. Factors to consider before opting for breast conservation, include age, family history, previous treatment of radiotherapy to the chest wall, pregnancy, collagen vascular disease, the extent of the disease, the location of the tumour, tumour size and breast size (Singletary, Robb & Hortobagyi, 2004: 330-335; Rovere, Warren & Benson, 2005: 375-377; Pollock, 2008, 489-490).

Axillary lymph nodes which have been involved may be removed surgically. This decreases the chances of recurrence in the axilla. Patients with invasive breast cancer undergo a sentinel lymph node (SLN) biopsy, this is important in predicting the prognosis of the disease. The SLN is the first lymph node in the axillary nodes to have metastasis from the tumour (Rovere *et al*, 2005: 375-377; Singletary *et al*, 2004: 330-335). A study conducted to determine the impact of local surgical treatment among young women with T1 breast cancer in Korea revealed that the overall survival rate in patients treated with breast conservation therapy is not different from those treated with a mastectomy. The participants were followed up for 10 years after treatment (Jeon, Choi, Park, Kim, Lee & Suh, 2013: 475-484).

Treatments of breast cancer which are not surgical are grouped into neo-adjuvant chemotherapy, radiotherapy and hormonal therapy. Neo-adjuvant chemotherapy is given to patients with tumours which are large or inflammatory. This is given to reduce the tumour size which in turn, reduces the extent of required surgical resection (Michell, 2010: 232). After local treatment with surgery or radiotherapy, adjuvant chemotherapy may be given. At the time adjuvant chemotherapy is given, the tumour will be completely removed. The aim of adjuvant chemotherapy is to reduce metastatic risk of the disease and the improvement of survival which is disease-free. In an attempt to eradicate cancerous cells, high-dose chemotherapy may be given. Chemotherapy may be given to patients with metastatic breast cancer to relieve symptoms and control the disease. This is called palliative chemotherapy (Harmer, 2011: 154). Chemotherapy can be given as a single agent or combination treatment. As compared to single agents, combination chemotherapy has a higher rate of response. Examples of chemotherapy regimen for breast cancer are:

- Cyclophosphamide-methotrexate-5-FU,
- Cyclosphoshamide-epirubicin-5-FU and
- Cyclophosphamide-doxorubicin-5FU (Yarbro *et al*, 2011: 1034).

Some common side effects of chemotherapy drugs include anaemia, thrombocytopenia, altered pigmentation of the skin and nails, neutropenia, depression of the bone marrow, fatigue, weight gain, peripheral neuropathy, stomatitis, diarrhoea or constipation and fertility problems (Harmer, 2011:156-166).

In hormonal therapy, breast cancer cells are deprived of the hormone oestrogen. Oestrogen is needed for the growth of many breast cancer cells. The commonly used hormonal drug is Tamoxifen which inhibits the activity of oestrogen in the body. Both pre and post-menopausal women can be given Tamoxifen. Another drug which may be given to post-menopausal women is Aromatase Inhibitor. Example of Aromatase inhibitor is Anastrazole; it may be given after Tamoxifen treatment or given as an alternative of Tamoxifen. Aromatase Inhibitor prevents the production of oestrogen in the body (National Cancer Institute, 2012). Other drugs that block oestrogen receptors are Toremifene and Fulvestrant (American Cancer Society, 2015).

Women with advanced breast cancer who have poor response to other hormone treatments may be given a progesterone-like drug called Megestrol acetate. Male hormones, i.e. androgens are rarely given. They are given in advance breast cancers which fails to respond to female hormonal drugs. However, using androgens may deepen the voice or increase hair growth (American Cancer Society, 2015). Luteinising hormone blockers are used to prevent the pituitary gland from producing Follicle stimulating hormone. This prevents the ovaries from producing oestrogen. Goserelin (Zoladex) is the commonly used luteinising hormone blocker (Cancer Research UK, 2014). Ovary removal is another option to stop the production of oestrogen. When this is done, it causes sudden menopause and the women will have menopausal symptoms such as hot flashes (American Cancer Society, 2015; Cancer Research UK, 2014).

Post-operative radiotherapy is considered for patients who have primary or recurrent breast cancer. For both invasive and in situ breast cancer, it reduces local recurrence after surgery. Patients, who are at higher risk, may need radiation to the chest wall and supraclavicular region (Hoskin & Goh, 2010: 37).

2.8 Health education

The report on 2000 Joint Committee on Health Education and Promotion defines health education as “any combination of planned learning experiences based on sound theories that provide individuals, groups and communities the opportunity to acquire the information and skills needed to make quality health decisions” (Hernandez, 2011: 9). In an informal way, health education is provided mostly by parents and relatives. Formal health education is given by teachers, doctors, nurses and other health workers. Non-formal health education is mostly provided by the staff at community centers (Dash & Dash, 2008: 3). According to Minelli and Breckon (2009: 11), changing habits are involved in health education, but before habits can be changed, attitudes need to be changed. In order to provide healthcare interventions that are culturally congruent among multicultural groups, the practices of health care and beliefs that are related to them must be explored within these groups by health educators and health care practitioners in general (Perez & Luquis, 2013).

Yan-qiong and Xiaoyan (2014: 375-81), conducted a study in a community health catchment area in China to determine the effect of breast cancer health education on the knowledge, attitudes and practice behaviors of BSE among women living in that area. They used pretest and posttest assessment tools. They assessed the participants before the health education and followed them up 1 to-3 months after the health education was done. It was revealed that the women reported high incidence of self-examination and the proper method of doing BSE were found to be significantly improved (Yan-qiong & Xiaoyan, 2014: 375-81).

In another study on the effect of tailored message education about breast cancer risk among obese Korean women, it was revealed that awareness of breast cancer risk, the intent to screen and prevent breast cancer and self-efficacy for BSE was enhanced effectively by individually tailored education. They also found that it is useful to use tailored message education which targets breast cancer and its risk associated with obesity in breast cancer education on screening (Somi, ChaeWeon & Barbara, 2013: 382-92).

By viewing an American Sign Language (ASL) educational video on breast cancer, the knowledge on breast cancer of deaf women was significantly increased and upon a two month follow-up, most of the knowledge was retained. This was revealed in California where a study was conducted on breast cancer education for the deaf community in ASL (Hicky, Merz, Malcarne, Gunsauls, Haung & Sadler, 2013: 86-91)

2.9 National and provincial breast cancer screening

A National breast cancer screening program is part of the National cancer control program. In a national cancer control program, a public health program is designed with the aim of reducing the incidence of cancer cases and deaths and improving cancer patients' quality of life. This is done by the systematic and practical implementation of preventive strategies that are evidence based for prevention, early detection, diagnosis, treatment and palliation and making the greatest use of the resources that are available. Some countries that have a national cancer control program are Australia, Ireland, Korea, India and Columbia (WHO, 2014).

The Cancer Association of South Africa undertakes cancer control programs which are community based. These include regular screening clinics, as well as breast examinations. In 2012, 16,310 breast examinations were done by CANSA. CANSA, in partnership with the Department of Health, conducted a further 1,726 examinations (CANSA, 2013). The women's health campaign is an initiative of the Western Cape Provincial Department of Health. The campaign targets women in the Western Cape and will enable them to access a range of women's health services which includes breast cancer screening in any public health clinic (Western Cape Government, 2014).

2.10 Breast self-examination

Breast self-examination is a non-invasive and simple procedure of screening that can be performed by an individual who is not trained medically (Allen, Groningen, Backsdale & McCarthy, 2010: 449). Most breast lumps which are palpable are discovered by a woman herself. BSE is a relatively simple, private and free examination. Although there is a controversy among researchers on the effectiveness of BSE, it remains a valuable method that women can use to learn the appearance and texture of their breast and to be able to seek medical care for abnormal changes in the breast. BSE is the recommended screening method for women whose ages are below 30 years (American Cancer Society, 2014; Langhorne et al, 2007: 105).

For pre-menopausal women, BSE is best performed 5 to 7 days after the menstrual period. That is the period when the breast is less tender. For post-menopausal and non-menstruating women, the same day each month is the best time to do BSE. During BSE, inspection and palpation are used to examine both breasts. These can be done in both lying and standing positions. For BSE to be done thoroughly, it requires 20 to 30 minutes. Before

performing a BSE, a woman must be familiar with what her normal breasts look like (Langhorne et al, 2007: 105).

The main components of BSE are inspection and palpation. Inspection is done by standing in front of the mirror. The arms should be by the side for both breasts to be exposed. This allows the woman to completely visualize the contour of the breast, the nipple, areola and the skin surface of the breast. Any changes in the breast are checked for. Changes to look for on the skin are retraction of the skin, dimpling, puckering, erythema and vein prominence. Nipple changes like retraction, inversion, mild ulceration and dryness should be checked for. Various positions are assumed when doing an inspection of the breast. These are leaning forward, placing hands on hips and pressing in and down, placing arms on the head and leaning forward with arms in front. Changing positions increase the chances of seeing any abnormalities. The breasts should be compared and they must look reasonably similar to each other (Saunders & Jassel, 2009; Gwarzo, Sabitu & Idris, 2009: 56; Langhorne *et al*, 2007: 105).

The flat pads of the fingers are used to palpate the breast at different pressure levels and in a specific pattern. This is easily done when lying down in a flat or side-lying partially position. Lying down to examine the breast evenly spreads out the breast tissue along the chest wall. Palpation is done by feeling the breast for areas that are different from the rest of the breast. All parts of the breast must be palpated with special attention to the upper outer quadrant and the central area around the nipple. This is because most breast cancers occur in these areas. Lumps, areas of thickening hard band of tissue or a tender area are abnormalities that may be detected during palpation (Saunders & Jassel, 2009; Gwarzo *et al*, 2009: 56; Langhorne *et al*, 2007: 105).

BSE can also be done whiles in the shower. Many women are able to feel their breast tissue well when the skin is wet. The breast is palpated with the pads of the fingers. The entire breast is palpated from top to bottom and also from side to side (BreastCancer.ORG, 2015)

2.11 Knowledge

In relation to health, the level of knowledge an individual has is important. Knowledge has an important role to play in the behaviours of health (Concoran, 2010: 70). According to the Information-Motivational-Behaviour model, knowledge in the form of information on health is required for an individual to improve health behaviour (Fishbein & Ajzen, 2011: 243). When a woman receives relevant and unbiased information about screening, she is able to make an informed decision on breast cancer screening. This happens when she understands and

interprets the information received (Davis, Diefenbach, Valdimarsdott, Chen, Hall & Thompson 2010: 174). According to Petty and Krosnick (2014: 248), the maintenance of strong attitudes is highly dependent on knowledge. Knowledge also facilitates the processing of information acquired.

One type of health promotion approach given by Upton and Thirlaway (2014: 64-65), is the Educational model. This model aims to give individuals the required information on healthy lifestyles. The information will enable them to make decisions on their behaviours of health. The main focus of the model is on knowledge provision, which can empower individuals to embrace healthy behaviours. A study conducted in Nigeria revealed that, women who practiced BSE monthly, were those who had received information on BSE from health professionals (Gwarzo *et al*, 2009: 57).

In another study, two groups of Iranian women, (physicians and non-health care personnel) were compared in their breast cancer screening behaviours. It was revealed that, although the physicians had higher socio-economic class and knowledge, no substantial difference between the screening behaviours of the two different groups of women were found (Kadivar, Joolaee, Joulaee, Bahrani & Hosseini, 2012: 770-773).

2.12 Beliefs

The Merriam-Webster online dictionary (2014) gives three definitions of beliefs as "a state or habit of mind in which trust or confidence is placed in some person or thing; something believed, especially, a tenet or body of tenets; conviction of the truth of some statement or the reality of some being or phenomenon especially when based on examination of evidence". Culture, tradition and religion contribute to an individual's beliefs. There is a common notion that in times of trouble, anxiety and stress, religion helps individuals to cope (Peoples & Bailey, 2009: 312). The perceptions of individuals are affected by culture. Culture also affects the use of traditional healthcare experts and traditional healers. In relation to healthcare, views on gender are also affected by culture (Perez & Luquis, 2013).

2.12.1 Health Beliefs in relation to cultural, traditional and religious beliefs

Ideas derived from the prevailing world-view about health and illnesses are known as health beliefs. Health beliefs are also activities that individuals undertake to protect, maintain or promote their health (Holland & Hogg, 2010: 16-18). The health beliefs that an individual

holds, influence how he or she perceives health. These health beliefs also influence the behaviour of the individual. Health behaviours can be negative or positive (Berry, 2004: 54).

The cultural belief that an individual has, is involved in determining his or her health belief and how he or she perceive illness. Personal and cultural beliefs influence patient's adherence to treatment and changes in lifestyle (Riekert, Ockene & Shumaker, 2009: 452). Lim, Baik and Ashing-Giwa (2012: 388-397) conducted a study in California to determine the relationship between cultural health belief and health behaviour among Asian-American Breast Cancer survivors. It was revealed that, cultural health beliefs are linked to behaviours of health.

A traditional belief influences an individual's health beliefs. A belief exists among Italian Americans that an illness may be caused by an evil eye. Hispanics also believe that some illness can be as a result of a curse from God. In some traditional White American cultures, there is a dominant believe that stress and germs cause illness (Doyle, Ward & Oomen-Early, 2010: 99).

The focus of traditional western medicine is on the physical aspects of the body and uses a scientific approach to diagnose and treat illnesses (Mitchell & Haroun, 2011: 322). Traditional ethnic communities mostly use home remedies such as herbs and teas to treat illness (Doyle et al, 2010: 99). Throughout Africa, people rely on herbalist, also known as traditional medical practitioners to get primary health care. There are over 200,000 traditional healers in South Africa as compared to 25,000 biomedical doctors (Soai, 2012). Over 80% of the South African population consult a traditional healing practitioner regularly. These traditional practitioners are either healers (*sangoma*) or diviners (*nyanga*) (South African Tourism, 2014).

The health practices of many cultural groups and individuals are influenced by religious and spiritual beliefs. Shamans or medicine men originating from native America are believed to have received a spiritual calling to heal. Christians practice faith healing which they believe cure illnesses and disabilities by having strong religious faith and prayers (Mitchell & Haroun, 2011: 323-324). Although there is dominance in Christianity in South Africa, there is a strong influence of African traditional religion which is unquestionable (Van Wyk, 2009: 28). Muslims believe that Allah (God) is the one who allows things to happen, including illness (Mitchell & Haroun, 2011: 323-324).

2.13 Attitude

An attitude has been defined as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour” (Eagly and Chaiken, 1993:1 cited by Maio and Haddock 2010: 4). An attitude has an influence on individual behavioural patterns, this can be deliberate or automatic (Hogg & Tindale, 2008: 263).

There are three constituents of attitude. Cognitive attitude involves knowledge about objects, thus the component of beliefs and ideas. Affective attitude deals with feelings about things, thus component of likes and dislikes. Finally, behavioural attitude is a tendency that one has towards an action, thus the component of attitude on action (Saleh & Khine, 2011: 7; Maio & Haddock, 2010: 8, 33). When trying to understand an individual’s behavioural pattern and to intervene for a behavioural change, it is important to study both his or her cognitive and affective attitudes as both can influence behaviours of health (Suls, Davidson & Kaplan, 2010: 67).

In a survey conducted in Nicaragua among rural women on their attitude towards breast cancer screening in which 198 women participated, 52.8% of the women felt that, they did not have any breast cancer risk (Duda & Bhushun, 2011: 560-565). In another study where the opinions and insights about breast cancer and breast health of Jordanian women were explored, a feeling of fear of contracting breast cancer and feeling safe from breast cancer were among the identified themes that emerged from the study. The feeling of fear was from the women perceiving breast cancer as a disease which cannot be cured. The women’s’ attitude of feeling safe, was from the fact that they perceived themselves not to be at risk for breast cancer and that breast cancer is God’s way of testing people (Taha, Al-Qtob, Nystrom, Wahlstrom & Berggren, 2012: 1-11).

2.14 Nurses’ role in breast cancer screening

The role of the nurse in breast cancer screening is to discuss with women, the benefits, limitations and possible harm that come with screening mammography, clinical breast examination and breast self-examination. The recommendations for breast cancer screening are different for women of different ages. Nurses should be able to advise women on screening based on their age. Nurses should be well informed on current guidelines on breast cancer screening (AWHONN, 2010: 609).

Women with known abnormal mutation or family history that suggest an abnormal mutation, should follow screening guidelines that recommend the start of screening at a younger age

or more frequent screening. The major role of the nurse is to teach screening guidelines and create awareness among women (Langhorne, Fulton & Otto, 2007: 104). According to Hoefek, Waltman and Kile (1997:4-9), an important role can be played by nurses in the promotion of breast cancer screening. They need to teach women on the risk factors of breast cancer, current screening guidelines, as well as the benefits and limitations associated with screening. Nurses should also assist in identifying barriers that prevents women from screening (Hoefek, Waltman & Kile, 1997: 4-9).

2.15 Summary

In summary, there have been many studies which have been conducted on breast cancer and breast cancer screening. Some of these studies have identified that, knowledge, beliefs and attitudes have association with the behaviour towards breast cancer screening of women. Early detection remains the most important factor in the outcome of breast cancer. The results of this study will add to the body of knowledge of research on breast cancer screening and create awareness of breast cancer and BSE among students. This study aims to explore the knowledge, beliefs, attitude and practice of breast self-examination among female university students.

In Chapter 3, the Methodology and design have been discussed

CHAPTER 3
METHODOLOGY

3.1 Introduction

This chapter describes the research methodology used in this study. The methodology has been discussed under the following major headings: qualitative research approach; research design; population and sampling; methods of data collection; presentation of results; validity and reliability; benefit and some possible limitations of the study and ethical considerations.

3.2 Mixed method research approach

According to Creswell (2014:4), mixed method research follows approaches which are both qualitative and quantitative. Comprehensive research results are provided and well explained when a mixed method is used. The use of mixed method has been justified by its ability to test how consistent findings which have been obtained by the use of different instruments are. With the use of mixed methods, researchers are able to explain and build on the results of qualitative method using quantitative method or vice versa. Mixed methods are justified by their ability to use results from one method to shape successive methods (Wheeldon, 2010: 88).

Mixed method research approach integrates two forms and uses distinct assumptions of philosophy and theory. The main assumption of mixed method research approach is to combine both qualitative and quantitative approaches in order to completely understand the research problem, rather than using one approach only (Creswell, 2014: 4; Hesse-Biber, 2010: 5). A better, contextual and specific data collection instrument is provided by a mixed method approach and allows for a better explanation of research findings. Many researchers are familiar with mixed method research approach. The weakness inherent in one approach is offset when mixed methods are used. However, discrepancies that arise from data interpretations may be unclear to resolve. The use of mixed method approach requires expertise and effort in order to study the phenomenon which is being considered, by using two methods which are different (Terrel, 2012: 254-280).

3.3 Quantitative research approach

According to Burns and Groove (2007: 24), quantitative research is a rigorous, formal, objective and organized process by which information about the world is generated.

Quantitative research can be descriptive, correlational, quasi-experimental or experimental. The existing knowledge on the research problem influences the type of research conducted. In order to develop the body of knowledge which is needed for evidenced-based practice, many quantitative research approaches are essential (Burns & Groove, 2009: 33). Keele (2011: 35) views quantitative research as a more objective, formal and deductive approach in problem solving. Most details are spelled out in advance in quantitative studies. This allows for risk or benefit assessment which is accurate (Polit & Beck, 2014:87).

Logical positivism is a branch of philosophy which uses strict logical rules, laws, truths predictions and axioms to operate. The quantitative research approach emerged from logical positivism. Researchers who use a quantitative approach are of the view that truth is outright and that one could define a single reality by carefully measuring it. Also all human behaviour is measurable, objective and has a purpose (Groove, Burns & Gray, 2013:24).

A set of assumptions also underpins quantitative research. This includes the subject of the study being analysed as quantities by statistical means. A quantitative study requires the researcher to look at the differences or relationships between variables (Maltby, Williams, McGarry & Day, 2013: 244-245).

3.4 Qualitative research approach

Characteristics or qualities that cannot be quantified in numbers are what qualitative research usually concentrates on (Leady & Omrod 2010: 94). In qualitative research, data from a comparatively small group of respondents is gathered, organized and interpreted (Lichtman, 2013: 7). The data may not be analysed by statistical methods but, rather may follow an inductive process of research. It involves searching the data for patterns, holistic features and themes. Qualitative research seeks to understand the processes underlying various behavioural forms (Lichtman, 2013: 7; Yin, 2011: 11-9). By gaining more experience with a specific topic through unstructured evidence and data, qualitative research seek information and explore the insight into human behaviour (Groove, Burns & Gray, 2013: 57; Perrin, 2014: 145-146; Munhall ,2012: 4). In qualitative studies, the process of the topic is explored rather than the results (Hickson, 2008: 51). The analysis of data in qualitative studies is not dependent on numbers and statistics, rather, an interpretation of the words collected. There are no preconceived ideas. Qualitative studies seek for trends and patterns in the data collected (Perrin, 2014: 145-146).

Research methods that are qualitative, give description and interpretation of human phenomena that are perplexing and cannot be quantified easily (Streubert & Carpenter,

2011: 3; Merriam, 2009: 22). According to Leady and Omrod (2010: 95), the nature of qualitative research is often exploratory and the data obtained may be used as a basis for a new theory. Qualitative research focuses on answering questions which are experienced by the subjects. It describes the ways it affects human life (Streubert & Carpenter, 20113-11). The results that a qualitative study produces, lead to the understanding of the phenomenon that is being studied (Burns & Groove, 2007: 62; Streubert & Carpenter, 20113-11).

A naturalistic paradigm is what qualitative research is based on. An individual constructed view of reality, is what the belief system represents, not that of the researcher. Reality is not a fixed entity in the naturalistic view but, it rather exists in what the participants believes it to be (Houser, 2013: 33). Qualitative researchers believe that, there are possible different views of realities and that, all of these different views are right. Qualitative researchers believe in relativism, which means that there are multiple interpretations of reality, which can only exist in an individual (Houser, 2013: 33).

3.5 Research design

The design used for this study is a descriptive mixed method. Rather than seeking to explain relationships, the focus of descriptive design is to find out what is happening in a particular circumstance or situation. Descriptive design can also be used quantitatively. It may be used in a survey where data will be numerically analysed (Clifford, 2014:76).

This design was selected because; the study was carried out at one university. The purpose of the study is to assess the level of knowledge, beliefs, attitudes and practices of a specific population (female university students) (Polit & Beck, 2008: 208; Terry, 2012: 73).

3.6 Population and sampling

3.6.1 Population

A specific group of people on whom the research study focuses, makes up the population (Groove *et al*, 2013: 351; Wood & Ross-Kerr, 2011:152). The population for this study was female university students at a university in the Western Cape. The target population consists of a group of people or individuals who meet the criteria for sampling by the researcher (Groove *et al*, 2013: 351). The target population for this study was registered female students who were staying on one of the residences of the selected campus of the university under study.

3.6.2 Sample

The process of selecting subjects to serve as a representation of the population being studied is called sampling. A subset of the population being studied is referred to as the sample (Burns & Groove, 2011: 548: 9; Kumar, 2011: 193). The chances of elements in the population appearing in the final sample are not known by the researcher in non-probability sampling (Moule & Goodman, 2009: 298). Probability and non-probability sampling are the two types of sampling techniques (Gerrish & Lacey, 2013: 144). Of these two types, non-probability sampling was used for this study. Purposive, convenience and snowballing are the three main types of non-probability sampling that can be used as a data collection technique (Terry, 2012: 162). The sample for this study was selected by the use of convenience sampling. Convenience or accidental sampling is a type of non-probability sampling which involves gathering information from participants who are readily available and meet the criteria for the research (Wood & Ross-Kerr, 2011: 161-162; Polit & Beck, 2014: 178). Convenience sampling was used for this study. The researcher went to the residences from Monday to Friday, during the hours of 9h00 to 16h00. Female students, who were available at the time of data collection and readily agreed to participate in the study, were included in the study.

The sample size chosen should be ample enough to provide enough evidence that will answer the research question (Boswell & Cannon, 2011: 158). For this study, 200 participants were recruited to complete the questionnaire and 12 participants were recruited to be interviewed. The recruitment of participants was done by the researcher. The sample included only female university students who were staying on the residences where the study was taking place. The table below shows how the questionnaires were distributed among the residences. Female only residences had the highest number of questionnaires distributed to the residents.

Table 3.1: Research Participants

Residence	Number of participants
Residence 1	30
Residence 2	20
Residence 3	20
Residence 4	20
Residence 5	20
Residence 6	20
Residence 7	20
Residence 8	20
Residence 9	30

3.6.3 Recruitment of participants

Recruitment of participants was done by the researcher. After permission had been granted by the Cape Peninsula University of Technology (CPUT) ethics committee, the researcher posted notices on all the notice boards in the residences inviting all females to participate in the study. The notice had the title of the research, the purpose, and time frame to complete the questionnaire. It also indicated that participation was voluntary and that the identity of the participants would be anonymous. Specific times for meeting the participants were included in the notice.

The researcher met with interested participants in the television lounges in the residences. Participants were given information sheets explaining the nature of the research. The researcher was available to clarify any misunderstanding about the nature of the research which was required by the participants. Participants who were still willing to partake in the research, were given the research information sheet and consent form to sign after they had read and understood it. The data collection process took place from Monday to Friday and lasted for 3 to 5 hours each day. The researcher made appointments with participants who

were willing to be interviewed. The researcher met with the participants at the time and place that they were available to be interviewed.

3.6.4 Inclusion and exclusion criteria

3.6.4.1 Inclusion criteria

- Female students aged between 18 to 35 years were included in the study
- All undergraduate female students staying on the selected campus
- All postgraduate female students staying on the selected campus

3.6.4.2 Exclusion Criteria

- Female Lecturers and administrative staff of the university were excluded
- Female students under 18 and above 35 years were excluded
- Female students of the university who were not resident at the selected campus were also excluded

3.7 Methods of data collection

Two data collection tools were used in this study; these were self-administered questionnaires and interviews (Refer to appendices C and D respectively). A self-administered questionnaire was used to collect quantitative data, while one-on-one interviews were used to collect qualitative data.

3.7.1 Questionnaire

The anonymity and confidentiality of participants are well guaranteed when the questionnaire is used (Polit & Beck, 2014: 186).The participants have the confidence to complete the questionnaire without being influenced by the researcher (Mitchell & Jolly, 2013: 286). However, the length and complexity of a questionnaire is limited, as it does not allow participants to explain in detail their experiences and opinions. The response rate of questionnaires is often poor. The completion of the questions by the participants cannot be ensured by the researcher (Gerrish & Lacey, 2010: 221).

Self-administered questionnaires were used as a data collection method in this study (refer to appendix C). The questionnaire consisted of 31 questions which pertain to demographic characteristics; knowledge, beliefs, attitudes and practice of BSE (refer to appendix C). Participants who voluntarily consented to take part in the study were given the questionnaires to complete. The purpose and aims of the study were explained to the participants. The researcher explained the nature of the research and allowed time for participants to ask questions before they consented to participate in the study. The participants were made aware that they have a right to withdraw from the study, even after they had given their informed consent. Ample time was given to participants to complete the questionnaire with a pen.

3.7.1.1 Development of the Questionnaire

The questionnaire for this study was developed by the researcher. It was based on the variables and objectives of the study. The questionnaire was divided into five sections in an alphabetical order. Section A was to collect data on the participants' demographic characteristics; section B was meant to collect data on participants' knowledge of breast cancer and BSE; section C which was developed in the form of Likert scale, collected data on beliefs; section D collected data on participants' attitude towards breast cancer and BSE and the last section E collected data on the practice of BSE. The possible answers in the Likert scale were, strongly agree, agree, neutral, disagree and strongly disagree. In all, there were 31 questions in the questionnaire.

3.7.2 Interview

A face-to-face interview, also known as one-on-one was used for this study. During the interview, any misunderstood questions were clarified by the researcher. There was a moderator present at the interviews. The participants' level of understanding of BSE was assessed using interviews. Also, a more rich and complex data pertaining to the knowledge, beliefs, attitude and practice of BSE among female university students was collected (LoBiondo-Wood & Haber, 2014: 282).

A semi-structured interview schedule (refer to appendix D) was used in this study, since it is the suitable interview schedule for collecting qualitative data (Hasse-Bibier & Leavy, 2006: 125-126). Due to the different times of lecture hours and the limited free time students have, twelve (12) students were interviewed. There was a portion in the questionnaire where participants were asked if they would be willing to be interviewed. The researcher met with

those who consented on an individual basis and asked them of the time they would be available for the interview. The participants' chose the available time and place that they could be interviewed by the researcher. The researcher made appointments with the participants to interview them. A briefing sheet (appendix B) was given to participants to brief them about the nature of the research and what the interview was about. Written consent was taken from each participant in order to record the interview with a digital audio recorder. They were then allowed to ask any questions for clarification. They were told that the interview would take between 30 to 45 minutes. All the participants agreed to this time frame. In order to ensure privacy during interviews, participants were not asked to mention their names in the recorded interview. A moderator was present during all interview segments. Names of participants were not asked during the interview; rather, the researcher gave each participant a number according to the sequence with which they were interviewed. The first to be interviewed was P1, followed by P2 up to P12.

The researcher used the interview schedule (appendix D) as a guide to ask questions. Questions were asked on knowledge of breast cancer and BSE, beliefs about breast cancer and BSE. Questions were also asked on attitudes towards breast cancer and breast cancer screening and how regularly participants practiced BSE.

3.7.3 The moderator

A vital role is played by moderators during interviews. It is the role of the moderator to ensure that participants are comfortable during the interview. The moderator also ensures a relaxed atmosphere for the interview to take place. The moderator must establish rapport with the participant. The moderator must promote openness and comfort to the participant while demonstrating unconditional positive regard during the interview (Mcquarrie, 2012: 87; Miriampolski, 2001: 3).

The moderator is also responsible for maintaining an interest level which is high and motivates the participant. The moderator guides the interview in a way that participants are able to express their views and also make sure the discussion is focused on the objectives of the research. The moderator ensured no bias from the researcher and made sure that participants freely expressed themselves (Mcquarrie, 2012: 87; Miriampolski, 2001: 3).She also observed body language and other cues from the participants that could enrich the data.

3.7.4 Data management and protection

3.7.4.1 Questionnaire

Questionnaires were distributed and collected by the researcher. The questionnaires completed were placed in a file and kept under lock and key in a lock up safe in the Nursing Department of CPUT. Uncompleted questionnaires were separated from completed ones. Responses from questions were captured and analysed by the use of Statistical package for the Social Science (SPSS), 2015 and Microsoft Excel 2010. Each question was captured separately from all respondents example all question 1 responses were captured onto one Excel spread sheet. Similarly all question 2 responses were treated in the same manner. The data was then examined for frequency distribution of responses using SPSS. Elements of descriptive statistics, such as frequency distribution and percentages of responses on demographic characteristics were analysed.

3.7.4.2 Interview

All the interviews were conducted by the researcher in the presence of a moderator. The interviews were transcribed into a Microsoft word 2010 document within 24 hours after they were conducted. Transcriptions began immediately after the first interview and ended with the transcription of the last interview (Davis, 2006: 41). The researcher then listened to the audio responses again and compared them to the typed document. The transcribed data was given back to respondents to verify if that was the information they gave. Responses were coded and grouped under different themes as they emerged. Responses on each theme was then analysed using thematic analysis (Powers, 2005: 23-36; Seidman, 2006: 115-120).

3.8 Presentation of results

A descriptive summary of the information acquired from the data analysed on questionnaires has been presented in tables and charts and data from interviews has been adequately described. The relationships between the variables that were identified have been discussed in detail (refer to chapter 4).

3.9 Validity

Validity as defined by Vogt (2007: 118) is the relevance of the design or measure for the question being investigated or the appropriateness of the design or measure for coming to

accurate conclusions. According to Waltz et al (2010) cited by Groove et al (2013: 45), the extent to which an instrument truly reflects the abstract concept under study, is its validity. The questionnaire used for this study is valid because, the responses answered the questions the researcher wanted to be answered and reflected the relationships between the variables of this study. Interview questions were also valid because, the themes that emerged from the data were directly related to the variables of this study.

3.10 Reliability

The focus of reliability is on the consistency of the measuring instrument (Macnee & McCabe, 2008: 185). According to Baumgarten (2010: 4), "reliability refers to the consistency of measurements of a concept, using an identical measurement procedure, and replicability of the findings". Leady and Omrod (2014:93), maintain that when an instrument of measurement yields a certain consistent results without changing the entity that is being measured, then that instrument is reliable. To ensure reliability, the questionnaires were piloted in one block of a residence, once ethical approval was granted. Interview questions were also reliable, because they yielded consistent results with different participants.

3.11 Trustworthiness

According to Brink, Van der Walt & Van Rensburg (2009; 118), the term trustworthiness is often used by qualitative researchers to describe the reliability and validity of a data collection instrument. They maintain that an instrument is trustworthy if the researcher is able to accurately use it to collect and record information that is consistent and repeatable (Brink, Van der Walt & Van Rensburg, 2009: 118). Interview questions used in this study were trustworthy, because they yielded consistent results with different participants which were directly related to the variables of this study.

3.12 Ethical considerations

The following ethical considerations were applied in this research (World Medical Association, 2013: 1-8; Medical Research Council (MRC) of South Africa 2004: 9; Human Sciences Research Council (HSRC), 2014; CPUT, 2008)

3.12.1 Informed Consent

The informed consent (refer to Appendix A) and the briefing sheet (refer to appendix B) that were given to the participants in this study, explained the aims, benefits and risk of the research study. The participants were told that they had a right to withdraw from the study at any time, even after they had given their informed consent (World Medical Association, 2013; Human Sciences Research Council (HSRC), 2014). The researcher was available to answer any questions that participants might had. Thereafter, each participant signed a written consent. The informed consent was signed by the students to fulfil the requirement of the code of ethics for human participants and it gave the participants the right to withdraw from the study at any time without any repercussions.

3.12.2 Autonomy

Autonomy means “respect for persons” (Tappen, 2010:443). Autonomy is one of the ethical principles promoted by the Medical Research Council (MRC) of South Africa (MRC, 2004: 9). In this study, the researcher informed participants that, they could voluntarily take part in the study and could withdraw anytime they wanted to, even after they had given their informed consent. This can be seen in the research information sheet (Appendix A).

3.12.3 Beneficence and Non-Maleficence

The principle of beneficence is “doing good” while non-maleficence is doing no harm to the individual (Taylor, Kermode & Roberts, 2006: 104-105; Boswell & Cannon, 2011: 89; MRC: 2004:9). The benefits of this research were explained to the participants (Refer to Appendix A). Participants were informed that the data which had been collected would be kept safe by the researcher in a locked up safe at the university’s Nursing Department, where only the researcher and supervisor would have access to it. It would be kept for five years after the study.

In this research study, interview questions were phrased carefully by the researcher, in order to prevent any psychological distress for participants. Participants were encouraged to ask for clarification if the need be. The researcher ensured that the time scheduled for participants to complete questionnaires and to be interviewed did not in any way interfere with students’ lecture hours. A letter asking for support and counselling for participants’ was sent to the student counselling department of the university under study (refer to appendix E). It was planned by the researcher that, participants who might become distressed during data collection, would be referred for counselling to the student counselling unit. Also

participants, who might find a breast lump in their breast during the data collection period, would be examined clinically by the researcher, who is a trained oncology nurse. If a lump was to be present, the student would be advised by the researcher to go to the nearest health facility to see a physician either on campus, or privately.

3.12.4 Confidentiality

Confidentiality means that information which has been given by a person will not be repeated or given without the permission of that person (Wiles, 2012: 42). To ensure anonymity and confidentiality in this study, the questionnaires which were used did not include the names of the participants (refer to appendix C).The researcher did not link the responses of the questions to the participants. The interviews were also conducted anonymously. Participants were assured by the researcher that, the information that was collected would not be made available to any other person without their permission.

3.12.5 Justice

As an ethical principle, justice refers to treating people equal, in fairness and not with prejudice (Butts & Rich, 2013: 45). Justice also includes participants' right to privacy and fair treatment. The researcher ensured that the study did not compromise the participants' right to privacy. Every participant was given the same treatment in terms of respecting their privacy. The researcher gave participants the time needed to complete the questionnaire in privacy.

3.13 Summary

The research methodology used in this study was discussed in this chapter. The research approach and design were discussed. Also the population and sampling were elaborated upon. The methods that were used for data collection and procedures that were used to analyse the data, was discussed. Finally, the ethical considerations used in this study were described. Validity and trustworthiness, which is very important for both quantitative and qualitative research, were described.

The next chapter deals with the analysis and discussion of results from this study.

CHAPTER 4

ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter presents and discusses the results from questionnaires and interviews. The results from questionnaires have been presented in charts and tables and results from interviews have been adequately described. This study was conducted in a university in the Western Cape. Two hundred (200) questionnaires were distributed (Refer to chapter 3). However, only one hundred and fifteen (n=115) participants responded. Twelve participants were interviewed (n=12). In total one hundred and twenty seven students participated in this study (N=127). The results have been presented as follows; demographic data, knowledge, beliefs, attitudes and practice. Results from the interviews conducted have also been presented.

QUESTIONNAIRE RESPONSES

4.2 Demographic data

4.2.1 Age range of participants

CHART 4.2-a: Age range in years

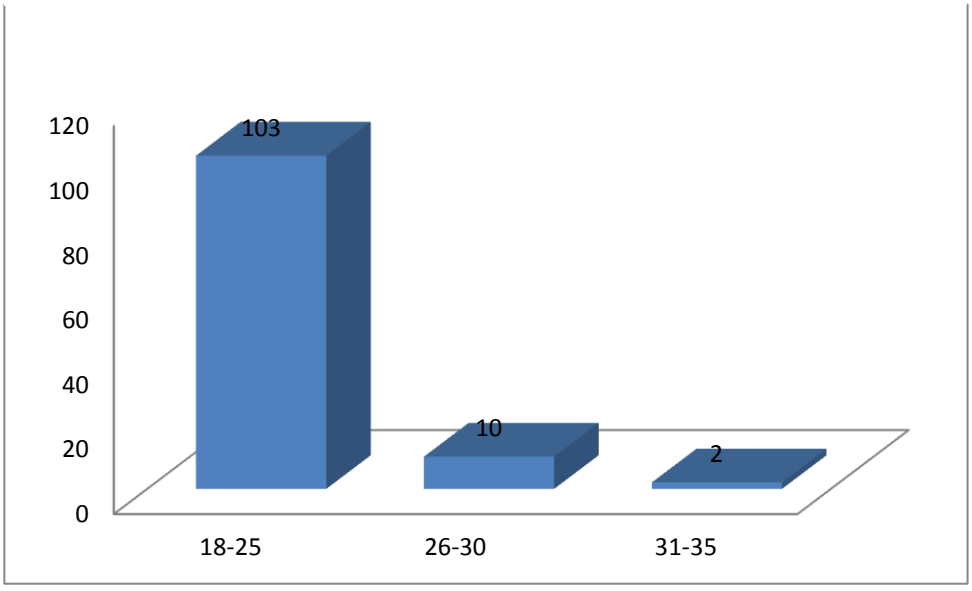
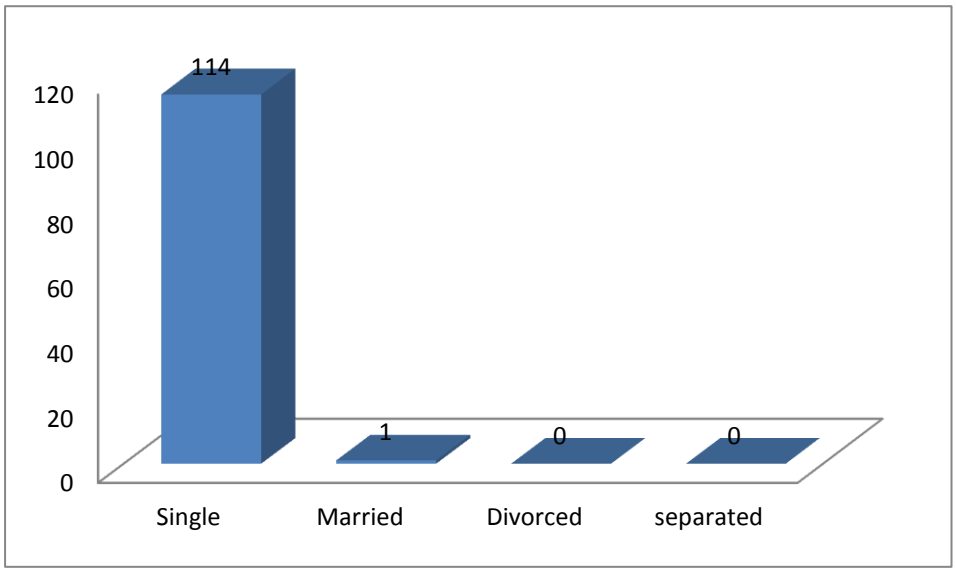


Chart 4.2a shows the age range of participants. Participants were between 18 years and 35 years. Participants within the ages of 18-25 were (n=103, 89.57%), participants within the ages of 26-30 (n=10, 8.69%) and those within the ages of 31-35 were (n=2, 1.74%). Both postgraduate and undergraduate students participated in this research.

4.2.2 Marital status of participants

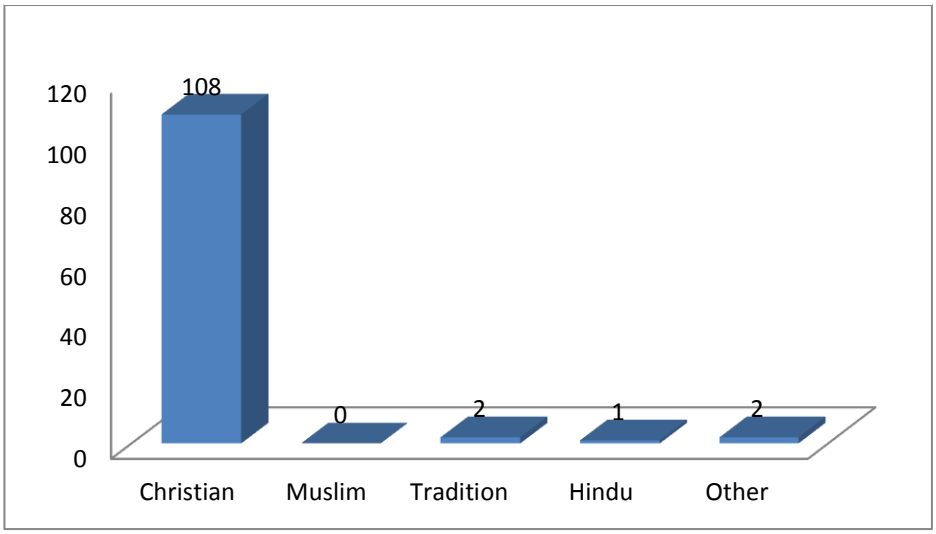
CHART 4.2-b; Marital status



From chart 4.2b, one hundred and fourteen of participants were single (n=114, 99.13%) and only one (n=1, 0.87%) was married. None of the participants were separated or divorced. The attitudes, beliefs and knowledge of participants have no significant relation with their marital status.

4.2.3 Religious beliefs of participants

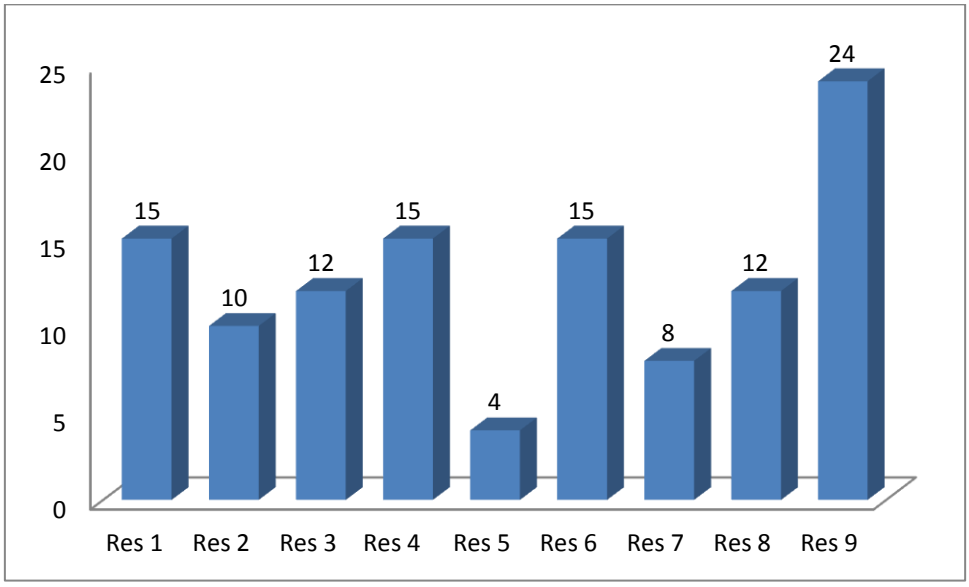
CHART 4.2-c Religion



One hundred and eight participants (n=108, 95.58%) were Christians, there were no Muslims among the participants, two participants (n=2, 1.77) were traditional believers, one Hindu (n=1, 0.88%) and two had other believes (n=2, 1.77) which were not mentioned in the questionnaire. Although there is dominance in Christianity in South Africa, there is a strong influence of African traditional religion which is unquestionable (Van Wyk, 2009: 28). As shown in chart 4.2c, majority of participants were Christians.

4.2.4 Residence

CHART 4.2-d Residence

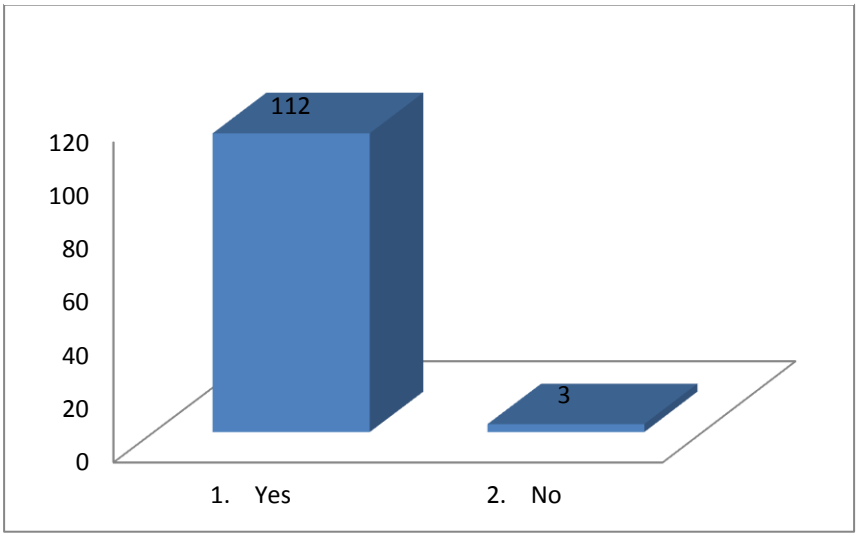


Participants were asked to name their residence; this was to make sure participants met the inclusion criteria. As shown in chart 4.2d, There were 15 participants from residence 1(n=15, 13.04), ten participants stayed in residence 2 (n=10, 8.7%), and residence 3 had twelve participants (n=12, 10.43%). From residence 4, fifteen participants (n=15, 13.04), there were four participants from residence 5 (n=4, 3.48%) and residence 6 had fifteen participants (n=15, 13.04). Residence 7 had eight participants (n=8, 6.97), twelve students participated from Residence 8 (n=12, 10.43%) and the highest number of participants which is twenty four, stayed at Residence 9 (n=24, 20.87%).

4.3 Knowledge

4.3.1 Heard about breast cancer before

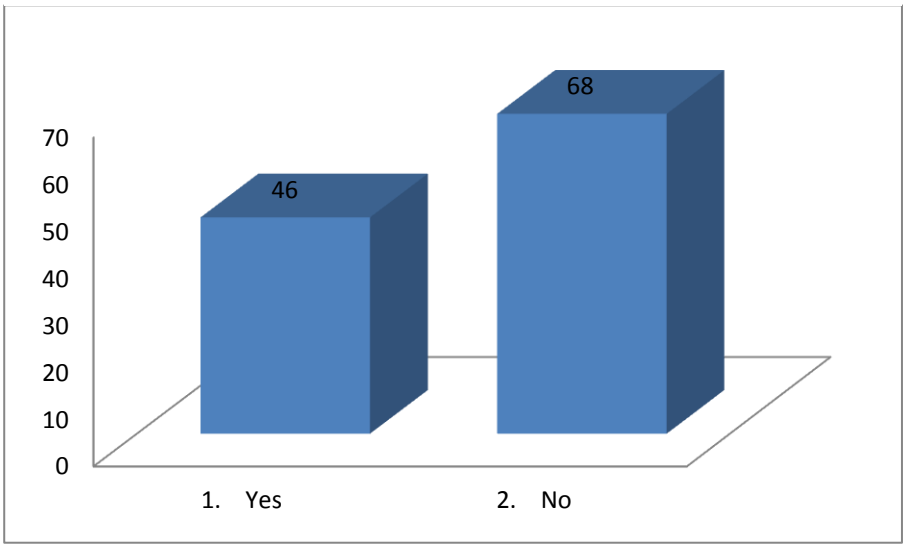
CHART 4.3-a Heard about breast cancer



One hundred and twelve participants had heard of breast cancer before (n=112, 97.39%).Three participants had never heard of breast cancer before (n=3, 2.61%). This can be seen in chart 4.3a above. One of the conditions that must be fulfilled in order to get knowledge is a belief or approval condition, this is according to the traditional conception of knowledge, also known as epistemology (Bonjour, 2010:23). As shown by this result, majority of the participants have knowledge of breast cancer being an existing disease.

4.3.2 Knows anyone that has had breast cancer

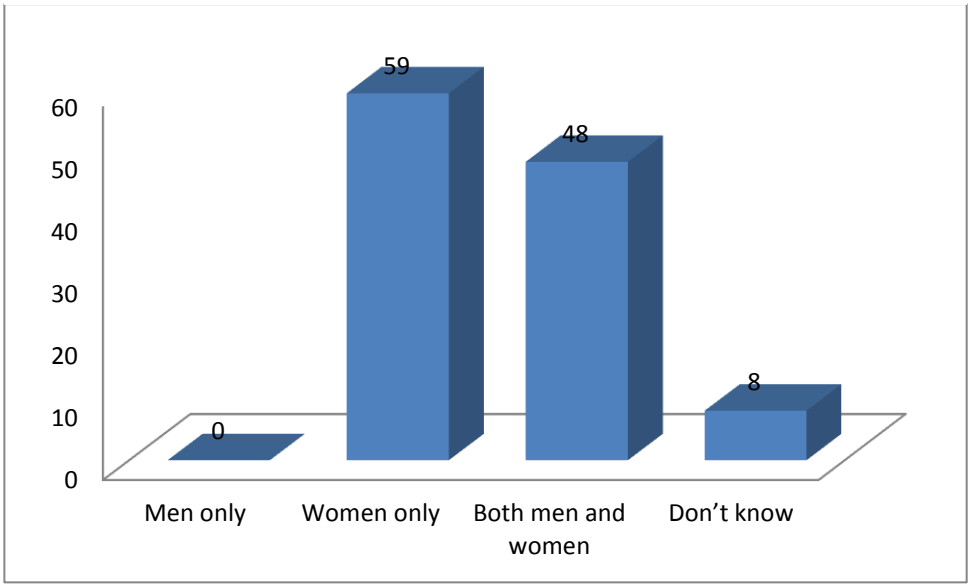
CHART 4.3-b: Knows anyone with breast cancer



One hundred and fourteen participants responded to this question (N=114) and one did not. Of the one hundred and fourteen, forty six knew somebody who has had breast cancer (n=46, 40.35%), whereas sixty eight did not know anyone with breast cancer (n=68, 59.65%). According to the traditional conception of knowledge, another condition that must be fulfilled in order to gain knowledge, is a truth condition, thus, getting to know that other women has had breast cancer. The result shown in chart 4.3b indicates that most of the participants did not know anyone who has had breast cancer before.

4.3.3 The gender which breast cancer affects

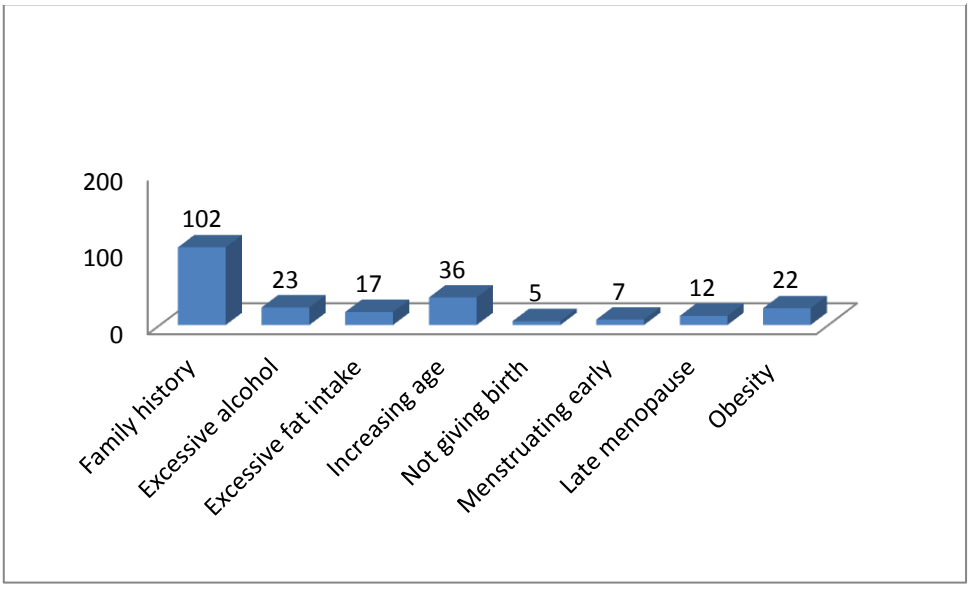
CHART 4.3-c: The gender which breast cancer affects



As indicated in chart 4.3c above, no participant answered that men only had breast cancer (n=0). Fifty nine participants answered that breast cancer affects women only (n=59, 51.30%), forty eight participants answered that breast cancer affects both men and women (n=48, 41.74%) and eight participants did not know (n=8, 6.97%). Breast cancer is the most common female cancer in the world and is the leading cause of cancer death in women (Youlden *et al.* 2012: 237). Breast cancer rarely occurs in men, with less than 1% of all breast cancers occurring in men (Canadian Cancer Society, 2015). The results shown in chart 4.3c confirm that breast cancer mostly occurs in women as most participants were not aware of male breast cancer.

4.3.4 Risk factors

CHART 4.3-d: Risk factors of breast cancer



Participants were asked to tick as many risk factors of breast cancer they knew. One hundred and seven participants responded to this question (N=107) and eight did not respond.

4.3.4.1 Family history

Of the one hundred and seven, one hundred and two indicated that family history is a risk factor of breast cancer (n=102, 95.33% of 107). Family history is a key risk factor for breast cancer. Women who have a first-degree relative (i.e. mother or sister) with breast cancer have a 1.7-2.5 risk for developing breast cancer and women with second-degree relatives (i.e. grandmother or aunt) with breast cancer, have a 1.5 risk of developing breast cancer (Halperin *et al.* 2008: 1178-1180). Zhou *et al.* (2013: 1-7), conducted a study to determine the family history and ductal carcinoma in situ and triple negative breast cancer risk among Han Chinese women in China, it was revealed that, participants who had a strong family history of breast cancer, had a higher risk of getting breast cancer than those who did not have any family history. Majority of the participants had knowledge of family history being a risk factor for breast cancer.

4.3.4.2 Excessive alcohol intake

There were twenty three indications that excessive alcohol intake, is a risk factor (n=23, 21.50% of 107). Park *et al.* (2014: 1504) maintain that, alcohol is an established risk factor of breast cancer. In epidemiological studies, it was proved that alcohol consumption at higher levels and to an extent, moderate level, has been linked to increased breast cancer risk. A study conducted in Uruguay by Ronco & Stefani (2011:72) revealed that, breast cancer risk has a direct association with the number of years of drinking alcohol. Majority of the participants did not know that excessive intake of alcohol increases the chances of getting breast cancer.

4.3.4.3 Excessive fat intake

Excessive fat intake was indicated to be a risk factor by seventeen participants (n=17, 15.89% of 107). Dietary factors like high-fat diet, beef and high-fat milk products particularly, have been linked to an increase in the risk of breast cancer. Women who have a high total fat intake have a 13% increased risk of breast cancer. Also, an increased intake of saturated fat increases the risk of getting breast cancer (Cancer Research UK, 2014). Majority of the participants did not know that high consumption of fatty foods increases a woman's risk of getting breast cancer. This can be seen in chart 4d.

4.3.4.4 Increasing age

There were thirty six indications of increasing age being a risk factor for breast cancer (n=36, 33.64% of 107). Breast cancer risk increases with age. Of all breast cancers, 78% occurs in women who are older than 50 years. 80% of breast cancer mortality occurs in women who are older than 50 years (Cauly *et al.,* 2007: 181). Most of the participants did not have any prior knowledge of increasing age being a risk factor for breast cancer.

4.3.4.5 Reproductive factors (Null parity, early menstruation and late menopause)

Not giving birth, was indicated as a risk factor by five responses (n=5, 4.67% of 107). There were seven indications that menstruating early is a risk factor for breast cancer (n=7, 6.54% of 107). There were twelve indications that late menopause is a risk factor (n=12, 11.2% of 107). The reproductive history of a woman has been shown as a contribution to breast cancer risk. According to Horn *et al.* (2013), reproductive factors that increase a woman's breast cancer risk are early menarche, late menopause and null parity or low parity. A study

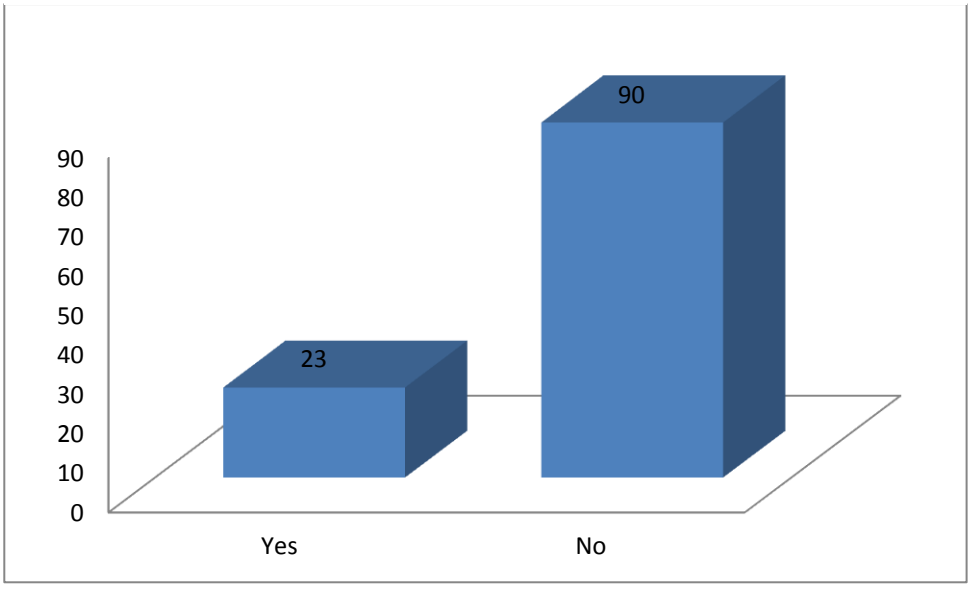
carried out in Vermont University in the USA revealed that, there is a strong association of risk of breast cancer in women who have not given birth (Reinier *et al.* 2007: 343-348). The result from chart 4.3d indicates that, the majority of the participants did not know that not giving birth, early menarche and late menopause are risk factors of breast cancer.

4.3.4.6 Obesity

There were twenty two responses that obesity is a risk factor of breast cancer (n=22, 20.56% of 107). There is an increased risk of breast cancer associated with adult weight gain. Obesity affects the development of breast cancer. The percentage of body fat has a positive link with breast cancer risk (Carmichael, 2006:1160). As shown in chart 4.3d, most of the participants did not have prior knowledge that obesity is a risk factor for breast cancer.

4.3.5 Received information from healthcare giver about breast cancer and breast cancer screening

CHART 4.3-e: Received information from healthcare giver

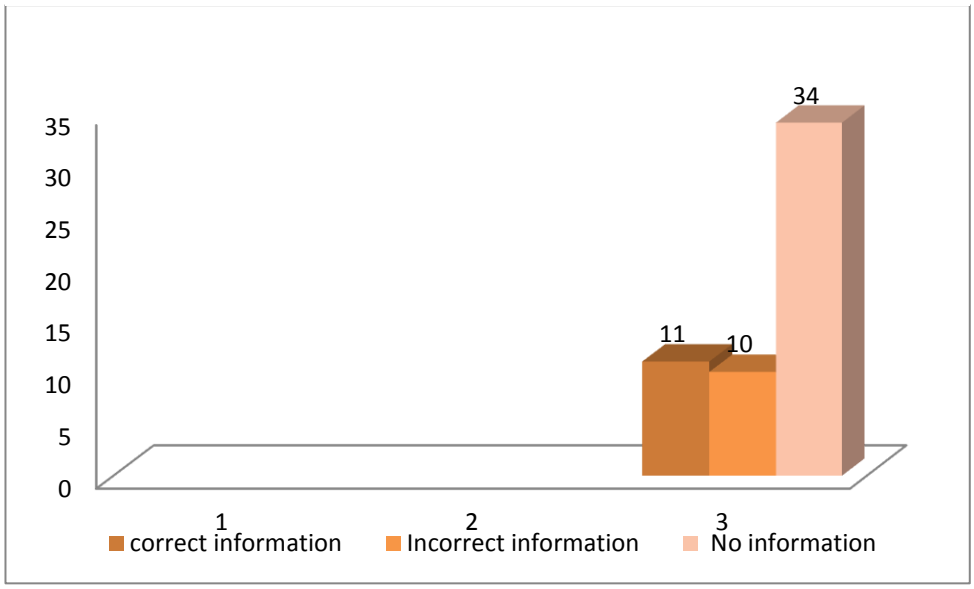


One hundred and thirteen participants (N=113) responded to this question. As shown in chart 4.3e, twenty three participants had received information from their healthcare giver about breast cancer (n=23, 20.35%). However, ninety participants had never received any information about breast cancer from their healthcare giver (n=90, 79.65%). Yan-qiong and Xiaoyan (2014: 375-81), conducted a study in a community health catchment area in China to determine the effect of breast cancer health education on the knowledge, attitudes and practice behaviors of BSE among women living in that area. It was revealed that the women

reported high incidence of self-examination and the proper method of doing BSE were found to be significantly improved after they had been educated on breast cancer and breast cancer screening. The majority of the participants had never been educated by their healthcare provider on breast cancer and breast cancer screening.

4.3.6 Information about breast cancer

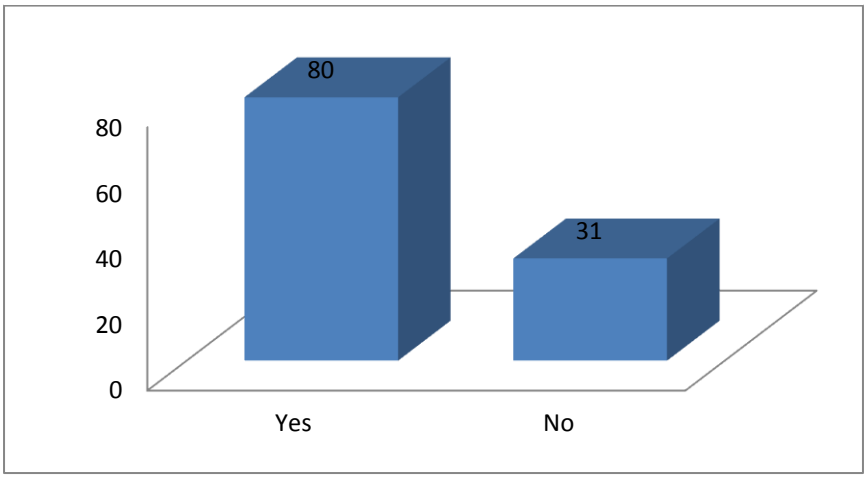
CHART 4.3-f Information received



Only fifty five participants answered this question (N=55). Eleven of the participants gave correct information about breast cancer (n=11, 20%). Ten gave incorrect information about breast cancer (n=10, 18.18%). Thirty four participants gave no information about breast cancer (n=34, 61.82%). This can be seen in chart 4.3f. According to Minelli and Breckon (2009: 11), changing habits are involved in health education, but, before habits can be changed, attitudes need to be changed. In order to provide healthcare interventions that are culturally congruent among multicultural groups, the practices of health care and beliefs that are related to them, must be explored within these groups by health educators and health care practitioners in general (Perez & Luquis, 2013). The findings above show that, majority of participants had not been educated or informed on issues relating to breast cancer.

4.3.7 Knows symptoms of breast cancer

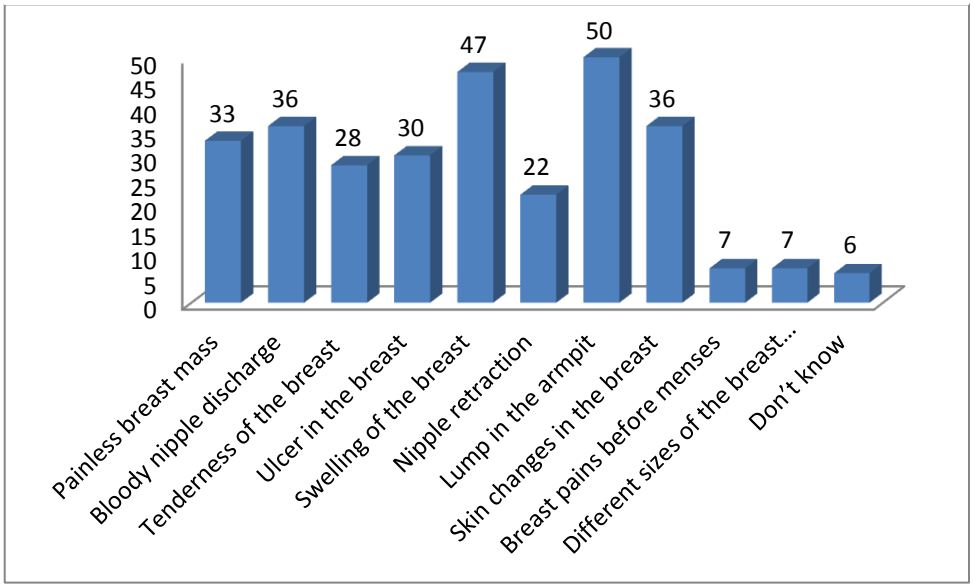
CHART 4.3-g: Knows symptoms of breast cancer



Only one hundred and eleven participants answered this question (N=111). As shown in chart 4.3g above, eighty participants knew some symptoms of breast cancer (n=80, 72.1%) while thirty one did not know any symptoms of breast cancer (n=31, 27.9%). Over 80% of women, who participated in a study in a low resourced community in South Africa, were uninformed about warning signs of breast cancer (Brinton *et al.* 2014: 467-478). In contrast, most of the participants had prior knowledge on the signs and symptoms of breast cancer.

4.3.8 Symptoms of breast cancer

CHART 4.3-h: Symptoms of breast cancer

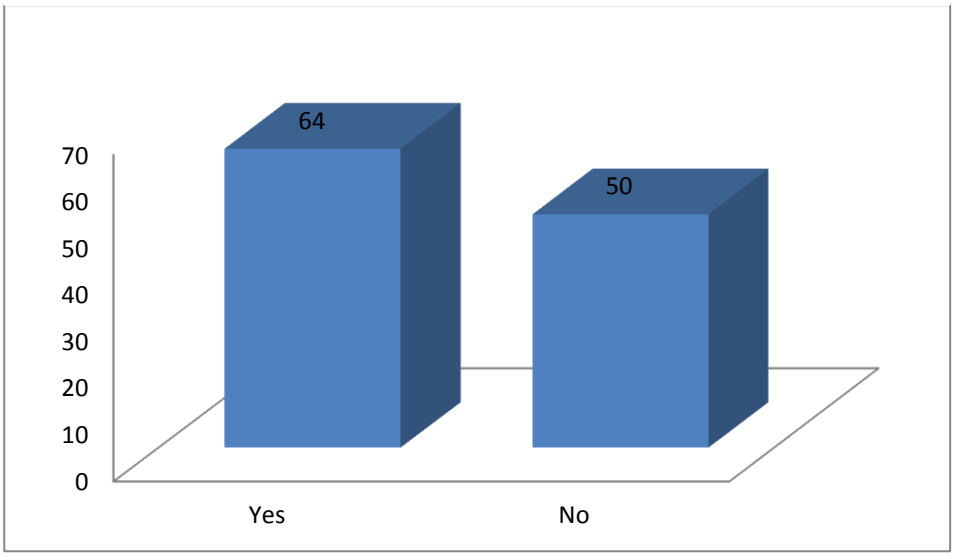


Participants were asked to tick as many options as applied. This question was answered by one hundred and twelve participants (N=112). From chart 4.3h, there were thirty three indications that painless breast mass as a symptom of breast cancer (n=33, 29.46% of 112). A bloody nipple discharge was indicated as a sign of breast cancer by thirty six respondents (n=36, 32.14% of 112), twenty eight indicated that tenderness of the breast was a symptom of breast cancer (n=28, 25% of 112). There were also thirty participants who pointed out that an ulcer in the breasts was a symptom of breast cancer (n=30, 26.78% of 112). Swelling of the breast had forty seven suggestions that it is a symptom of breast cancer (n=47, 41.96% of 112) and nipple retraction had twenty two responses of being a symptom of breast cancer (n=22, 19.64% of 112). There were fifty suggestions that lump in the armpit is a symptom of breast cancer (n=50, 44.64& of 112), whereas skin changes in the breast had thirty six indications of being as symptom of breast cancer (n=36, 32.14% of 112). However, breast pains in the breast before menses which is not a symptom of breast cancer, had seven responses as being a symptom of breast cancer (n=7, 6.25% of 112). Also, different sizes of breast since childhood which is not a symptom of breast cancer also had seven suggestions as being a sign of breast cancer (n=7, 6.25% of 112). Six participants responded that they did not have any prior knowledge about symptoms of breast cancer (n=6, 5.36% of 112).

Early stage breast cancer usually presents as a slightly tender or painless breast mass. Patients, whose diseases are advanced, may present with breast masses which are palpable, skin and nipple retraction, breast tenderness, nipple discharge that may be bloody or serous in nature There may be a change in size, texture and shape of the breast. Other clinical features are redness, ulceration, dilated veins or oedema, skin changes called “peau derange” and lymph node enlargement in the axilla (Halperin *et al* 2008:1187, Yarbro *et al*, 2011:1096; Langhorne et al, 2007: 107). The results from question 9 (refer appendix C and chart 4.3h) do not correspond with the findings from question 8 (refer appendix C and chart 4.3g) where eighty out of one hundred and one participants had knowledge on signs and symptoms of breast cancer.

4.3.9 Awareness of breast cancer screening

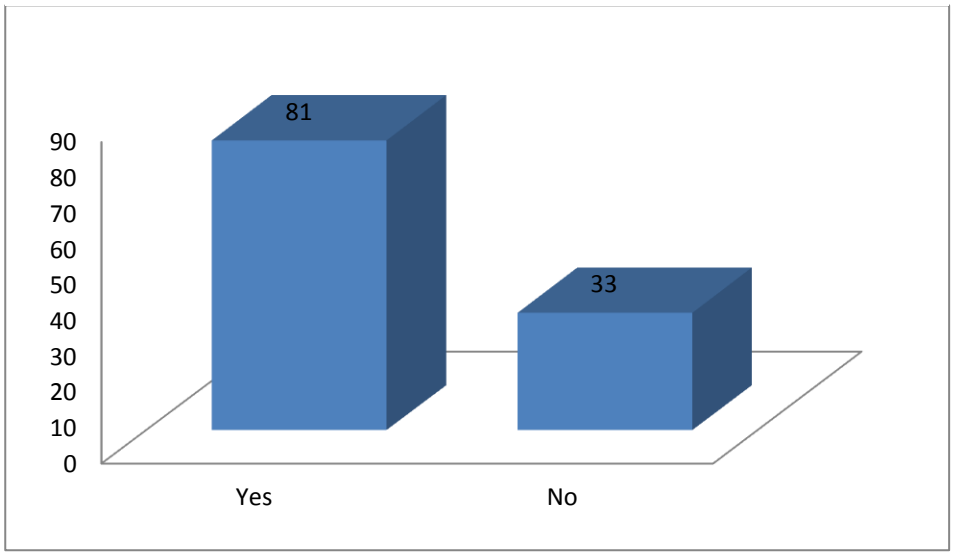
CHART 4.3-i: Aware of breast cancer screening



From the chart above (chart 4.3i), one hundred and fourteen participants responded to this question (N=114). Sixty four participants were aware of breast cancer screening (n=64, 56.14%) and the remaining fifty were not aware of breast cancer screening (n=50, 43.86%). According to Hoefek *et al.* (1997:4-9), an important role can be played by nurses in the promotion of breast cancer screening. The major role of the nurse is to teach screening guidelines and create awareness among women (Langhorne *et al.,* 2007: 104). As shown by the results above, most of the participants were aware of screening for breast cancer.

4.3.10 Heard of breast self-examination

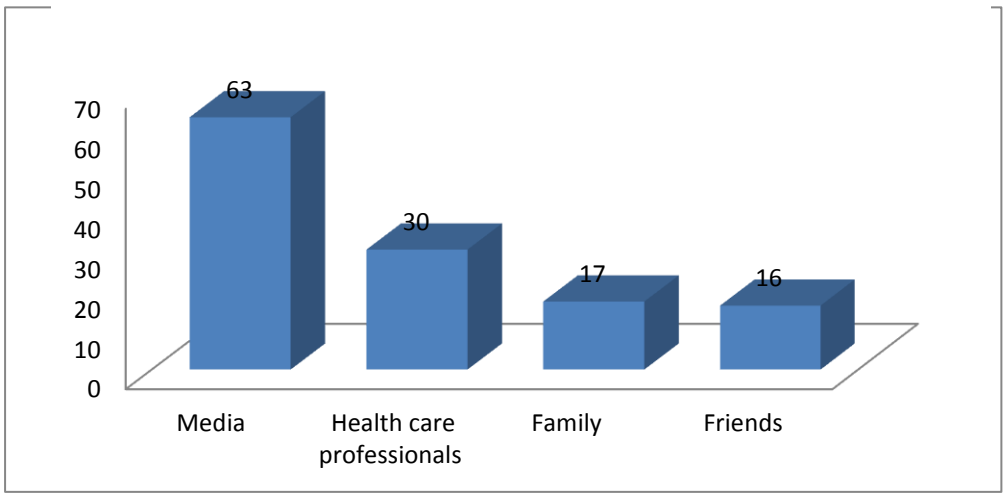
CHART 4.3-j: Heard of breast self-examination



One hundred and fourteen participants responded to this question (N=114). From chart 4.3j, eighty one participants had heard of BSE before (n=81, 71.05%) while thirty three had never heard of BSE before (n=33, 28.95%). According to Concoran (2010:70) in relation to health, the level of knowledge an individual has is important. Knowledge has an important role to play in the behaviours of health. According to the Information-Motivational-Behaviour model, knowledge in the form of information on health is required for an individual to approve health behaviour (Fishbein & Ajzen, 2011: 243). Majority of the participants had prior knowledge on BSE.

4.3.11 Source of information on breast self-examination

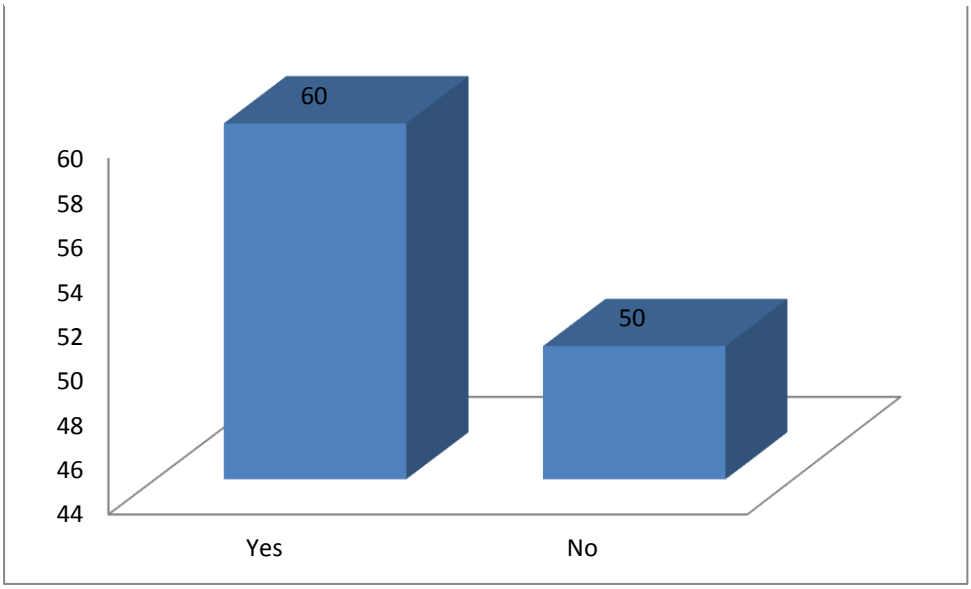
CHART 4.3-k: Source of information



Participants were asked to tick as many sources of information they have heard about BSE from. In all, eighty nine participants responded to this question (N=89). The media had sixty three indications as a source of information where participants had heard information on BSE from (n=63, 70.79% of 89), healthcare professionals had thirty indications as a source of information on BSE (n=30, 33.70 of 89). Family members had been a source of information for seventeen participants, (n = 16, 19.10% of 89) and sixteen participants had heard about BSE from friends (n=16, 17.98% of 89). David et al. (2010: 174) maintains that when a woman receives relevant and unbiased information about screening, she is able to make an informed decision on breast cancer screening. This happens when she understands and interprets the information received (Davis et al 2010: 174). As can be seen from chart 4.3k, the media has been the utmost source of information for participants, more than healthcare professionals.

4.3.12 Knowledge on how to do breast self-examination

CHART 4.3-l: Knows how to do BSE



One hundred and ten participants answered this question (N=110). As indicated in chart 4.3l, sixty participants knew how to do BSE (n=60, 54.55%) while 50 participants did not know how to do BSE. According to Petty and Krosnick (2014: 248), the maintenance of strong attitudes is highly dependent on knowledge. The processing of information acquired is facilitated by knowledge. The findings in chart 4.3l show that more than 50% of the respondents had prior knowledge on how to do breast self-examination.

4.3.13 Ways of doing breast self-examination

CHART 4.3-m: Ways of doing BSE

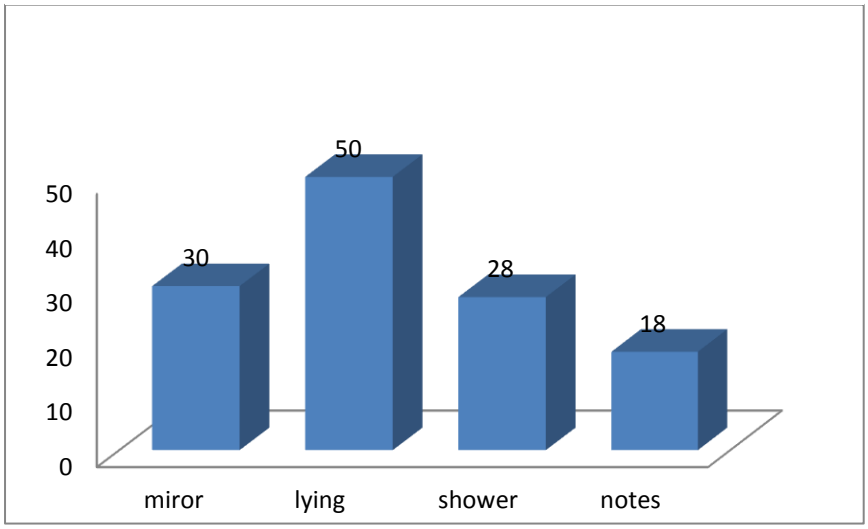
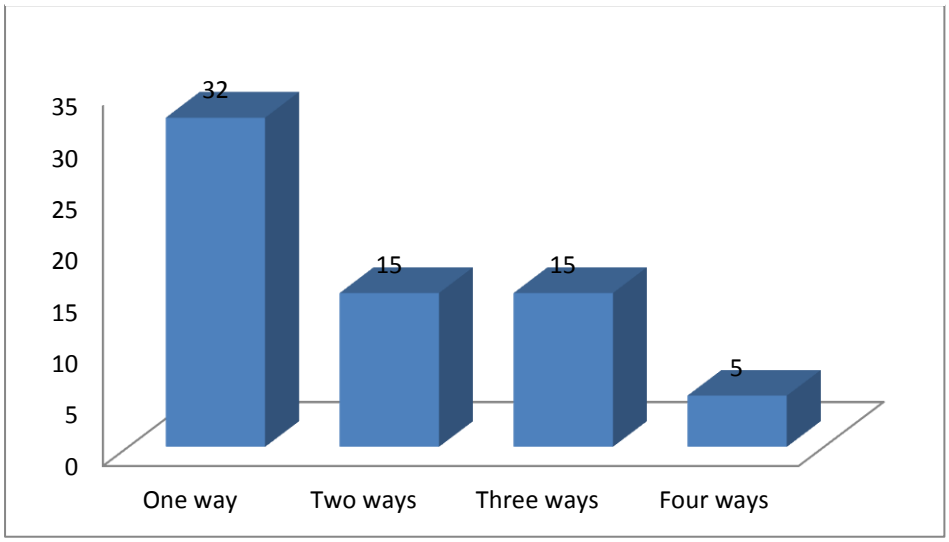


CHART 4.3-n: Number of ways responded to



Participants were asked to tick as many ways they know to do BSE. As shown in chart 4.3m, sixty seven participants responded to this question (N=67). Of the sixty seven participants (N=67) that responded to question14 (refer appendix C), thirty two knew of only one way of doing BSE (n=32, 47.6%). Fifteen knew two ways (n=15, 22.39%), also, fifteen knew about three ways (n=15, 22.39%) and only 5 knew all the four ways of doing BSE (n=5, 7.46%). This is shown in chart 4.3n.

4.3.13.1 Looking in the mirror

There were thirty responses that looking into the mirror to feel for any abnormality in the breast is a way to do BSE (n=30, 44.78% of 67). The main components of BSE are inspection and palpation. Inspection is done by standing in front of the mirror. Looking into the mirror and using the pads of the fingers to feel for abnormalities is one of the ways to do BSE (Saunders & Jassel, 2009; Gwarzo et *al.* 2009: 56; Langhorne *et al*, 2007: 105). Most of the participants were not really familiar with using this method as shown by the results from chart 4.3m.

4.3.13.2 Lying down

Feeling the breast for abnormalities while lying down had fifty responses (n=50, 74.63% of 67). The flat pads of the fingers are used to palpate the breast at different pressure levels and in a specific pattern. This is easily done when lying down in a flat or side-lying partially position. Lying down to examine the breast evenly spreads out the breast tissue along the chest wall (Saunders & Jassel, 2009; Gwarzo et *al.* 2009: 56; Langhorne *et al*, 2007: 105). This was the method that most of the participants were familiar with.

4.3.13.3 In the shower

There were 28 responses for feeling the breast for abnormalities whiles in the shower (n=28, 41.79% of 67). According to BreastCancer.Org (2015), many women are able to feel their breast tissue well when the skin is wet. The breast is palpated with the pads of the fingers. The entire breast is palpated from top to bottom and from side to side. However, this was not the case with participants, as most of them were not familiar with this way of doing BSE.

4.3.13.4 Making notes

Eighteen responses were given for making notes of abnormalities found (n=18, 26.87% of 67). After BSE has been done, any abnormality detected should be reported at the hospital for investigations to be done and possible treatment of the abnormality detected. Very few participants were conscious that any abnormality detected must be noted.

4.4 BELIEFS

Table 4.1: Statistics and frequency

	N	SA	A	N	D	SD	Mean	Standard Deviation	Rank
Breast cancer is spiritual illness	112	1 (0.9%)	1 (0.9%)	3 (2.7%)	32 (28.6%)	75 (67.0%)	4.60	.677	1
Breast cancer is only for white women.	111	1 (0.9%)	4 (3.6%)	3 (2.7%)	25 (22.5%)	78 (70.3%)	4.58	.793	2
Breast cancer is only for old women	111	1 (0.9%)	1 (0.9%)	5 (4.5%)	36 (32.4%)	68 (61.3%)	4.52	.712	3
An individual can't have breast cancer if not aware	112	4 (3.6%)	6 (5.4%)	8 (7.1%)	36 (32.1%)	58 (51.8%)	4.23	1.040	4
I have to do BSE because my immediate family think I should do it.	108	5 (4.6%)	9 (8.3%)	24 (22.2%)	55 (50.9%)	15 (13.9%)	3.61	.984	5
I am bothered by the possibility that breast self-examination might be uncomfortable to do	111	8 (7.2%)	14 (12.6%)	14 (12.6%)	58 (52.3%)	17 (15.3%)	3.56	1.118	6
The stress of screening outweighs the benefits	110	8 (7.3%)	19 (17.3%)	45 (40.9%)	21 (19.1%)	17 (15.5%)	3.18	1.119	7
Doing BSE will identify more problems in my breast	109	11 (10.1%)	35 (32.1%)	22 (20.2%)	25 (22.9%)	16 (14.7%)	3.00	1.247	8
Screening for breast cancer cannot give one a cure	111	26 (23.4%)	37 (33.3%)	17 (15.3%)	19 (17.1%)	12 (10.8%)	2.59	1.311	9
Doing BSE makes sense to me.	110	40 (36.4%)	46 (41.8%)	17 (15.5%)	4 (3.6%)	3 (2.7%)	1.95	.956	10

Code: SA= Strongly Agree A=Agree N=Neutral D=Disagree SD=Strongly Disagree

Table 4.1 shows responses of participants on questions that were asked on beliefs on breast cancer and BSE. As can be seen in the table, the participants mostly disagreed with breast cancer being a spiritual illness with seventy five participants strongly disagreeing (n=75, 67.0%) as well as thirty two disagreeing with it (n=32, 28.6%). This is in contrast with Maree and Wright's assumption that, the health seeking behaviours of South African women are influenced by witchcraft, as the majority of the participants did not attribute breast cancer to any spiritual beings.

A high number of participants disagreed with breast cancer only affecting white women, seventy eight participants strongly disagreed (n=78, 70.3%) as well as twenty five participants disagreeing with it (n=25, 22.5%). According to Krombein & De Villiers (2006:14), there is a racial variation in the ages at which women present with breast cancer in South Africa. Coloured, Indian and Black women are diagnosed at a younger age than their White counterparts. As can be seen from the table 4.1, the majority of the participants debunked the belief that breast cancer is a disease for only white women.

A higher percentage of participants disagreed that breast cancer is for only old women, with sixty eight participants strongly disagreeing (n=68, 61.3%) as well as thirty six participants disagreeing (n=36, 32.4%). Perceived susceptibility is a major component of the Health Belief Model. Perceived susceptibility is when an individual (young woman) recognizes that she can get breast cancer. Therefore it might be a sufficient reason for this young woman to do BSE as she might be concerned about her health. By disagreeing with the statement that breast cancer is for old women, participants accepted the fact that, they are also susceptible to breast cancer.

Another component of the Health Belief Model is perceived barriers. Perceived barriers are the factors that could lead to not doing BSE (Whaley, 2006: 4; Burke, 2011:1-3). With reference to table 4.1, most of the participants did not agree with the statement that BSE might be uncomfortable to do with fifty eight disagreeing (n=58, 52.3%) and seventeen strongly disagreeing (n= 17, 15.3%). Most of the participants were neutral that the stress of screening outweighs the benefits (n=45, 40.9%).The result indicates that participants did not perceive BSE as uncomfortable.

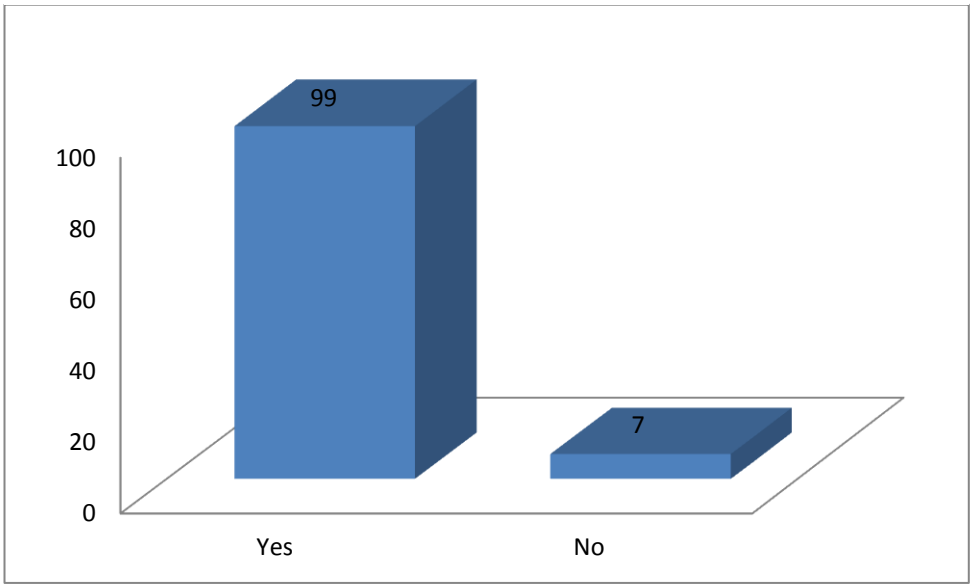
As shown in table 4.1, most participants agreed that doing BSE makes sense with forty participants strongly agreeing (n=40, 36.4%) and forty six participants agreed with it (n=46, 41.8%). Most participants also agreed with the fact that doing BSE cannot give one a cure for breast cancer. Twenty six participants strongly agreed that doing BSE cannot give a cure for breast cancer (n=26, 23.4%) and thirty seven participants agreed with it (n=37, 33.3%).

According to Whaley (2006: 4), perceived benefit deals with the individual realizing that, a specific behaviour adjustment, or performing a precise behaviour will reduce a threat that a condition poses. This means that participants had prior knowledge on the benefits of breast cancer screening. They also knew that although, BSE does not give a cure, it increases the chances of early detection and treatment of breast cancer.

4.5 ATTITUDE

4.5.1 It is good to screen for breast cancer

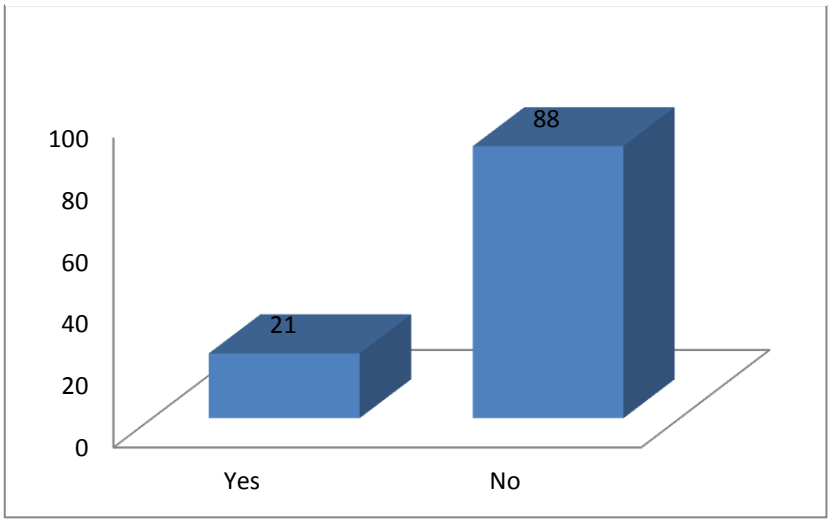
CHART 4.5-a: It is a good thing to do BSE



One hundred and six participants answered this question (N=106). Of these, ninety nine participants responded “yes” it is a good thing to examine your breast (n=99, 93.4%) while 7 responded “no” meaning, it’s not a good thing to examine your breast (n=7, 6.60 %). The most important means for breast cancer control is early detection. The stage at which the disease is diagnosed has a direct relation to survival. Early detection regimen that has been widely used to detect breast cancer is mammography, clinical breast examination and breast self-examination (Langhorne et al, 2007: 104). The results from chart 4.5a show that participants had a positive attitude toward BSE.

4.5.2 Do not have the necessary privacy to examine breast

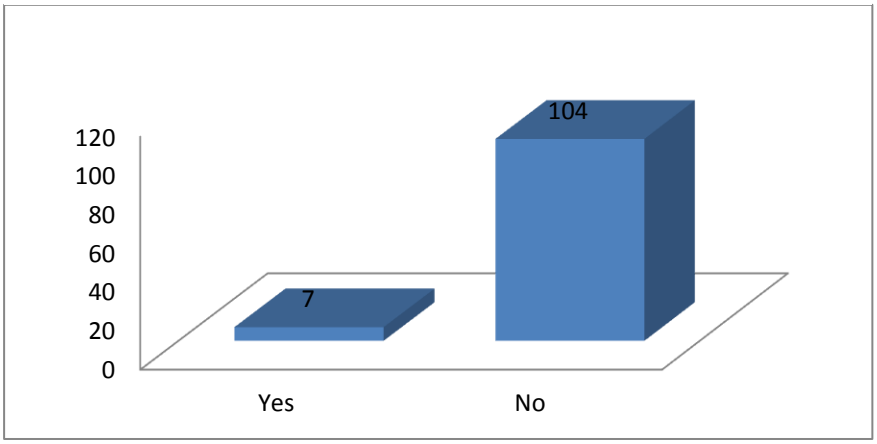
CHART 4.5-b: No privacy to examine my breast



As indicated in chart4.5b above, one hundred and nine participants responded to this question (N=109). Twenty one responded “yes”, which affirmed that they did not have privacy to examine their breast (n=21, 19.27%). However, eighty eight participants who makes the majority of respondents answered “no”, meaning they had privacy to examine their breasts (n=88, 80.73). According to Petty and Krosnick (2014: 248), the maintenance of strong attitudes is highly dependent on knowledge. Knowledge also facilitates the processing of information acquired. Majority of the participants had a good attitude towards BSE.

4.5.3 Time it takes to examine the breast

CHART 4.5-c: Takes too much time to examine my breast

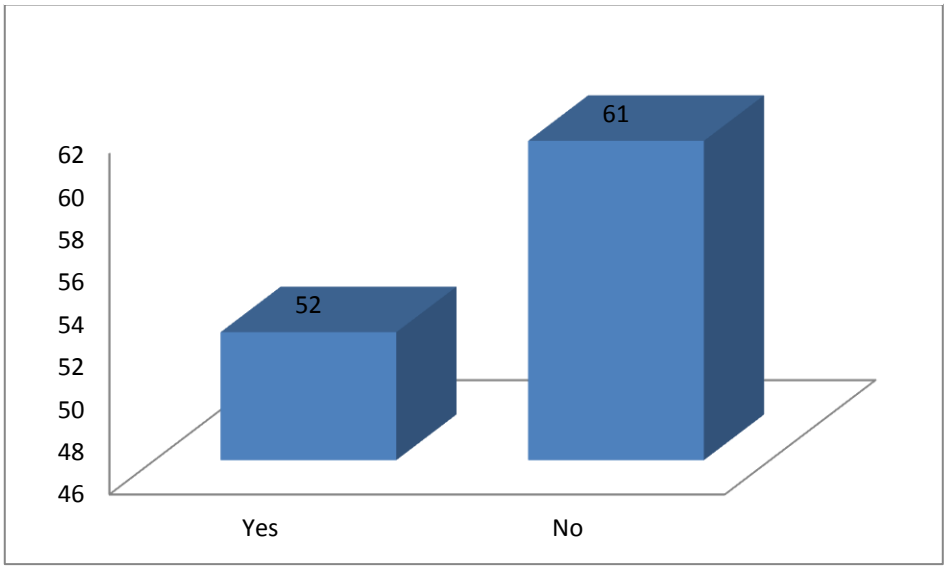


One hundred and eleven participants answered this question (N=111). Of these, seven participants responded “yes”, which means it takes too much time for them to examine their breast (n=7, 6.31%). Nonetheless, one hundred and four participants responded “no”, meaning, it does not take too much time for them to examine their breasts (n=104, 93.69%). The attitude of an individual is influenced by the knowledge and beliefs that she has. The need to express one’s values, be protected and to fit into the society, all affects an individual’s attitude. According to Dorwick (2001:140), thoughts, feelings and behaviours are involved in attitudes. If participants think that it does not take too much time to examine their breast, then they have a positive attitude towards BSE as can be seen from chart 4.5c.

4.6 PRACTICE

4.6.1 Practice of breast self-examination

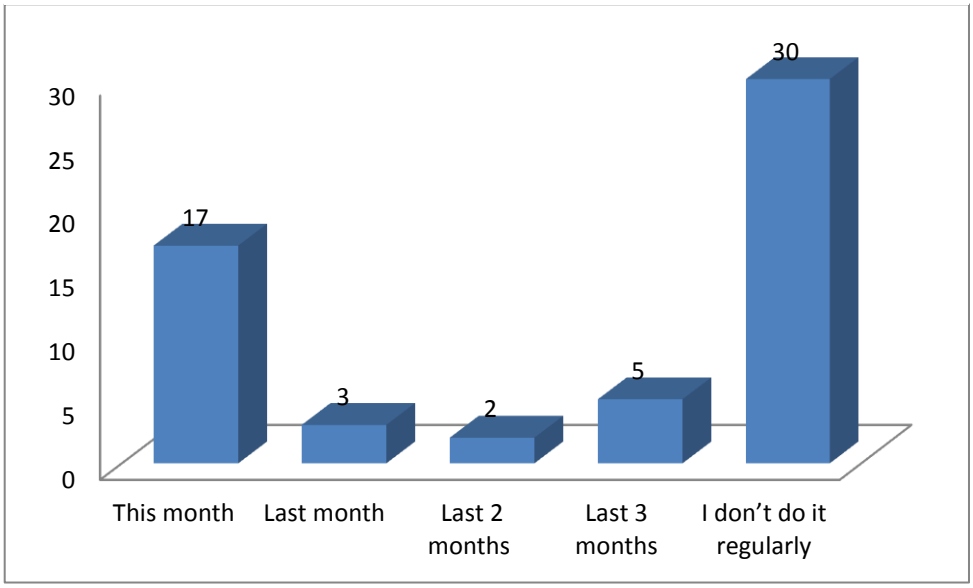
CHART 4.6-a: Have you ever examined your breast before?



One hundred and thirteen participants responded to this question (N=113). From chart 4.6a, fifty two participants had examined their breast before (n=52, 46.02%). However, sixty one participants had never examined their breast before (n=61, 53.98%). A study conducted in Nigeria revealed that, women who practiced BSE monthly, were those who had received information on BSE from health professionals (Gwarzo *et al*, 2009: 57). The finding in chart 4.6a is consistent with the findings in chart 4.3e where the majority of the participants have never received any information form their health care giver.

4.6.2 The last time BSE was performed

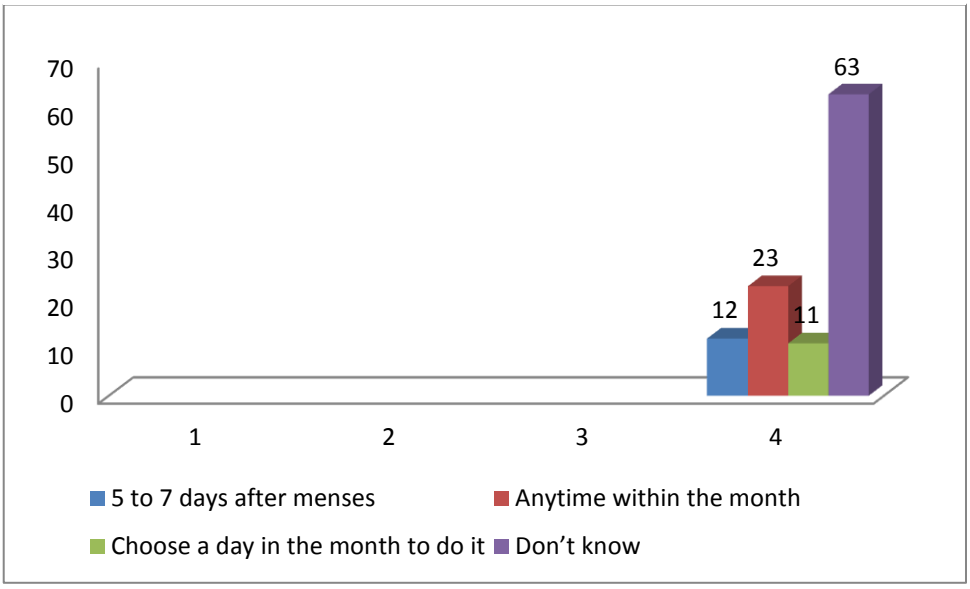
CHART 4.6-b: When was the last time you examined your breast?



Fifty seven participants answered this question, which followed up on the question in section 4.6.1 to participants who answered "yes" (N=57). Seventeen participants had examined their breasts in the month of data collection (n=17, 29.83%), three participants indicated the last time they examined their breasts was the month before data collection (n=3, 5.26%), two participants had examine their breasts two months before data collection (n=2, 3.51%), five participants had examined their breasts three months before data collection (n=5, 8.77%). Finally, thirty participants indicated that they do not examine their breasts regularly (n=30, 52.63%). Breast self-examination is the recommended option for breast cancer screening in women who are below 30 years of age (American Cancer Society, 2014; IARC, 2002). The Cancer Association of South Africa recommends that women do BSE once every month. As shown in chart 4.6b, most of the participants who do BSE do not do it regularly.

4.6.3 The best time to do BSE

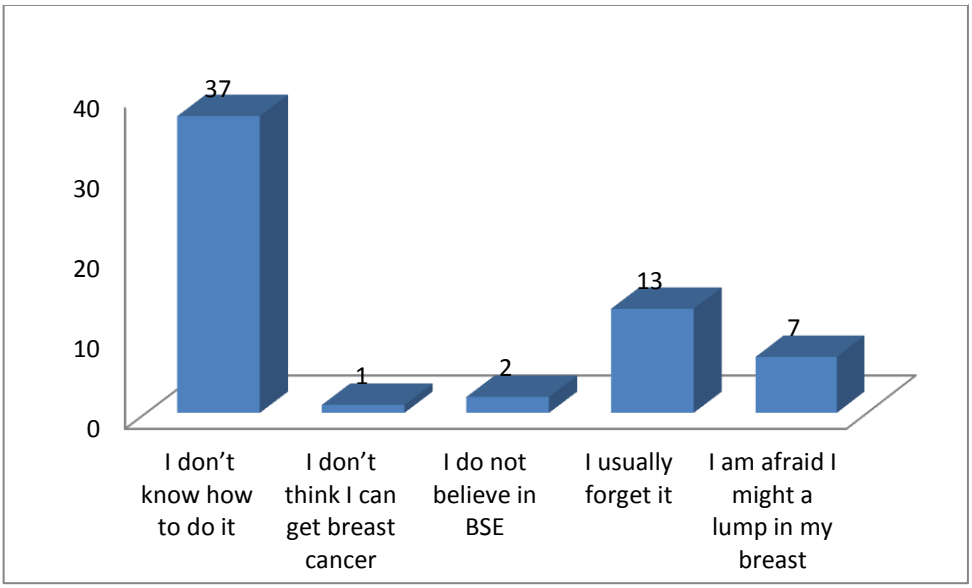
CHART 4.6-c: When is the best time to do BSE?



One hundred and nine participants answered this question (N=109). As can be seen from chart 4.6a, twelve participants indicated that, it is best to do BSE 5 to 7 days after menstruation (n=12, 11.01%), twenty three indicated that, it is best to do BSE anytime within the month (n=23, 21.10%) and eleven indicated that it is best to choose a day in the month to do BSE (n=11, 10.09%). Sixty three participants however, did not have knowledge on the best time to do BSE (n=63, 57.80%). According to Langhorne et al. (2007:15), the best time to examine the breast is 5 to 7 days after menstruation. This is because, that is the time when the breast is less tender. As shown above, majority of the participants did not know the right time to do BSE.

4.6.4 Reason why BSE is not done

CHART 4.6-d: Why don't you examine your breast?



Sixty participants answered this question, which followed up on the question in section 4.6.1 to participants who answered "no" (n=60). Thirty seven participants indicated that the reason why they did not examine their breast was because they did not know how to do it (n=37, 61.67%). Only one person indicated that she did not examine her breast because she did not think she could get breast cancer (n=1, 1.67%). Two participants did not believe in BSE, that was why they did not examine their breast (n=2, 3.33%). Thirteen participants did not do BSE because, they usually forgot it (n=13, 21.67%) and seven participants did not examine their breast because they were afraid they might find a lump in their breast (n=7, 11.66%). This can be seen in chart 4.6d. With reference to the Health Belief Model, perceived barriers are the factors that could lead to not doing BSE, because of fear of detecting a lump, not feeling vulnerable, inadequate knowledge and training on how to do BSE (Burke, 2011:1-3). The reason why the majority of the participants did not examine their breast is that, they did not know how to do BSE.

4.7 RESPONSES FROM THE INTERVIEWS

The interviews conducted in this study were face to face. A semi-structured interview schedule (refer to appendix D) was used in this study. Twelve participants (N=12) agreed to be interviewed. The researcher made appointments with the participants and interviewed them at the time they were available. A briefing sheet (refer appendix B) was given to participants to brief them about the nature of the research and what the interview was about. Written consent was taken from the participants in order to record the interview with a digital audio recorder. This was done before each interview. During the interview, any misunderstood questions were clarified by the researcher. There was a moderator present at all the interviews. To ensure privacy and anonymity, participants were given codes in the order in which they were interviewed; the first to be interviewed was P1, second P2 in that order till P12.

4.8 Analysis of data from the interviews

The data from interviews were analysed by the researcher. The data was analysed through the following steps.

4.8.1 Listening to the audio recordings

The researcher asked permission to record all interviews with an audio recorder. The researcher listened and then re-listened to all audio recordings. This was to ensure accurate interpretation of data during analysis.

4.8.2 Transcribing

All interviews were transcribed verbatim by the researcher. The transcriptions which were done by the researcher enabled her to accurately access participants' level of understanding of BSE and breast cancer and also to be more familiar with the data (LoBiondo-Wood & Haber, 2014: 282). The researcher then listened to the audio responses again and compared them to the typed document. The transcribed data was given back to respondents to verify that it was indeed the information they gave.

4.8.3 Colour coding

Colour coding was done by the researcher together with the supervisor. Responses under different questions were marked with different colours. Same colour codes were used for responses which brought out the same themes.

4.8.4 Themes and sub-themes

Relevant responses from each transcript were grouped under appropriate themes and sub-themes. The basis of the results was formed by themes that emerged and the extracts associated with them. These have been described and exemplified with extracts of participant's responses in the sections that follow. The identified themes and sub-themes are directly related to the objections, conceptual and theoretical framework of this study as well as the literature review.

4.9 Themes

All interviews were transcribed. The themes and sub-themes identified from the interview data are as follows:

1. Knowledge
    - Knowledge on breast cancer.
    - Knowledge on breast cancer screening.
    - Knowledge on BSE.
2. Beliefs
    - Traditional beliefs
    - Religious beliefs
    - Personal health beliefs
3. Attitude
    - Attitude towards breast cancer screening resulting from benefit assessment.
    - Attitude towards breast self-examination resulting from benefit assessment.
4. Practise of BSE
    - Reason for not doing BSE.

4.9.1 Knowledge

The level of knowledge participants had on breast cancer; breast cancer screening and BSE emerged as a theme from interview data. The participants' level of knowledge emerged under the following subthemes.

4.9.1.1 Knowledge on breast cancer

A belief or approval condition must be satisfied in order to gain knowledge. This is according to the traditional conception of knowledge (Bonjour, 2010:23). All the participants had knowledge of breast cancer being an existing disease and mostly affect women.

Hmm, breast cancer (inhales) well, it's a disease I'd say, that doesn't mainly affect women, I think according to my understanding, can affect both men and women, but I think it's more common in women. Yes it's just like any other form of cancer I'd say; only that it happens in the breast (P1/Int. 1).

Ehh its cancer that is located in the breast basically, in your mammary gland, I don't know what else to say (P12/ Int. 12).

This is consistent with the responses from the questionnaire where majority of the participants had heard of breast cancer (refer 4.3.1).

Almost all the participants (ten) did not have any prior knowledge on the risk factors of breast cancer. Only two participants had prior knowledge on the risk factors of breast cancer.

I don't know, I just see people with breast cancer, the causes and everything I don't know (P4/Int. 4).

Huh (sighs), let's just say I'm really clueless, I've never done research on it. I don't know, will be lying to you if I say I do (P6/ Int. 6).

However, five participants knew about myths that were supposedly known to be risk factors of breast cancer.

Umm, what comes to mind, causes of breast cancer, umm I think deodorant, antiperspirants. I don't know if the clothing you wear, such as bras, to my understanding something that's repeatedly hurting, umm, I think that's the only ones I know that can cause breast cancer (P10/Int. 10).

I don't know if it's a real cause or it's a myth, like what people say, incorrect bra I think, maybe if it's too tight or moisture, just not taking care of your breast (P7/Int.7).

There are myths in the media and internet about some factors that are thought to be causes of breast cancer. These factors include the use of antiperspirants, underwear bras and wearing bras to sleep in the night. There is no scientific evidence to support these arguments and myths. All perspiration in the armpit cannot be blocked by even the most powerful antiperspirants. The kidneys and liver are responsible for removing toxins from the body, sweating is not the body's significant way of releasing toxins. Also bras do not cause breast cancer. The only scientific study that examined the link between wearing a bra and breast cancer risk did not find any significant difference in the risk between women who wore bras and those who did not (BreastCancer.Org, 2015, Cancer Research UK, 2014).

Majority of the participants did not know the risk factors of breast cancer, as compared to the responses from the questionnaire, most of the participants only had knowledge of family history being a risk factor and did not know other risk factors (refer 4.3.4).

Almost all the participants (eleven) knew that an abnormal lump is a symptom of breast cancer.

Umm, the lump in your breast that's all I know (P11, Int.11).

Most of them (seven participants) did not have any prior knowledge on other signs and symptoms of breast cancer. Four had prior knowledge of pains in the breast being a symptom of breast cancer as did only one having knowledge about other symptoms.

Just the pain and the lump in the breast, besides that, nothing (P9/Int. 9).

I think the colour of your breast and areolar changes, pains in the nipples, umm maybe discharge, the lumps, I have no idea how you determine what the lump are or whether it's a fat gland, because, I feel my breast very lumpy but it's the normal. So I don't know how they figure out what is the normal. I think if the lump is not only in your breast but, in the

surrounding areas, sometimes in your armpit. Hmm, I think that's the things that I know of (P10/Int.10).

This is consistent with the findings from the questionnaire where most of the participants did not have prior knowledge on other symptoms of breast cancer other than swelling of the breast and lumps in the breast and armpit (refer 4.3.8).

4.9.1.2 Knowledge on breast cancer screening

Almost all the participants (eleven) did not have any prior knowledge on breast cancer screening.

Hmm, I actually have no knowledge of it. Wow, I don't have any knowledge on it; yeah I can't even say what it is actually. What is breast cancer screening? Can you explain it to me? (Giggles) (P2/Int.2)

Umm, I've never heard of it. I don't know anything about it (P5/Int.5)

Only one participant had prior knowledge on breast cancer screening and she was not even sure what screening really entailed.

I've heard about it, I think that's when ladies would go for mammograms, is it? (sighs), I've heard about it but I don't think I know too much about it, I just know women would go and request for that kind of examination and it's done but exactly what it entails of, I'm not so sure (P1/Int.1).

The immediate aim of breast cancer screening is to detect cancers before they become evident clinically (IARC, 2002:4, 8). The American Cancer Society and the International Agency for Research on Cancer (IARC) have the following recommendations for breast cancer screening. They recommend that women who are 40 years and above, should have a mammogram every year. This must continue as long as the health of the woman is good. Also for women who are between age 20 and 30, should have a clinical breast examination every 3 years and women at 40 and above every year. Breast self-examination is the recommended option for breast cancer screening in women who are below 30 years of age (American Cancer Society, 2014; IARC, 2002).

The result does not correspond with that of the questionnaire where majority of the participants were aware of breast cancer screening (refer 4.3.9).

4.9.1.3 Knowledge on breast self-examination

Half of the participants (six) had prior knowledge on BSE; they had heard about it but did not know the correct way to examine their breast.

I just know like, you use your hand to examine your own breast and see if you don't have any lumps in, maybe there's a lump or not, from that you'll know okay I have a problem so I should get myself checked. I just touch like the whole breast, I'm not sure how, but I should be of knowledge if something is wrong though (P8/Int.8).

Umm it's actually when you're feeling your breast if there's a lump or something. Just examining if there's a lump in it. Like I just feel my breast if there's any lump or something, just around it (P11/Int.11).

Only two participants had prior knowledge on how to correctly do BSE.

Basically I stand in front of the mirror with my hands down, then I have a look at my breast to check to see which one is bigger, how much bigger, how does it feel and then I lift my arms up and umm (pause) well I check the way it feels, so that the next time I check I know what it looks like and its colour and so forth. I would lift my one arm up and then with the other arm you feel for any bumps other than the usual lumpy feeling, and you feel if it hurts anywhere and what kind of pain and if its associated with any hormonal changes, for example, which part of cycle I'm in, umm and then I do the same on the opposite side and (pause) that's about it (P10/In.t 10)

Four of the participants did not have any prior knowledge on BSE.

No, I haven't heard of it before, I won't lie. No I don't know what it is. I don't know (P3/Int.3).

This is consistent with the findings from the questionnaire where majority of the participants had heard of breast self-examination but, very few knew the correct ways of doing BSE (refer 4.3.10 and 4.3.13).

4.9.2 Beliefs

The participants' beliefs about breast cancer emerged as a theme from the interview data. From the conceptual framework of this study, an individual's traditional, religious and health beliefs can have an impact on their health. The beliefs of an individual affect their attitude

towards breast self-examination. The beliefs of participants emerged under the following subthemes.

4.9.2.1 Traditional beliefs

Most of the participants' (nine) traditional beliefs did not acknowledge breast cancer and also did not have any superstition about it.

Umm, I don't even think it's something that's noted. It's not noted much. Like if someone has a lump, it will just probably be like, oh I have a lump, it will get well. There's no knowledge about it (P8/Int.8)

In my tradition, there's no belief that I know of with regards to breast cancer (P12/Int.12).

However, three of the participants' tradition attributed breast cancer to spiritual happenings and some of their traditions saw breast cancer as a curse or punishments

Yeah to an extent, I think for people it does involve maybe, if you hold bitterness or some form of hatred or generational curses in your family or bloodline curses (P5/Int. 5).

I come from a family that believes in ancestors, so if I come and say I have breast cancer, they will probably go to the ancestors, you know, maybe slaughter a cow, such things are regarded as a curse, they will say maybe the ancestors are angry with you that's why you have this disease. So it's something like that, the type of background I come from. They will say the ancestors are angry with you so therefore let's make a sacrifice for them and plead. That's how I think they will handle it (P6/Int. 6).

Traditional beliefs influence individuals' health beliefs (Doyle, Ward & Oomen-Early, 2010: 99). Throughout Africa, people rely on herbalist, also known as traditional medical practitioners, to get primary health care. According to Soai (2012), there are over 200,000 traditional healers in South Africa as compared to 25,000 biomedical doctors.

These findings are consistent with the findings from the questionnaire where majority of the participants did not attribute breast cancer to any spiritual beings or happenings (refer 4.4).

4.9.2.2 Religious beliefs

Almost all participants' were Christians with only one being a Muslim. There is a religious dominance of Christianity in South Africa (Van Wyk, 2009: 28). All the participants' religious beliefs had a positive stance on screening for breast cancer.

Yeah, to check, like I would check, I am a Christian and I would go for breast cancer screening. Yeah because it will make me aware. You know there's faith but there's also, how can I say the word I'm looking for? There is applying knowledge yes, yeah (P2/Int.2).

Like in my religion there's no problem with it. We have no problem with that, like people are allowed to do that actually yeah. People are allowed to go for screening (P3/Int.3)

Umm, my religion has no objection; I am Muslim by the way. Islam has no objection to any kind of physical examination for your health, for comfortability and personal preference, you might want to be examined by, if you are a female by females or if you are a male by males but there's no ruling against having a doctor examine you (P10/Int.10).

4.9.2.3 Personal health beliefs

Berry (2004: 54), maintains that the health beliefs that an individual holds, influences how he or she perceives health. These health beliefs also influence the behaviour of the individual. Health behaviours can be negative or positive. According to Health Belief Model, an individual's perceived susceptibility will influence her health seeking practices (Burke, 2011:1-3). Most of the participants (nine) in this study believed that they are susceptible to breast cancer and therefore can develop breast cancer at one point in their lives. Two of these participants had a higher sense of susceptibility because they had a family history and genetic predisposition of cancer.

Umm, I don't know the causes but, seeing that it's a genetic thing, I might, because, my great grandmother died of breast cancer. Her breast actually had to be removed and my mother died of cervical cancer. So I'm praying it doesn't happen but, there's a possibility (P6/Int.6).

I think I could get breast cancer, yes, umm (pause) because cancer is umm, we have a strong cancer gene in my family, umm occasionally I smoke, umm I think those are the only indications. Hopefully, I don't get it, but yes there is a possibility (P10/Int.10).

Two of the participants however did not perceive that they are susceptible to breast cancer and one participant was unsure. The reasons they gave for not feeling susceptible are healthy lifestyle and religious.

By the grace no, but it can happen but no. I just say I'm trusting God that it never happens, so, I'm really trusting God (P8/Int.8).

Oh gosh, me personally, I don't think so! I don't think, it's just the belief that I have that, like actually, this a really deep question, umm but, I don't think so, since I haven't had symptoms of like any cancer. I always do Pap smear but I haven't checked breast cancer but yeah I don't think I can get it (P3/Int.3).

I wouldn't know, huh, I wouldn't know. As far as I know it's not in the family, umm and I personally think I live a healthy life style so, I don't think a person can truly say do they think they might get it or something like that. Sometimes it's something that's just unforeseen so personally I don't know, Yeah (P1/int.1).

It can be deduced form the HBM that, the greater an individual's perceive susceptibility to breast cancer, the higher the probability of the individual's prospect of doing BSE. However, if the individual does not perceive that she is susceptible, the probability that she will not do BSE is high (Burke, 2011:1-3; Whaley, 2006: 4; Turner, Hunt, DiBrezzo & Jones, 2004:115-121).

This result relates with the findings from the questionnaire where majority of the participants accepted the fact that they were susceptible to breast cancer (refer 4.4).

4.9.3 Attitude

An attitude has an influence on individual behavioural patterns, this can be deliberate or automatic (Hogg & Tindale, 2008: 263). The attitudes of participants emerged under the following subthemes.

4.9.3.1 Attitude towards breast cancer screening

The attitude of an individual is influenced by the knowledge and beliefs that she has (Cobley & Schultz, 2011:277; Dowrick, 2001: 140). All the participants had a positive attitude towards

breast cancer screening. This is because; participants had prior knowledge on the benefits of screening and believed that it is very important for early detection.

Yes, so that you can prevent cancer from getting worse. So that, if you can detect it early, then you can be helped (P7/Int.7).

I do think it's important, even though I haven't gotten to do it. It's important to prevent yourself, even when they find it in the early stage to treat it, than to find it later stage where you are unable to treat it (P9/Int.9).

4.9.3.2 Attitude towards breast self-examination

All the participants had a positive attitude toward BSE. This is because, the perceived benefits they had about doing BSE were greater than the risk of doing BSE (Burke, 2011:1-3).

It will help me to diagnose or find eh, if I have breast cancer early so that I can be treated for it before it gets severe (P5/Int.5).

Yeah, I would know, like in advance before anything happens, before my boobs have to be cut or anything like that. So I will be able to prevent it, like from getting worse (P7/Int.7).
Then I'd pick it up much earlier and then like steps can be taken before the cancer is too bad or I don't know how you call it (P12/Int.12).

By evaluating how susceptible they are to breast cancer, women can have a favourable attitude towards BSE. If a woman feels she is not susceptible to the disease (breast cancer), she might have an unfavourable attitude toward it (Cobley & Schultz, 2011:277; Dowrick, 2001: 140). Most of the participants in this study believed that they were susceptible to breast cancer, and that they will benefit from BSE, thus, having a positive attitude towards BSE (refer 4.9.2 and 4.5.1)

4.9.4 Practice of breast self-examination

Five of the participants did not do BSE regularly. The last time they examined their breast ranged from a year to two years.

I have but, I don't know if I've done it correctly. Umm, ah it's been quite some time like a year (P2/Int. 2).

Yes I have. Yo! It was a long time ago. I think 2 years ago (P5/Int.5).

Only one participant had examined her breast from the previous month before data collection, and that was because her cousin died of breast cancer that month serving as a reminder for her to regularly check her breast. Two participants had examined their breast three months before data collection.

Yes, I have done that before. I think last month. Just after my cousin who was 18 years passed away from breast cancer, so I've been doing it very often (P11/Int.11).

Four participants had never examined their breast before.

No! I've never (P4/Int.4).

I haven't (P3/Int.3).

Most of the participants in this study had never examined their breasts before. Most of the participants also, did not regularly examine their breasts (refer 4.6.1 and 4.6.2).

4.9.4.1 Reason for not doing breast self-examination

Participants who did not regularly do BSE or have never done BSE gave the following reasons for not doing BSE.

4.9.4.1.1 Lack of knowledge

Three participants did not do BSE because they did not know how to do it and also what they must look for when they examine their breast.

I don't know how to do it (giggles). It's important, but when you've been taught how. If you do not know how, just like me, I don't know, I don't think it would actually be beneficial for me to do right now because I don't even know what I'm looking for, but when I've been taught, I will be able to do it (P9/Int.9).

This is consistent with the findings in the questionnaire where the majority of the participants did not do BSE because, they did not know how to do it (Refer 4.6.4).

4.9.4.1.2 Lack of reminders and forgetfulness

Lack of reminders emerged as the reason why one participant did not examine her breast. One participant gave forgetfulness as a reason for not doing BSE.

I think also because, I'm not in a place that has been reminding me about it, or made me aware about it. Like if I'm to see a poster or something, then I will be like, oh my goodness, you know? I need to check this out. Yeah understand? Like it's not something that I hear of often, so it's not something that I entertain often, yeah (P2/Int.2).

I think I forget. It's not something that I keep in my mind. I know it's important, but it's not a topic that is always on my mind. It's not something that I regularly say oh let me just, I forget (P7/Int.7).

4.9.4.1.3 Fear

One participant gave the reason for not doing BSE as fear.

Honestly I don't know, I know it's something that must be done, but sometimes I guess it's also that fear to say, I might feel something and I'm not too sure what it might be, then when you just think about it, then I'd have to go to the hospital, maybe they do a biopsy or something. You it's just that thing of not knowing exactly what to feel for, you might feel something that wasn't really there and start to worry about it. Personally, I believe sometimes it's just better to go on with life up until you actually do get some tragic event, that's it yeah (P1/int.1).

This is consistent with the findings from section 4.6.4 where some participants did not examine their breasts because, they were afraid they might find a lump. In another study where the opinions and insights about breast cancer and breast health of Jordanian women were explored by Taha *et al.* (2012: 1-11), a feeling of fear of contracting breast cancer emerged as theme in the research. The feeling of fear was from the women perceiving breast cancer as a disease which cannot be cured.

4.9.4.1.4 Unsure

Two participants were not sure why they did not do BSE. They did not know why they were not doing BSE.

Hmm, I don't know why but I've never done it (P4/Int. 4)

My breast has really not, like I've never felt like some pain on it or anything. But I don't know why I haven't done it, yeah (P8/Int.8).

4.9.4.1.5 Never thought of doing BSE

Two participants had never thought of doing BSE.

I never taught of it, like I've never done it (P6/Int.6).
It hasn't occurred to me. You know when like you don't feel sick in your body, you don't take the necessary precautions to be like okay, maybe, I need to do examination now, there might be something wrong, or maybe I might find something, yeah. So, that's the thing (P6/Int.6).

4.10 Summary

The key findings and results of the study have fully been discussed in this chapter. The researcher related the results from the study with the literature review, theoretical and conceptual frameworks of the study. The results from questionnaires were presented in charts. The results from interviews were presented descriptively under themes and subthemes.

Conclusions, limitations and recommendations have been presented in chapter 5.

CHAPTER 5
CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

5.1 Introduction

This study aimed to explore the knowledge, beliefs, attitudes and practices of breast self-examination among female university students. The following were the objectives of the study:

- To describe the levels of knowledge of female university students on breast cancer and breast self-examination.
- To ascertain the beliefs of female university students on breast cancer and breast self-examination
- To examine attitudes of female university students, toward breast cancer and breast self-examination.
- To determine if female university students regularly perform breast self-examination.

The first chapter gave an overview of the research study. A comprehensive literature review relevant to the study was discussed in the second chapter. The third chapter discussed the research methodology and design. Analysis and discussion of the study were presented in chapter four.

In this chapter, the study will be concluded, recommendations given and limitations of the study presented.

5.2 Objective one of the study

The first objective of this study was “to describe the levels of knowledge of female university students on breast self-examination”. With regards to the first objective, the following conclusions have been made from the analysis and discussion:

- ❖ Majority of the participants had knowledge of breast cancer being an existing disease.
- ❖ Most of the participants did not know anyone who has had breast cancer before.
- ❖ Most participants were not aware of male breast cancer, an indication that they assume that breast cancer mostly affects women.

- ❖ Participants lacked knowledge on breast cancer risk factors, as majority of them only knew about family history being a risk factor. Most of the participants did not have knowledge on other risk factors of breast cancer.
- ❖ Majority of the participants had never been educated by their healthcare provider on breast cancer and breast cancer screening.
- ❖ The media had been the utmost source of information for participants, more than healthcare professionals.
- ❖ Most of the participants admitted having prior knowledge on the signs and symptoms of breast cancer. However, they did not have knowledge on any other symptoms of breast cancer, apart from a painless breast lump.
- ❖ Most of the participants were aware of screening for breast cancer and had heard of BSE.
- ❖ Most of the participants acknowledged having prior knowledge on how to do BSE but, did not know the correct ways of doing it.

5.2.1 Recommendations

The following recommendations have been made based on the above conclusions:

- ➢ Education on breast cancer and cancer as a whole should be initiated in high schools and higher institutions of learning as part of their curriculum.
- ➢ Posters on breast cancer screening and BSE should be put up at public places and campuses.
- ➢ Information sheets and leaflets on breast cancer should be made available at the library, in the post card stands in the residences of higher institutions and health centres and clinics where women can easily have access to them.
- ➢ Health education and promotion must be done by oncology specialist in schools, communities and places of public gatherings.
- ➢ Primary health care providers should provide education on breast cancer and BSE in their clinics.

The outcomes confirm that knowledge about breast cancer affects the attitude toward BSE as can be seen from the conceptual model of this study (refer figure 1.1).

5.3 Objective two of the study

The second objective of the study was “to ascertain the beliefs of female university students on breast cancer and breast self-examination”. With regards to the second objective, the following deductions have been made from the analysis and discussion:

- The participants mostly disagreed with breast cancer being a spiritual illness.
- A few participants attributed breast cancer to spiritual happenings and curses
- A high number of participants disagreed with breast cancer only affecting white women.
- A higher percentage of participants disagreed that breast cancer was for only old women.
- Most participants agreed that doing BSE made sense
- Most participants also agreed with the fact that doing BSE could not give one a cure for breast cancer.
- Most of the participants believed that they were susceptible to breast cancer.

5.3.1 Recommendation

- Health care professionals should do more awareness in rural areas and schools on breast cancer

The outcomes confirm that the traditional, religious and health beliefs of participants have a direct relationship with whether they will do BSE or not. This is can be seen from the conceptual model of this study (refer figure 1.1).

5.4 Objective three of the study

The third objective of this study was “to examine attitudes of female university students toward breast cancer and breast self-examination”. With regards to this objective, the following inferences have been made:

- Majority of the participants agreed that it was a good thing to do BSE.
- Majority of the participants thought that it did not take too much time to examine their breasts, which meant they had a positive attitude towards BSE
- Majority of the participants had privacy to examine their breasts hence, they had a good attitude towards BSE.
- Most of the participants thought it was very important that they do BSE.

The outcomes confirm that, if an individual has a positive attitude toward BSE, she would want to find out more about it, this can be seen from the conceptual model of this study (refer figure 1.1).

5.5 Objective four of the study

The fourth objective of this study was “to determine if female university students regularly perform breast self-examination”. With regards to this objective the following assumptions have been made:

- Most of the participants had never examined their breast before.
- The participants who had done BSE before did not do it regularly.
- Majority of the participants did not have knowledge on the best time to do BSE.
- Most of the participants who did not examine their breast did not have any knowledge on how to do BSE.
- Some participants did not do BSE because, they were afraid they might find a lump
- Some participants did not do BSE because, they forgot.

5.5.1 Recommendations

- Posters showing how to do BSE should be put up in public places and campuses
- Breast awareness campaigns must be done every month, not only in October which is the breast cancer awareness month.
- Health care professionals should give information on breast cancer to women when they visit the hospital or health centre.

The outcomes above confirm that the knowledge that an individual have, has an influence on whether she will do BSE or not. Also the beliefs and attitudes of an individual directly influence her BSE practices. This can be seen from the conceptual model of the study (refer figure 1.1)

5.6 Benefits of the Study

The benefits of the study were explained to all participants before they were included in the study. The possible benefits were balanced carefully with any disadvantages that were likely to occur (Gerrish & Lacey, 2010: 32). The participants benefited from the study by gaining

knowledge and awareness on breast cancer and BSE. They were also encouraged to regularly examine their breast for any signs of abnormalities.

5.7 Limitations of the study

During data collection, most of the students that accepted to participate did not return the questionnaires that were given to them. Follow up from the researcher proved futile as only one hundred and fifteen returned the answered questionnaires. This study was limited to one university and one campus within the university. The study was limited to only female university students who were residing on the selected campus of the university where the study took place. Also, the research findings could not be generalised, since the study was conducted in only one out of the four universities in Western Cape.

5.8 Recommendations to Policy makers

- Introduction of cancer education in the curriculum of the education system.
- Training of community health nurses on tailored health education to specific target groups.
- Training of volunteers as health promoters for breast cancer screening and BSE.
- Hospitals and health centres should give information to women on breast cancer screening.
- The mobile clinics should not only be giving counselling and testing for HIV but should also include clinical breast examination and giving information on breast cancer.
- Posters and information leaflets on breast cancer screening and BSE should be available at all public places and campuses
- Policies on women's health should be reinforced by policy makers.

5.9 Areas for further research

The following areas have been identified by the researcher for further research.

- Breast cancer awareness in rural areas.
- Breast cancer screening practises of women above 40 years of age.
- Health promotion and education on breast cancer by oncology specialist.
- Breast cancer in young women, implications of early detection.

5.10 Conclusion

The aim and objectives that this study had set out to do, have all been achieved. The study highlighted the significance of educating females on the importance of BSE. The importance of females having the correct attitude, as well as knowledge on breast cancer, in order to practice BSE on a regular basis also came to light.

Finally, this study emphasised how vital it is for all health professionals to keep updated with new knowledge and technology in order to do health promotion and give advice in this regard to females. This is particularly important for Registered Nurses at primary health care level, as they are the first point of contact with all clients.

The researcher hopes that further research, as indicated in 5.9 will be undertaken, particularly in rural areas, in order to educate more females with regard to BSE. It is also the wish of the researcher that, policy makers, particularly in the education and health sector, should include BSE and other cancer awareness programmes in their curricula from primary to secondary school levels.

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Cape Peninsula
University of Technology

APPENDIX A. Research Information sheet and Informed consent

Female university students' knowledge, beliefs, attitudes and practice of breast self-examination in a university in the Western Cape

Principal Investigator: Mavis Bobie Ansah

Co-investigator: Dr. Hilda Vember

E-mail vemberh@cput.ac.za

Health and Wellness Sciences Research Ethics Committee

Address:

Faculty of Health and Wellness

Cape Peninsula University of Technology

Post-Basic Nursing Department

Box 1906

Symphony Way, Bellville 7535

South Africa

Contact Number: Mavis Bobie Ansah +27 843515940

Dear Participant,

I am a postgraduate student of Cape Peninsula University of Technology. I am writing to invite you to take part in a study to determine the knowledge, beliefs, attitude and practice of breast self-examination among female university students in CPUT Bellville campus. Kindly spend a few minutes to read the information given here, which will describe the details of this project. You can ask me any questions about this project that you do not fully understand. It is very important that you are fully satisfied and that you clearly understand what this research involves and how you could be involved. Also, your participation is entirely

voluntary and you are free to decline to participate. There would not be any negative effects, if you say no. You are also free to withdraw from the study at any point, even if you do initially agree to take part.

This study has been approved by the Research Ethics Commitee at Cape University of Technology and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki.

What this research study is about

The primary aim of this research is to determine the knowledge, beliefs, attitude and practice of breast self-examination among female university students.

Why you have been invited to participate

Breast cancer is the leading cancer among South African women. South African often present to the hospital with advanced cancer. The early detection of signs and symptoms of breast cancer is very important. Your participation will assist in assessing the knowledge, beliefs, attitude and practice of breast self-examination among female university students.

What your responsibilities will be

You will be asked to complete a questionnaire which will take no longer than 10 to 15 minutes. You may also be invited to take part in a 30 to 45 minutes interview.

Will you benefit from taking part in this research?

The responses from participants will greatly add value to the research field of breast cancer screening in universities. You may also gain knowledge on breast cancer and on breast self-examination.

Are there any risks involved in my taking part in this research?

Your name, contact details and identities will be kept confidentially. Some of the questions may cause emotional discomfort to you. However, in case you are emotionally distressed, you will be referred to counselling unit of the University for counselling and support. In Bellville, the counselling unit is located in the building of the library extension ground flour and here is their contact +27 21 959 6182.

Will you be paid to take part in this study and are there any costs involved?

There is no financial reward in participating in this study and no direct cost to you.

DECLARATION BY PARTICIPANT:

I declare that:

I have read this information and consent form and that it is written in a language with which I am fluent and comfortable with.

I have had a chance to ask questions and all my questions have been sufficiently answered.

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

I may choose to withdraw from the study at any time and will not be penalized or prejudiced in any way.

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

I also consent that my information may be:

- Used and kept for future research studies ☐
- Used and discarded ☐

Signed at (place) .....…..…….....….. On (date) …..……..…...…..…….. 2015

Signature of participant---------- Signature of witness----------

DECLARATION BY THE INVESTIGATOR

I, Mavis Bobie Ansah declares that, the information in this document to has been explained to

(Name of Participant)……

I encouraged her to ask questions and provided adequate time to answer them.

I am satisfied that she adequately understand all aspects of the research, as discussed above

Signed at (place) .....…..…….....….. On (date) …..……..…...…..…….. 2014

Signature of investigator---------- Signature of witness----------

Cape Peninsula
University of Technology

APPENDIX B. Briefing sheet for interview and consent to audio record

Thank you very much for agreeing to participate in this interview. I am a Masters' in nursing student at the Cape Peninsula University of Technology. It is a requirement of my course to conduct a research study on female university students' knowledge, beliefs, attitudes and practice of breast self-examination in a university in Cape Town. I have selected to carry out this study in the CPUT, Bellville campus.

Before we start, I would like your permission to record our discussion with an audio recorder. This recording will help me to remember the things we discussed and your answers given. I will make a copy of the discussion for you if you want to have it. If you however, do not feel comfortable for your voice to be recorded, I will respect your wish and only take notes during our conversation. Your name will not appear in any written report and you will not be punished if you do not feel comfortable to answer any question.

Our discussion will take 30 to 45 minutes and you can feel free to stop the discussion any time, if you feel uncomfortable. I will transcribe your responses at the end of our discussion and send it to you, for your verification that what is written is a true replication of your answers. We can start the interview if you are ready.

I consent that the interview may be audio recorded:

Signed at (place) ....……………....….. On (date) ….……….…...…...…….. 2015

Signature of participant---------------------------------

Cape Peninsula
University of Technology

Nursing Department, Bellville Campus
P. O. Box 1906, Bellville 7535
Cape Town, South Africa
Website: www.cput.ac.za

APPENDIX C. Questionnaire

Section A: Demographic Characteristics

Instruction: Please, tick as appropriate [√]

1.1 Age range in years 1. 16-25( ) 2. 26-30( ) 3. 31-35( )

1.2 Marital status: 1. Single ( ) 2.Married ( ) 3.Divorced ( ) 4. Separated ( )

1.3 Religion: 1. Christian ( ) 2. Muslim ( ) 3.Traditional Beliefs ( )
4. Hindu ( ) 5.Other ( )

1.4 Name of your Residence:

Section B: Knowledge.

Instruction: Please tick as (√)

2. Have you heard about breast cancer before?

1. Yes ( ) 2. No ( )

3. Do you know anyone that has had breast cancer before?

1. Yes ( ) 2. No ( )

4. Breast cancer affects which gender?

1. Men only ( )

2. Women only ( )

3. Both men and women ( )

4. Don't know ( )

5. Which of the following factors could make a person more likely to develop breast cancer?

Instruction: Kindly tick as many options as applied.

1. Family history of the disease condition ( ) 2. Drinking excessive alcohol ( )

3. Excessive fat intake ( ) 4. Increasing Age ( ) 5. Not giving birth ( )
6. Menstruating early ( ) 7. Late Menopause ( ) 8. Obesity ( )

6. Have you ever received information from your healthcare giver about breast cancer?

1. Yes ( ) 2. No ( )

7. If yes to question 6, kindly list two of the information about breast cancer that you received from your healthcare provider

1) _____

2) _____

3) No information ( )

8. Do you know any symptoms of breast cancer?

1. Yes ( ) 2. No ( )

9. Which of the following symptoms are associated with breast cancer? Please tick.

1. Painless breast mass ( ) 2. Bloody Nipple discharge ( ) 3. Tenderness of breast ( )

4. Ulcer in the breast ( ) 5. Swelling of the breast ( ) 6. Nipple retraction ( )

7. Lump in the armpit or neck ( ) 8. Skin changes of the breast ( )

9. Monthly pains in the breast before menstruation ( ) 10. Different sizes of the breast since childhood ( ) 11. Don't know ( )

10. Are you aware of screening of breast cancer?

1. Yes ( ) 2.No ( )

11. Have you ever heard of breast self-examination before?

1. Yes ( ) 2.No ( )

12. If yes to question 11, where did you hear it from?

1. Media ( ) 2. Health care professional ( ) 3. Family ( ) 4. Friends ( )

13. Do you know how to do breast self-examination?

1. Yes ( ) 2.No ( )

14. If yes, which of these steps do you follow when you are doing BSE? Kindly tick as applicable options below you can tick more than one:

1. Looking in the mirror to feel for abnormalities/irregularities ( ). 2. Feeling the breast for abnormalities/irregularities whiles lying down ( ) 3. Feeling the breast for irregularities whiles in the shower ( ) 4. Making notes of the abnormalities ( )

Section C. Beliefs

Ask scale: Agree/Disagree.

	Strongly agree 1	Agree 2	Neutral 3	Disagree 4	Strongly disagree 5
15. Screening for breast cancer cannot give one a cure					
16. I am bothered by the possibility that breast self-examination might be uncomfortable to do					
17. The stress of screening outweighs the benefits					
18. I have to do BSE because my immediate family think I should do it.					
19. Doing BSE will identify more problems in my breast					
20. Doing BSE makes sense to me.					
21. An individual can't have breast cancer if not aware					
22. Breast cancer is only for old women					
23. Breast cancer is only for white women.					
24. Breast cancer is spiritual illness					

SECTION D: Attitude

25. It is a good thing to do breast self-examination

1. Yes ( ) 2. No ( )

26. I do not have the necessary privacy to examine my breast

1. Yes ( ) 2.No ( )

27. It takes too much time to examine my breast

1.Yes ( ) 2.No ( )

SECTION E: PRACTICE

28. Have you ever done breast self-examination before?

1. Yes ( ) 2. No ( )

29. If yes when was the last time you examined your breast?

1. This month ( ) 2. Last month ( ) 3. Last two months ( ) 4. Last 3 months ( )

5. I don't do it regularly ( )

30. When is the best time to do BSE?

1. 5 to 7 days after menses 2. Anytime within the month
3. Choose a day in the month to do it ( ) 4. Don't know

31. If you answered No, why don't you examine your breast?

1. I don't know how to do it ( ) 2. I don't think I can get breast disease ( ) 3. I do not believe in BSE ( ) 4. I usually forget it ( ) 5. I am afraid I might find a lump in my breast ( )

Kindly indicate whether you will be willing and available to be interviewed

Yes ( ) No ( )

APPENDIX D. Interview Schedule

SECTION A: QUESTIONS ON KNOWLEDGE

1. What do you know about breast cancer?
2. Mention some causes of breast cancer that you know
3. Mention some signs and symptoms of breast cancer you know?
4. What do you know about breast cancer screening?
5. Can you tell me what you know about breast self-examination?

SECTION B: QUESTIONS ON BELIEFS

6. Do you think it is necessary to do breast cancer screening? Why?
7. What do you think will be the benefit if you were to do breast self-examination?
8. What does your traditional belief say about breast cancer?
9. What is the stance of your religion on breast cancer screening? Explain

SECTION C: QUESTIONS ON ATTITUDE

10. Do you think you can develop breast cancer at a point in your life? Why?
11. What is your personal opinion on doing breast self-examination?

SECTION D: QUESTIONS ON PRACTICE

12. Have you ever examined your breast before? Why or why not?
13. Can you tell the steps you take to examine your breast?

APPENDIX E. Request for support and counselling

Bellville Campus,
P.O. Box 1906, Bellville 7535
Website: www.cput.ac.za
19th May, 2014

The Head of Department
Counselling Unit
CPUT-Bellville campus

Dear Sir/Madam

Re: Research study on female university students' knowledge, beliefs, attitude and practices of breast self-examination in a university in Western Cape

I am a full time Masters in nursing student of the above university. It is a requirement for me to conduct a research study which is relevant to oncology nursing. The focus of my study is on Female students of CPUT who are staying on Bellville Campus. The aim of the study is to determine the knowledge, beliefs, attitude and practice of breast self-examination among female university students. The objectives of the study are; to explore the levels of knowledge of female university students' on breast self-examination, to ascertain the beliefs of female university students' on breast self-examination, to examine the attitudes of female university students' towards breast self-examination and to determine if female university students regularly practice breast self-examination.

Data collection period will commence once my research proposal is approved by the Ethics Committee of CPUT. I anticipate data collection to begin in October 2014. Due to the nature of some of the questions contained in the questionnaires, some participants may be emotionally upset. For that reason, I kindly request that your department provide support and counselling services for participants that may require such services.

Thank you for your assistance and support.

Yours Faithfully

Mavis Bobie Ansah
Phone number; +27 843515940/ +233 208 083 584

E-mail Address; nyamekyem@gmail.com

CC:

Dr. Hilda Vember, E-mail: vemberh@cput.ac.za

APPENDIX F. Letters seeking permission to conduct research

Cape Peninsula
University of Technology

Cape Peninsula University of Technology
Faculty of Health and Wellness
Post Basic Nursing Department
P.O. Box 1906
Bellville, Cape Town
South Africa
7535
08th October 2014

The Dean of Students Residences
Cape Peninsula University of Technology
P.O. Box 1906
Bellville, Cape Town
South Africa
7535

Dear Sir/Madam

Permission to conduct research

I am a post graduate student at Cape Peninsula University of Technology. I am writing to you to seek permission to conduct a research at the residences in the Bellville Campus of this institution.

The title of my dissertation is: "Female students' knowledge, beliefs, attitude and practice of breast self-examination in a university in the Western Cape".

Background to the research:

The most common cancer in women worldwide is breast cancer. It has become a major public health issue throughout the world. Of all newly diagnosed cancer cases worldwide, breast cancer forms one tenth of these cases. Breast cancer is the main cause of cancer death in women worldwide. According to the National Cancer registry, breast cancer is the leading cancer in South African women with a life time risk of 1:35.

South African women often present to the hospital with advance cancer. This is especially among black women. The cancer related health seeking behaviours of South African women is influenced by cultural beliefs such as witchcraft, mistrust of medical services and the

cause of cancer. There is a racial variation in the ages at which South African women present with breast cancer. Coloured, Indian and Black women are diagnosed at a younger age than their white counterparts. However, Black women report to the hospital at advance stages of the disease, coloureds at a stage considered being intermediate and whites report at an early stage.

When breast cancer is detected early, it improves the outcome of the disease and reduces mortality. Breast cancer screening involves the use of mammogram, clinical breast examination and breast self-examination. Breast self-examination (BSE) is a painless and free method of breast cancer screening which can easily be practiced. BSE is recommended as an approach which can be used to increase breast cancer awareness. BSE has the potential for allowing early detection of any abnormalities of the breast.

Benefits of the study:

Most breast lumps are discovered by women themselves. This makes breast self-examination very important. BSE is a useful and essential breast cancer screening strategy. However, over 60% of South African women present with breast lumps bigger than 5cm, this means that self-examinations are not done or regularly not done. By conducting this research, young women in the university will gain knowledge on breast self-examination and will be encouraged to regularly examine their breast for any signs of abnormalities

Data Collection and methodology:

Questionnaire and interviews will be used as a data collection method. Self-administered questionnaires and a semi-structured interview will be used.

Sampling:

For the purpose of this study, a convenient sampling method will be used to select the sample. A sample size 200 female students who reside on Bellville campus will be used for the study.

I hope this request will be granted.

Yours Faithfully

MAVIS BOBIE ANSAH

Phone number; +27 843515940 E-mail Address; nyamekyem@gmail.com

MANAGER: STUDENT HOUSING
Cape Peninsula
University of Technology
P.O. BOX 1906, BELLVILLE 7535
TEL: 021 959 6658 / 6334 / 6126
SIGNED: DATE: 15/10/14

Approved by the HOD of residences in Bellville on condition that ethical clearance is obtained from ethics committee 15/10/2014

Cape Peninsula
University of Technology

Cape Peninsula University of Technology
Faculty of Health and Wellness
Post Basic Nursing Department
P.O. Box 1906
Bellville, Cape Town
South Africa
7535
08th October 2014

The Dean of Students
Cape Peninsula University of Technology
P.O. Box 1906
Bellville, Cape Town
South Africa
7535

Dear Sir/Madam

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The title of my dissertation is: "Female students' knowledge, beliefs, attitude and practice of breast self-examination in a university in the Western Cape".

Background to the research:

The most common cancer in women worldwide is breast cancer. It has become a major public health issue throughout the world. Of all newly diagnosed cancer cases worldwide, breast cancer forms one tenth of these cases. Breast cancer is the main cause of cancer death in women worldwide. According to the National Cancer registry, breast cancer is the leading cancer in South African women with a life time risk of 1:35.

South African women often present to the hospital with advance cancer. This is especially among black women. The cancer related health seeking behaviours of South African women is influenced by cultural beliefs such as witchcraft, mistrust of medical services and the

cause of cancer. There is a racial variation in the ages at which South African women present with breast cancer. Coloured, Indian and Black women are diagnosed at a younger age than their white counterparts. However, Black women report to the hospital at advance stages of the disease, coloureds at a stage considered being intermediate and whites report at an early stage.

When breast cancer is detected early, it improves the outcome of the disease and reduces mortality. Breast cancer screening involves the use of mammogram, clinical breast examination and breast self-examination. Breast self-examination (BSE) is a painless and free method of breast cancer screening which can easily be practiced. BSE is recommended as an approach which can be used to increase breast cancer awareness. BSE has the potential for allowing early detection of any abnormalities of the breast.

Benefits of the study:

Most breast lumps are discovered by women themselves. This makes breast self-examination very important. BSE is a useful and essential breast cancer screening strategy. However, over 60% of South African women present with breast lumps bigger than 5cm, this means that self-examinations are not done or regularly not done. By conducting this research, young women in the university will gain knowledge on breast self-examination and will be encouraged to regularly examine their breast for any signs of abnormalities

Data Collection and methodology:

Questionnaire and interviews will be used as a data collection method. Self-administered questionnaires and a semi-structured interview will be used.

Sampling:

For the purpose of this study, a convenient sampling method will be used to select the sample. A sample size 200 female students who reside on Bellville campus will be used for the study.

I hope this request will be granted.

Yours Faithfully

MAVIS BOBIE ANSAH

Phone number; +27 843515940 E-mail Address; nyamekyem@gmail.com

Approved by the Acting Dean of Students on condition that ethical clearance is obtained from the Ethics Committee.

Adv. L. Harper

8/10/2014.

APPENDIX G. ETHICAL CLEARANCE

Cape Peninsula
University of Technology

HEALTH AND WELLNESS SCIENCES RESEARCH ETHICS COMMITTEE (HW-REC)
Registration Number NHREC: REC- 230408-014

P.O. Box 1906 • Bellville 7535 South Africa
Symphony Road Bellville 7535
•Tel: +27 21 959 6917 • Fax +27 21 953 8490
Email: lebenyat@cput.ac.za

10 December 2014
CPUT/HW-REC 2014/H14

Faculty of Health and Wellness Sciences – Nursing and Radiography Department

Dear Miss Ansah

YOUR APPLICATION TO THE HW-REC FOR ETHICAL CLEARANCE

At the meeting of the Health and Wellness Sciences-REC on 2 October 2014 approval was granted to Mavis Bobie Ansah pending minor amendments that have now been received and reviewed. This approval is for research activities related to your MTech Nursing at CPUT.

TITLE: Female students' knowledge, beliefs, attitude and practice of breast self-examination in a university in the Western Cape

SUPERVISOR: Emeritus Prof. D. Khalil

Comment:
Approval will not extend beyond 11 December 2015. An extension should be applied for 6 weeks before this expiry date should data collection and use/analysis of data, information and/or samples for this study continue beyond this date.

The investigator(s) should understand the conditions under which they are authorized to carry out this study and they should be compliant to these conditions. **It is required that the investigator(s) complete an annual progress report that should be submitted to the HW-REC in December of that particular year, for the HW-REC to be kept informed of the progress and of any problems you may encounter.**

Kind Regards

MR. NAVINDHRA NAIDOO
CHAIRPERSON – ETHICS RESEARCH COMMITTEE
FACULTY OF HEALTH AND WELLNESS SCIENCES

APPENDIX H. A SAMPLE OF TRANSCRIBED INTERVIEWS

INTERVIEW 5

Interviewer;

This is participant 5, interview 5. Thank you for agreeing to be interviewed by me, I'm going to be asking a series of questions and feel free to give me your views and opinions and if you have more to say you can say it.

P5;

Okay

Interviewer;

What do you know about breast cancer?

P5;

1. Breast cancer forms as a lump in either you armpit or breast that is cancerous. That's what I know. knowledge

Interviewer;

So can you mention some cause of breast cancer that you know?

P5;

1. Umm (pause) I think I know one, eh where they say that if you sleep with your bra and don't take it off. That may cause breast cancer or yes another one you have generational like if you're your mother or somebody in your family had it. knowledge

Interviewer;

Okay so can you mention some signs and symptoms of breast cancer that you know or you are aware of?

P5;

1. I just know the lump. knowledge

Interviewer;

What do you know about breast cancer screening?

P5;

2. Umm I've never heard of it. I don't know anything about it. knowledge on screening

Interviewer;

What of breast self-examination?

P5;

1

2. It's where you umm, examine if your breast has a lump and then you have to do it with your hand and feel your breast. Knowledge on screening.

Interviewer;

Do you think it's necessary to do breast cancer screening?

P5;

3. Because I don't know what it is so I'm not sure but I think it is important. Attitude

Interviewer;

What do you think will be the benefit if you were to do breast self-examination?

P5;

3. It will help me to diagnose or find eh, if I have breast cancer early so that I can be treated for it before it gets severe. Benefit + Attitude.

Interviewer;

Where you come from, what does your traditional belief say about breast cancer?

P5;

4. Yeah to an extent, I think for people it does involve maybe, if you hold bitterness or some form of hatred or generational curses in your family or bloodline curses. Beliefs

Interviewer;

What of your religion, what is the stance of your religion on breast cancer screening?

P5;

4. I've never discussed it with anyone, or any of my fellow Christians. Beliefs.

Interviewer;

Personally, do you think you can develop breast cancer at a point in your life?

P5;

3. I hope not! But I don't know I've never really thought about it, it were to happen to me or if there were signs in me that will show if I have or in my family. Attitude

Interviewer;

Yourself do you think you can get it?

P5;

3. No I really don't think so. Because I don't have a history of it in my family or I've never had like signs that will lead to breast cancer or things that might cause it. Attitude

Interview;

What is your personal opinion on doing breast self-examination?

P5;

I think it's a good thing. As long as you genuinely know how to do it, and if you fell suspicious about how breast feel and there's something that it not normal in your body then you can go seek for medical help as to be sure.

Interviewer;

Have ever examined your breast before?

P5;

Yes I have

Interviewer;

When was the last time you did it?

P5;

Yo! It was a long time ago. I think 2 years ago.

Interviewer;

So why haven't you been examining your breast frequently

P5;

It hasn't occurred to me. You know when like you don't feel sick in your body, you don't take the necessary precautions to be like okay, maybe I need to do examination now, there might be something wrong, or maybe I might find something, yeah. So that's the thing.

Interviewer;

Can you tell me the steps you take to examine your breast?

P5;

Okay, is it, you must take your hand, place it under your armpit (pause), and then you feel from the side to the left and then you go all around through your nipple and then the other side. Yeah.

Interviewer;

Thank you very much for time participant 5 for your time.

P5;

Thank you very much.