ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF KNOWLEDGE OF BREAST CANCER AND SCREENING METHODS AMONG NURSES IN UNIVERSITY HOSPITALS IN ADDIS ABABA, ETHIOPIA, 2011

BY:

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A THESIS SUBMITTED TO THE SCHOOL OF NURSING AND MIDWIFERY, COLLEGE OF HEATLH SCIENCES, UNIVERSITY OF ADDIS ABABA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF MATERNITY AND REPRODUCTIVE HEALTH IN NURSING.

JUNE, 2011

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JUNE, 2011

ADDIS ABABA, ETHIOPIA

Approval by the board of examiner

This thesis by _____ is accepted in its present form by the Board of examiners as satisfying thesis requirement for the degree of Masters of Science in Maternity and reproductive health in nursing.

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LIST OF ACRONYMS

AAU- Addis Ababa University

BSE- Breast Self Examination

B.L.H- Black lion hospital

CBE- Clinical Breast Examination

CHSDNM- College of Health Sciences Department of Nursing and Midwifery

ECA- Ethiopian Cancer Association

ENA- Ethiopian Nurses Association

FMOH- Federal Ministry of Health

MMG- Mammography

MOH- Ministry of Health

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ABSTRACT

BACKGROUND: Breast cancer is the leading cause of cancer mortality worldwide; therefore has become a global health problem. According to the American Cancer Society; about 1.3 million women will be diagnosed with breast cancer annually worldwide and about 465,000 will die from the disease. Breast cancer was considered as a disease of the developed countries but now a day the incidence of breast cancer in the developing countries is rising. In Ethiopia breast cancer is the second most often occurring cancer (cervical cancer is first) among women. Early diagnosis is especially important for breast cancer because the disease responds best to treatment before it has spread. To do this knowing the screening techniques like breast self examination, clinical breast examination and mammography is legitimate. It is therefore important for nurses as educators to have appropriate information and positive attitude toward breast cancer early detection (screening techniques) of breast cancer. Nurses' knowledge and awareness of breast cancer screening behavior for themselves and would also impact patients' behavior by increasing their awareness.

OBJECTIVE: Assessment of Knowledge of Breast Cancer and Screening methods among Nurses in University Hospitals in Addis Ababa, Ethiopia.

METHOD: Descriptive cross-sectional design was used with simple random sampling technique, on sample of 281 nurses at university hospitals of Addis Ababa. Data collection took place on March, 2011 using self administered questionnaire to obtain information such as demographic characteristics, knowledge of breast cancer and screening method. To see the association between the independent and the dependent variable bivariate analysis was made and crude OR correspondence to 95% C.I was calculated. Multivariate analysis was manipulated to see the

independent variable effect on the dependent variable and adjusted OR on 95 % C.I and statistical significance at $p<0.05$. Tables and charts were used for data presentation.

RESULTS: the main findings revealed among the 270 nurses, only 156(57.8%) of them were knowledgeable about breast cancer and its screening and 114(42.2%) were not knowledgeable. Knowledge of breast cancer was found to be significantly associated with regular course in nursing, family history of respondents and unit of work. Further inverse association has been made with years of nursing experience and marital status.

CONCLUSION AND RECOMMENDATION: The results of this study indicate the knowledge of nurses is not satisfying. And highlights the need to improve breast cancer content in the nursing curriculum and undergo more workplace training in the area of breast cancer and screening methods.

KEY WORDS: Breast Cancer, Knowledge, Screening, Nurses

CHAPTER ONE

1. INTRODUCTION

1.1 BACKGROUND

Cancer is a disease in which abnormal cells grow in an uncontrolled way. Breast cancer (malignant breast neoplasm) is cancer originating from breast tissue, most commonly from the inner lining of milk ducts or the lobules that supply the ducts with milk. Cancers originating from ducts are known as ductal carcinomas; those originating from lobules are known as lobular carcinomas. Breast cancer is the most common cancer in women, but it can also appear in men [1].

No one knows exactly why a normal breast cell becomes a cancerous one, and there is probably no single cause. It is thought, however, that breast cancer results from a combination of risk factors. These risk factors can be grouped into several categories: hereditary risk, hormonal risk factors, age, (breast cancer becomes much more common as women grown older), gender, diet and exercise [2].

Early breast cancer usually does not cause pain. In fact, when it first develops, breast cancer may cause no symptoms at all. But as the cancer grows, it can cause these changes: a lump or thickening in the breast or armpit, a change in the size or shape of the breast , discharge from the nipple and a change in the color or texture of the skin of the breast or areola (such as dimpling, puckering, or scaliness). Note that; any changes in the breast should be reported without delay. Symptoms can be caused by cancer or by a number of less serious conditions. Early diagnosis is especially important for breast cancer because the disease responds best to treatment before it has spread. The earlier breast cancer is found and treated, the better a woman's chance for complete recovery [2].

Screening techniques are useful in determining the possibility of cancer, a further testing is necessary to confirm whether a lump detected on screening is cancer, as opposed to a benign alternative such as a simple cyst [3].

In a clinical setting, breast cancer is commonly diagnosed using a "triple test" of clinical breast examination (breast examination by a trained medical practitioner), mammography, and fine needle aspiration cytology.

Both mammography and clinical breast exam, also used for screening, can indicate an approximate likelihood that a lump is cancer, and may also identify any other lesions [1].

Breast cancer screening refers to testing otherwise-healthy women for breast cancer in an attempt to achieve an earlier diagnosis. The assumption is that early detection will improve outcomes. A number of screening test have been employed including: clinical and self breast exams, mammography, genetic screening, ultrasound, and magnetic resonance imaging. A clinical or self breast exam involves feeling the breast for lumps or other abnormalities and mammographic screening for breast cancer uses x-rays to examine the breast for any uncharacteristic masses or lumps. The Cochrane collaboration in 2009 concluded that mammograms reduce mortality from breast cancer by 15 percent but also result in unnecessary surgery and anxiety, resulting in their view that mammography screening may do more harm than good. Many national organizations recommend regular mammography, nevertheless. For the average woman, the United States Preventive Services Task Force recommends mammography every two years in women between the ages of 50 and 74[1].

Prognosis and survival rate varies greatly depending on cancer type and staging (stage I, Stage II, Stage III, Stage IV) Computerized models are available to predict survival. With best treatment and dependent on staging, 10-year disease-free survival varies from 98% to 10%. Treatment includes surgery, drugs (hormonal therapy and chemotherapy), and radiation [1].

It has been reported that nurses who taught their clients about methods of early detection and BSE were more knowledgeable about breast cancer screening and BSE techniques than those who did not teach BSE to their clients. It is therefore important for nurses as educators to have appropriate information and positive attitude toward early detection of breast cancer. The provision of cancer screening behavior can be complicated by the fear and uncertainty associated with cancer. Nurses' knowledge and awareness of breast cancer screening behavior for themselves and would also impact patients' behavior by increasing their awareness [4].

1.2 STATEMENT OF THE PROBLEM

As it has been revealed in many studies it is indicative that, breasts cancer is a major life-threatening public health problem of great concern. Long-term increases in the incidence of the disease are being observed in both industrialized and developing world [5].

Breast cancer is one of the most dreaded conditions among women, according to the American Cancer Society; about 1.3 million women will be diagnosed with breast cancer annually worldwide and about 465,000 will die from the disease. Most breast cancer occurs in women, although about 12,000 cases of breast cancer occur in men in the United States each year. Every year over 44,000 women develop the disease in the United Kingdom (population 61 million) and more than 12,500 die from it [1, 3, 6].

In Brazil, breast cancer is the leading cause of cancer deaths among women .Among Turkish women, breast cancer represents 24.1% of all cancers and is the second leading cause of cancer-related deaths. About 2390 new cases of breast cancer were diagnosed in 1999 in Turkey [7].

According to the latest report by the Cancer Institute of Iran, breast cancer constitutes 25% of all cancers among Iranian women, with the highest rate occurring in those aged between 35 and 44 years. Karachi Cancer Registry, the only population based cancer registry in Pakistan, reports breast cancer as the most common cancer (34.6% of cancer cases) among females. The age-standardized incidence rate (to the world population) was 69.1 per 100,000 averaged over the years 1998-2002, the highest recorded rate of breast cancer in Asia [8].

Between 1988 and 1992, the highest rates of breast cancer incidence and mortality were seen in Caucasian, African American, and Hawaiian women. Among Asian populations, incidence rates ranged from 28.5 per 100,000 for Korean women to 105.6 per 100,000 for Hawaiian women, and

mortality rates ranged from 11.2 per 100,000 for Chinese women to 25.0 per 100,000 for Hawaiian women [9].

Breast cancer is the third commonest cancer in women in Uganda after Kaposi's sarcoma and cervical cancer. Breast cancer incidence in Uganda is 22: 100,000. Five year survival rate is 56%. In Nigeria, the incidence of breast cancer has been reported to be 33.6/100,000 [10, 11].

Data from South Africa's National Cancer Registry (NCR) show breast cancer as the leading cancer among women. South African women have a 1 in 29 lifetime risk of developing breast cancer, with an age-standardized incidence rate of 30.6 per 100,000 populations. These rates vary by race group, with Black women having the lowest (16.3) and White women the highest (69.4) rates of breast cancer diagnosis [12].

Breast cancer is the second most often occurring cancer (cervical cancer is first) among women in Ethiopia. It is estimated that around 10,000 Ethiopian women and men have breast cancer with thousands of more cases unreported as women living in rural areas often seek treatment from traditional healers before seeking help from the government health system [13].

During 1995-99, 137 biopsy proven breast cancer cases underwent surgical treatment at Tikur Anbessa Hospital, Addis Ababa. Of these cases, records of 125 were retrieved and analyzed to assess the pattern and treatment outcome of the disease. The median age of females was 40 years. The median duration of the presenting symptom on admission was nearly 1 year. Clinically, majority of cases had stage III disease. Invasive ductal carcinoma was the most frequent type. Eighty-nine (71.2%) patients underwent modified radical mastectomy. During a short follow-up, 50 (45.9%) of 109 patients were seen with recurrences. Only 4 cases were seen at 5 or more years [5].

A prospective study conducted at Tikur Anbessa was designed to obtain information on demographic characteristics, clinical profile and problems related to early diagnosis and treatment of breast cancer in 72 (62 female and10 male) Ethiopian patients, the female to male ratio being 6.2:1, the females in this series developed breast cancer at a younger age (72% were premenopausal) and 76% had advanced disease (Stages III and IV) at presentation [14].

Several studies have reported that breast cancer is the most common cancer and principal cause of cancer deaths in women and is therefore a world concern.

1.3 SIGNIFICANCE OF THE STUDY

Globally, cancer is one of the top ten leading causes of death. It is estimated that 7.4 million people died of cancer in 2004 and, if current trends continue, 83.2 million more will have died by 2015. Among women, breast cancer is the most common cause of cancer mortality, accounting for 16% of cancer deaths in adult women [15].

Looking at the higher figure of breast cancer globally at current and future, great emphasis must be given to the issue of breast cancer and its screening to reduce the mortality rate. So far, no data has been found in Ethiopia that revolves on assessing nurses' knowledge and screening of breast cancer. As a result, the outcome of this study will serve as a baseline data for further findings.

According to the result obtained from this study, if nurses' knowledge towards breast cancer and its screening are remarkable it let health policy makers to strength the trend being taken, but if the reverse occurs the finding will serve as a source for health policy planners to design strategy that can reshape and fill the gap.

In addition the result of this study will have direct implication to the growth of nursing profession towards early detection and prevention of complication. Furthermore to appreciate their stand to this world warning issue and based on that to bring a great deal of change to the profession and in the community they serve.

CHAPTER TWO

2. LITERATURE REVIEW

Education about the importance of early detection in decreasing mortality rates might be of value in raising awareness of the various methods of early detection of breast cancer. More research is also needed to identify the underlying variables that might influence nurses' own practice of early detection methods of breast cancer. Empowering nurses with information about early detection methods and their related benefits could help in advancing their skills in performing breast self-examination and expanding their role as client educators [4].

A cross-sectional survey conducted in seven teaching hospitals of Karachi the largest city of Pakistan, in 2003 showed that 35% of nurses had good knowledge of risk factors, 40% had fair knowledge while 25% nurses had poor knowledge of breast cancer risk factors. 99% correctly identified breast cancer as a non-communicable disease, 96% knew that breast feeding is not causative of breast cancer and 95% answered that evil eye has nothing to do with breast cancer. However, only about 28% of the nurses knew that in some women being overweight increases the risk of developing breast cancer. Graduates from private nursing schools, nurses who had cared for breast cancer patients, those having received a breast examination themselves or those who ever examined a patient's breast were more likely to have good knowledge [16].

In 2004 a study was conducted in Singapore to assess breast cancer knowledge among healthcare professionals. Most (94%) were aware that breast cancer is curable. Most (95%) could correctly name at least one symptom of breast cancer (81% named two correct symptoms and 14% correctly named one symptom). The two most frequent symptoms named were a palpable breast lump and nipple discharge. However, up to 20% of the respondents thought that cancerous lumps were painful. Where treatment for breast cancer was concerned, 20% thought that a mastectomy

was the only available treatment. Most (93%) knew that a mastectomy does not result in complete loss of function for the ipsilateral arm. Majorities (93%) were aware that apart from surgery, other modalities such as radiotherapy and chemotherapy might be necessary [17].

Knowledge on breast cancer risk factors was lacking. About 1/3 (32%) was not aware that increasing age was a risk factor and 37% did not realize that hormonal replacement therapy usage was associated with an increased risk. It was encouraging to note that 85% were aware of the risk that a positive family history poses. Unfortunately though, 9% still believed a common myth – i.e. that women with larger breasts have a higher risk of breast cancer. About a fifth (21%) believed that they were immune to breast cancer if they did not have any risk factors. With regard to BSE, 38% was ignorant of the frequency and 17% thought that a normal BSE meant further screening was not necessary. 5% believed that radiation from a mammogram was dangerous and could increase one's risk of breast cancer, while 12% remained unsure [17].

Statistically significant factors that affected the knowledge score were race and having cared for breast cancer patients. The mean score did not significantly differ between different age groups, the level of education or years of nursing experience. Majority of the respondents (74%) received breast cancer information via formal teaching both in school and in the workplace. Posters and brochures were the next frequently-used portals of information (42%). Other means included the television (24%), the internet (19%), family members and friends (8%) and their personal family physician (4%). It is encouraging that up to 94% answered that they would seek immediate medical attention upon the discovery of a breast abnormality, be it in themselves or close relatives. The remaining 6% opted to watch for progression of the symptom before seeking help. Only 63% of the respondents did regular BSE. For the women aged 40 years and older, about 35% had gone for a screening mammogram.

Of those who had not, the commonest reasons cited were not having thought about it (36%). Of those who did go for a screening mammogram, 62% took their own initiative to do so. Another 18% thought they had breast cancer symptoms while 8% were motivated by having had a relative or friend diagnosed with breast cancer [17].

There were significantly more women in the 50–59 year age group who had gone for a screening mammogram. Although more Chinese, with secondary school or less education but with longer (> 10 years) nursing experience and had had cared for breast cancer patients, had had a mammogram, it was not statistically significant [17].

Respondents with knowledge score greater than or equal to the median score of 16 were not found to have higher BSE or screening mammogram rates. Instead, those who had cared for breast cancer patients were found to have statistically significant higher knowledge score ($p < 0.05$) and practiced BSE ($p < 0.05$) but did not have higher screening mammogram rates [17].

A survey conducted to assess Knowledge and Practice of Breast Cancer Screening Amongst Public Health Nurses in Singapore showed that Knowledge scores ranged from 0-17 with one point given to a correct knowledge question, zero for wrong answer. The median score was nine with 58 % of the nurses scoring >9. In the area of knowledge in breast cancer, the majority of nurses had correct answers for most questions. In the area of knowledge in breast cancer, the majority of nurses had correct answers, the incidence of breast cancer (16.0%) and the recommended frequency of mammogram in women >50 years (29.0%). The nurses knew the answers to most questions on the risk factors of breast cancer except for smoking (24.6%), number of children (20.2%) and oral contraceptives (21.6%). Nursing qualifications, current nursing post and current workplace are significant factors affecting the knowledge scores of the

participants. 60.7% of nurses who were taught breast-self-examination previously scored >9 ($p<0.05$). There was no significant association between knowledge score and age of the nurses, number of years in nursing, history of breast disease or family history of cancer [18].

A descriptive study conducted on breast self-examination among nurses and midwives, includes 80 nurses and midwives in 2004 at the State Hospital, all public Health Cabins and Family Health Centers in the rural area of Izmir, western region of Turkey, indicated that 52% (42) of the sample performed BSE and 32% (12) performed it regularly. Only 8% of the subjects were having a positive family history of breast cancer and 80% (64) showed regular menstrual cycle. Out of the total sample, 20% (16) of the nurses reported pain in their breasts. A significant relationship was found between higher levels in nursing work experience and BSE practice, as 70% of the subjects believed that the presence of masses (breast lumps), family history of breast cancer, and nipple discharge were signs of breast cancer [19].

Eight subjects (10%) believed that the use of contraceptives, smoking, direct sun exposure, ovarian pain, consumption of fatty foods, and obesity were the cause of breast cancer. The majority of subjects knew most of the recommended steps in BSE [19].

Another descriptive study was conducted on knowledge and practice of breast cancer screening among Jordanian nurses at seven governmental and three private hospitals in the country of Jordan on 395 female nurses working in different healthcare settings with their ages ranged from 21-51 years (Mean= 31); nursing experience ranged from 1-30 years (Mean= 16), revealed that nurses had low mean score of knowledge about early detection and facts related to breast cancer in Jordan (Mean= 51%, SD = 19). Although 86% (n = 343) of the nurses reported performing BSE, only 18% (n = 62) reported doing so on a monthly basis.

The study concludes nurses had limited levels of knowledge about breast cancer and methods of early detection; few nurses practiced BSE monthly [20].

Of 125 nurses working in Pamukkale University Hospital in Denizli, 53.6% (67) said that they had talked about cancer and cancer prevention with their families or friends; 69.6% (87) believed that their occupation was important for cancer prevention; 79.2% (99) thought that their knowledge about breast and cervical cancer was adequate. Of the respondents, 57.6% (74) correctly known at least four risk factors. It was found that increasing age (72%), familial history (94.4%), childlessness (85.6%), absence of breast feeding (82.4%), taking birth control pill or hormone replacement therapy (50.4%) were well-known risk factors. However, a small percentage of the nurses believed that early menarche (23.2%) and late menopause (28.8%) were the risk factors of the breast cancer. Fourteen (11.2%) nurses believed that they had a higher risk in development of breast cancer. Half of the nurses believed having a higher risk correctly known at least four risk factors. Approximately, 90% of nurses were known all of the breast cancer symptoms. When nurses were asked about BSE, 84.8% (106) believed that it was necessary for determining lump at early, 90.4% (113) believed that it should be done monthly, 68% (85) believed that it should be done at luteal phase of menstruation. Of the nurses, 25.6% (32) did not perform BSE monthly [21].

Regarding reason for not performing BSE, 46.8% reported lack of time, 31.3% reported that they forgot performing BSE, 9.4% reported that they did not know how to do this. In addition, 12.5% thought that BSE was unnecessary examination. Most nurses knew that CBE should be done by health profession and yearly. However, 88.8% of nurses (111) had never done CBE; 36.0% reported lack of time, 36.8% reported that they forgot it, 18.1% reported that CBE was embarrassing to them, and 9.1% thought that CBE was an unnecessary examination.

All of the nurses said that MMG should be done every year, 17.6% (22) believed that MMG was a painful procedure and 57.6% (72) believed that MMG could detect cancer with or without mass. Although six nurses were at least 40 years old and older, only half of them had MMG performed. However, 65.6% (82) believed that MMG decreases the mortality of breast cancer [21].

A cross-sectional survey was conducted among 204 nurses working in a general hospital in Lagos to determine their knowledge, attitude and practice regarding breast cancer. Knowledge about symptoms, methods of diagnosis and self-breast examination was generally very good. However, only 30% had had a clinical breast examination and 8% a mammogram within the past three years. Use of cancer screening methods was significantly associated with knowledge of the subject ($p = 0.03$). 28% did not know how to estimate the risk of cancer and 61% believed they were not at risk. Nurses possess adequate knowledge about breast cancer but they need more information on cancer risk estimation [22].

A cross-sectional descriptive study was carried out to assess knowledge, attitudes and practice of breast cancer screening among female health workers in the two major government health institutions in Benin City, Edo State capital in Nigeria with a total of 393 female health workers participant in which two hundred and fifty-four (64.6%) were nurses. A high proportion of respondents had very poor knowledge about risk factors for breast cancer (55%). The awareness of mammography as a diagnostic method was very high (80.7%), but an extremely low knowledge of mammography as a screening method was found. Mammography practice of only 3.1% was found among those above 40 years of age who qualify for routine annual screening. Relatively low knowledge (45.5%) about Breast Self Examination (BSE) as a screening method was found [23].

Several methods are available for early diagnosis which gives good results in early cancer stages. There exists a simple, inexpensive and easily implemented method for the detection of breast cancer, namely breast self-examination (BSE).

The purpose of this study is to describe the levels of knowledge of nurses about breast cancer and its early detection or screening.

2.1 Conceptual framework

To assess knowledge of breast cancer and screening methods among nurses is relevant. Its relevancy relies for nurses as educators to have appropriate information and positive attitude toward breast cancer early detection (screening techniques). Nurses' knowledge and awareness of breast cancer screening behavior for themselves, would also impact patients' behavior by increasing their awareness.

To do so points regarding breast cancer, its symptoms, risk factors and screening method together with the factors that has created the awareness on the issue of breast cancer and screening is a must. In addition the study will figure out associated factors that influence nurses knowledge of breast cancer and its screening methods.

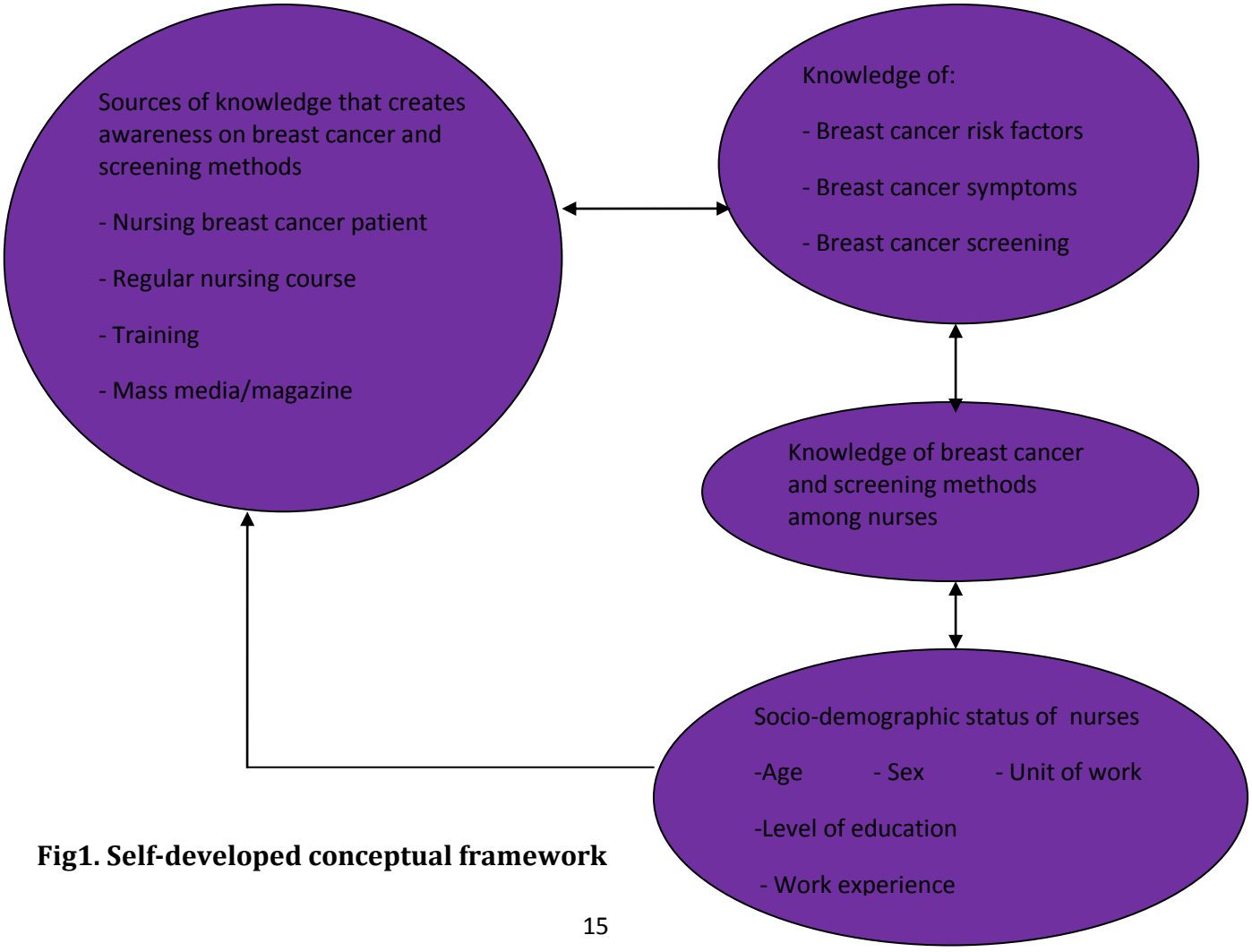


Fig1. Self-developed conceptual framework

CHAPTER THREE

3. OBJECTIVE

3.1 General objective

Assessment of Knowledge of Breast Cancer and Screening methods among Nurses in University Hospitals in Addis Ababa, Ethiopia

3.2 Specific objectives

- To assess the magnitude of knowledge about factors that contributes to breast cancer and screening method
- To analyze factors associated with knowledge of various socio demographic status of nurses

CHAPTER FOUR

4. Methodology

4.1 Study area and period

The study was carried out in Addis Ababa which was established on November, 1887 by (Emperor Menelik II and Empress Taitu) which is the Federal Capital of Ethiopia from October 2010- April 2011. Addis Ababa is a chartered city; having three layers of government: city government at the top, 10 sub city administrations in the middle, and 99 kebele administrations at the bottom. The total land area of the city of Addis is 54,000 hectares and located between 8055' and 9005' North Latitude and between 38040' and 38050' East Longitude with more than 3 million population[25].

The city has 37 health posts, 15 health stations (8 private and 7 governmental), 29 health centers (24 owned by MOH and 5 by others) and grand total of 30 hospitals. Out of these hospitals some are under Federal Ministry of Health and other by Addis Ababa Regional Bureau. Among these, Black Lion Hospital and St.Paul generalized specialized Hospitals are under the Federal Ministry of Health, in addition; are integrated with Addis Ababa University and registered as university hospitals [26].

Black lion hospital central tertiary referral hospital in the city of Addis Ababa has a multiple doings besides serving patients like that of teaching. The hospital has 477 nurses working in the different units and wards.

St. Paul hospital which is located in the western part of the city has recently widened the coverage becoming a university hospital in addition to the main objective of serving the community related to health. The hospital has 262 nurses working in each division.

4.2. Study Design

A descriptive cross-sectional design was used to assess the knowledge of nurses towards breast cancer and screening methods at university hospitals of Addis Ababa.

4.3. Source and Study Population

4.3.1 .Source Population

The sources of population were all nurses working in Addis Ababa.

4.3.2. Study Population

The study populations were nurses working at university hospitals of Addis Ababa

4.3.3 Study Unit

Randomly selected nurses working in the university hospitals of Addis Ababa

4.3.4 Inclusion criteria

Nurses available in the university hospital at the time of data collection

4.3.5 Exclusive Criteria

1. Free service providers
2. Student nurses

4.3.6 Sample Size Determination

The sample size was determined using a single proportion formula.

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

Where, **n**= desired sample size

P= assumed prevalence of knowledge = 50 %(0.5) to get a maximum sample size as there was no previous study conducted similar to this study

$\mathbf{Z\ \alpha/2}$ = critical value at 95% confidence interval (1.96)

d= margin of error between the sample and the population 5 % (0.05)

$$\mathbf{n} = \frac{(1.96)^2 0.5\ (1- 0.5)}{(0.05)^2} = 384$$

Final sample estimation will be obtained using correction formula:

$$\mathbf{n_f} = \frac{\mathbf{n}}{\mathbf{1} + \left[\frac{\mathbf{n}}{\mathbf{N}}\right]}$$

where n_f = desired sample size (population < 10,000)

n= the desired sample size (population > 10,000)

N= the estimate of the population size

$$\mathbf{n_f} = \frac{\mathbf{384}}{\mathbf{1} + \left[\frac{\mathbf{384}}{\mathbf{739}}\right]} = 256$$

Adding 10% non-responsive rate, the total sample size required for this study appeared to be 281nurses.

4.3.7 Sampling Procedure

Using simple random sampling technique nurses or the study subjects working in each university hospital were selected.

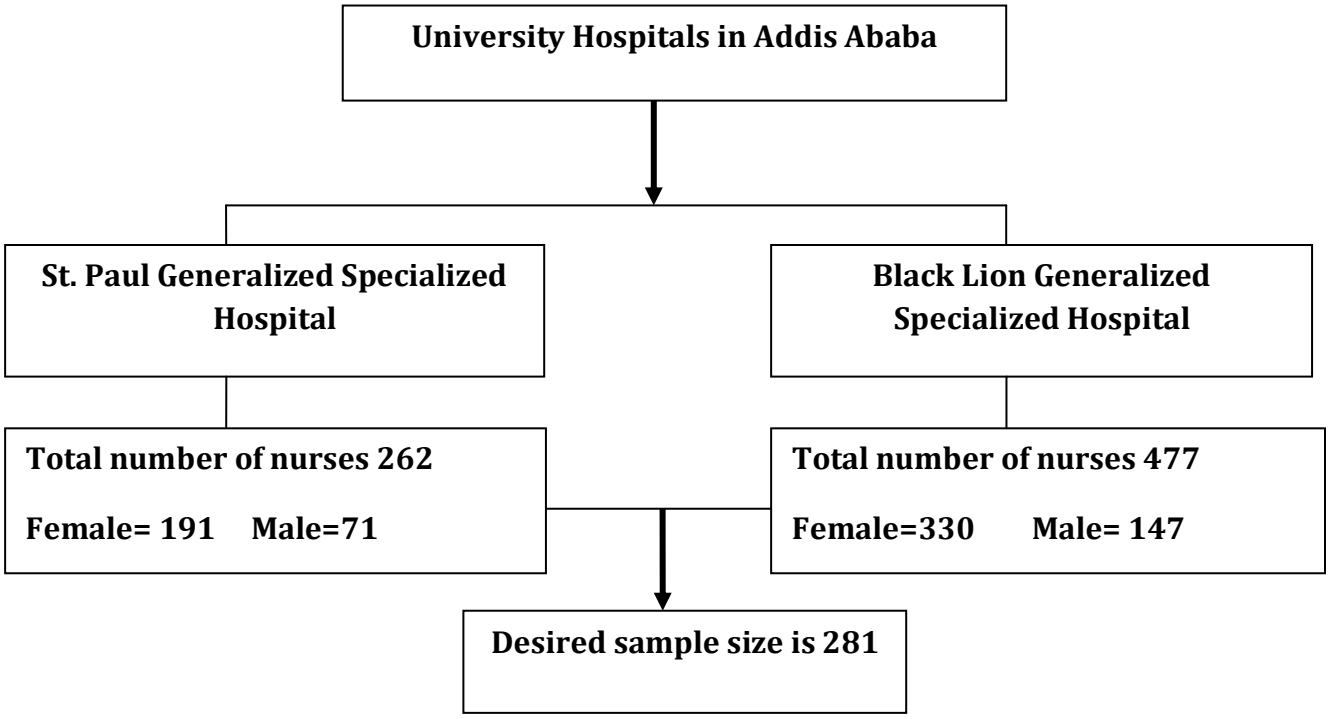


Fig2. Sampling Frame

Proportional allocation of the study subjects to the university hospitals were as follows:

Black Lion generalized specialized hospital:

477/739x 281= 181

St Paul generalized specialized hospital:

262/739x 281= 100

4.4 Data collection and processing methods

4.4.1 Study Variables

Dependent Variable

- Knowledge of nurses to breast cancer and its screening

Independent Variables

- Age
- Sex
- Marital status
- Nursing experience
- Nursing qualification
- Current unit of work
- Regular course in nursing
- Training
- History of breast disease
- Family history of breast cancer
- Ever nursed patient with breast cancer

4.4.2 Operational Definitions

Knowledge: if respondents score for the knowledge questions of breast cancer is

≥ Median value considered as knowledgeable

< Median value considered as not knowledgeable

Breast cancer screening: refers to testing otherwise-healthy women for breast cancer in an attempt to achieve an earlier diagnosis.

Knowledge of screening breast cancer: nurses ability to detect breast cancer and identification of screening means.

History of breast disease: individual who have history of breast disease in the past

Family history: history of breast cancer in family to find out if the patient might be prone to breast cancer.

Training: refers to the acquisition of knowledge and proficiencies as a result of the teaching of knowledge that relate to specific to breast cancer

Nursing qualification: level of education and skill obtained within the nursing profession, usually referred to diploma, degree, masters etc.

University Hospitals: hospitals that are linked to medical college/ nursing school.

4.4.3 Data Collection Procedure

A Standard English version questionnaire was adopted with some modification from the Stager's Comprehensive Breast Cancer Knowledge Test and T McCance Validity and reliability of a breast cancer knowledge test and some has been developed. It comprises a total of 27 multiple choice questions. The time of data collection was on March and the data collectors for this study were those who have diploma in other field other than health science and the supervisors were degree holders of other field.

4.4.4 Data Quality Management

To make certain the quality of data, properly designed data collection tool was prepared: training was given to data collectors and supervisor. To ensure the validity and reliability of the data collection tool, the questionnaire was pretested on a similar population, Gandhi Memorial hospital on the 10% of the study subjects two weeks earlier to the actual data collection time. Data was composed by the principal investigator and testing of the questionnaire followed.

After all questionnaires were rechecked for consistency and completeness, the supervisor presented the filled questionnaire to the principal investigator.

The principal investigator was in the area for any help. Additionally in order to maintain the quality of data, the principal investigator rechecked the completed questionnaires, any problem faced in the time of data collection discussed and immediate solution were made..

And continuous follow up and supervision was made by supervisors and the principal investigator throughout the data collection period.

4.4.5 Data processing and Analysis

The returned questionnaires have been checked for completeness, cleaned manually and entered in to EPI info version 3.5.1 statistical software and then transferred to SPSS windows version 16.0 for further analysis. Frequencies and cross tabulations were used to summarize descriptive statistics of the data and tables and graphs was used for data presentation.

Bivariate analysis was used primarily to check which variables have association with the dependent variable individually. Variables found to have association with the dependent variables were then entered in to Multiple Logistic regression model for controlling the possible effect of confounders and finally the variables which have significant association was identified on the basis of OR, with 95%CI and p-value .

To obtain a summary measure of nurse's Knowledge of breast cancer and screening methods, each knowledge question was coded as a (0, 1) binary variable where category 0 represents incorrect response for that particular knowledge question and category 1 represents correct response for that particular knowledge question. The sum of nurse's Knowledge of breast cancer screening methods then was obtained by adding the responses given for each question. The median value was used to categorize nurses as knowledgeable or not knowledgeable about breast cancer and screening methods.

Accordingly, the sum value less than the median was categorized as not knowledgeable and the value greater than or equal to the median was categorized as knowledgeable.

4.5Ethical Consideration

Ethical clearance was sought from Addis Ababa University College of Health Sciences Department of Nursing and Midwifery research review committee. And a supportive letter was obtained from department of Nursing and Midwifery, AAU. Data collection took place after permission was obtained from the hospital administrators. Study subjects were asked for their consent before filling the questionnaire and objective of the study being explained for the study subjects on the provided questionnaire, and were enrolled after their consent. No person was obliged to participate in the study without his or her consent and beside told that all their information kept strictly confidential.

4.6 Dissemination of Result

The study will be undertaken for the partial fulfillment of the degree of masters of nursing, at Addis Ababa University College of Health Sciences Department of Nursing and Midwifery. The finding of the study will be disseminated to FMOH, ENA, CHSDNM, to the hospitals study conducted and to those organizations governmental and nongovernmental that potentially could benefit from the study. Moreover, if the study has the chance of publication the dissemination will have a great tile and will serve as a springboard for other studies.

CHAPTER FIVE

5. RESULTS

5.1 Response coverage

Two hundred seventy nurses out of 281 eligible subjects completed and returned the questionnaires, giving a response rate of 96%. The majorities 180(66.7%) of the respondents were from Black Lion hospital (Fig - 3).

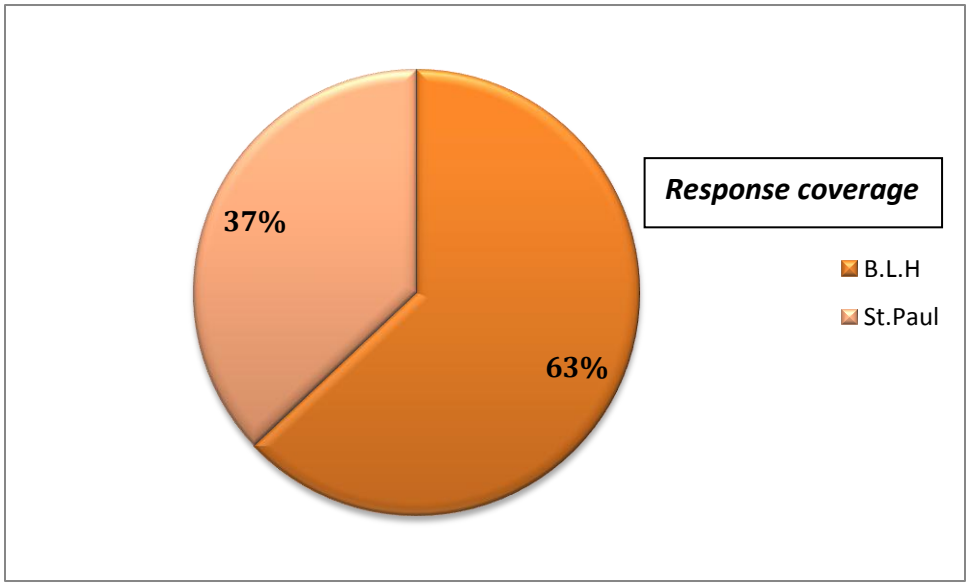


Fig.3.The response coverage of participants at university hospitals of Addis Ababa, Ethiopia March 2011

5.2 Socio demographic characteristics of respondents

Of those nurses who responded (270) giving a response rate of 96% majority were female 171(63.3%) and 99 (36.7%) males. Age range of participants were from 21 to 58 years (*Mean* = 29.8; SD = 8.14) and as to the marital status 169 (62.6%) were single and 87 (32.2%) married. The nurses participated were from medical ward 107 (39.6%), surgical ward 54 (20.0%), labor 9 (3.3%), gynecology 47 (17.4%), oncology 13 (4.8%) and others 39 (14.4%). Of the respondents 165(61.1 %) had clinical experience of 5 years and less. Majority of the participants had no history of breast disease and family history of breast cancer 248 (91.9%), 213 (78.9%) respectively. Of the respondents 149 (55.2%) had looked after patient with breast cancer the remaining 121(44.8%) never nursed (table-1).

Table 1: Frequency distribution of socio-demographic characteristics of respondents at the university hospital of Addis Ababa, Ethiopia March2011

VARIABLES	FREQUENCY	PERCENT (%)
AGE IN YEARS		
20-25	105	38.9
26-30	84	31.1
31-35	24	8.9
36-40	23	8.5
41-45	14	5.2
≥ 46	20	7.4
SEX		
Male	99	36.7
Female	171	63.3
MARITAL STATUS		
Single	169	62.6
Married	87	32.2
Divorced	6	2.2
Widowed	7	2.6
Separated	1	4
NURSING QUALIFICATIONS		
Diploma	133	49.3
Degree	137	50.7
NURSING EXPERIENCE		
≤ 5	165	61.1
6-10	40	14.8
11-15	18	6.7
16-20	18	6.7

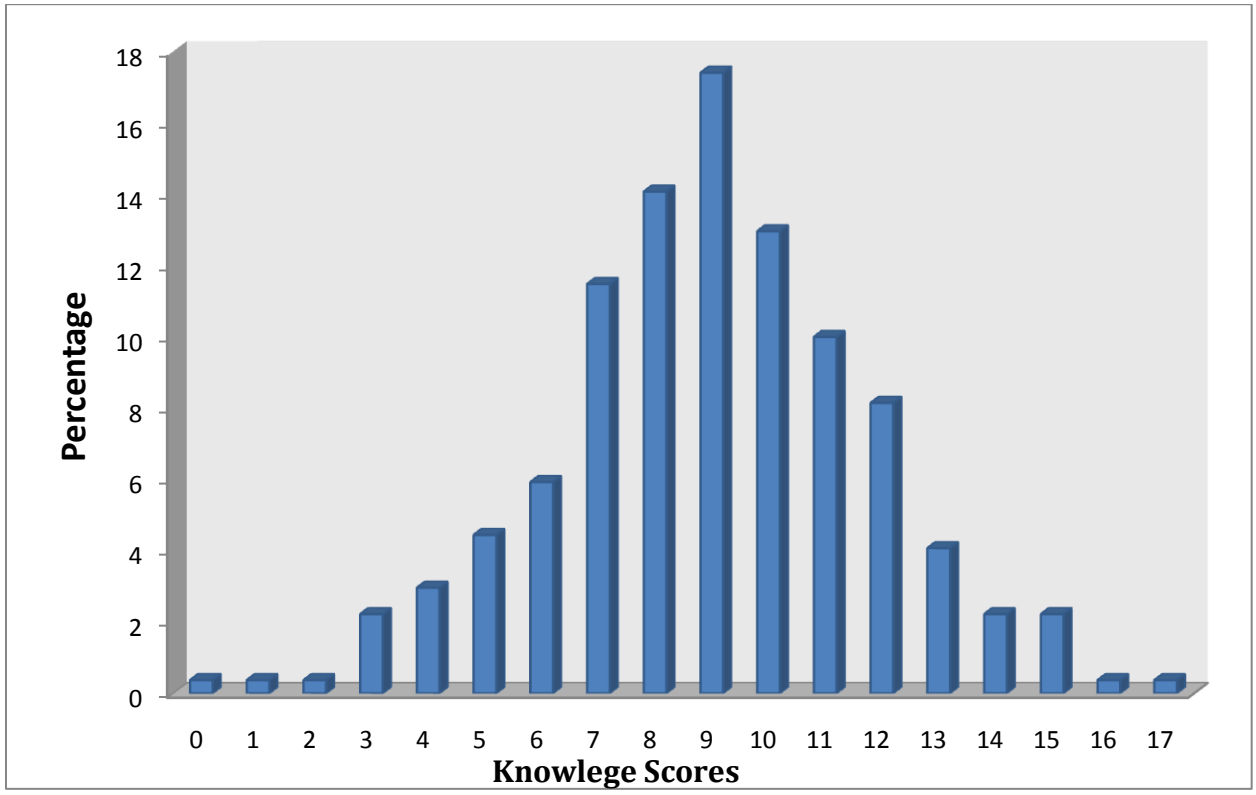
21-25	17	6.3
26-30	8	3.0
≥31	4	1.5
CURRENT UNIT OF WORK		
Medical ward	107	39.6
Surgical ward	54	20.0
Labor	9	3.3
Gynecology	47	17.4
Oncology	13	4.8
Others	39	14.4

Table 2: History of breast cancer among study participants at the university hospitals of Addis Ababa, Ethiopia March 2011

VARIABLES	FREQUENCY	PERCENT (%)
History of Breast disease		
Yes	22	8.1
No	248	91.9
Family History of breast cancer		
Yes	57	21.1
No	213	78.9
Ever nursed a patient with breast cancer		
Yes	149	55.2
No	121	44.8

5.3. Knowledge of breast cancer

Distribution of knowledge scores on breast cancer and screening methods amongst nurses in the university hospital ranges from 0–17, or 0%–100% correct. The mean score on the knowledge test was 8.9, SD = 2.8 and the median score was nine. And out of the 270 nurses 57.8 % the nurses scored ≥ 9.

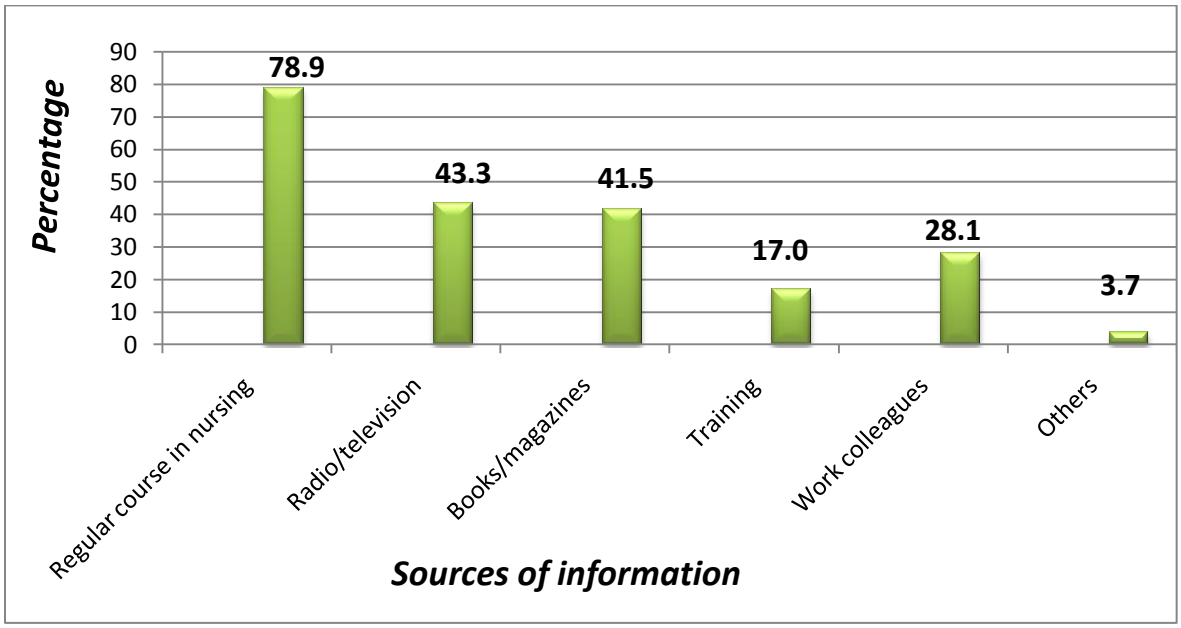


N=270 Median= 9

Fig.4. Distribution of knowledge scores of study participants at the university hospitals of Addis Ababa, Ethiopia March 2011

5.3.1 Source of information for breast cancer

As a major source of information for breast cancer mentioned by the 270 nurses participated in the study was regular course in nursing 213 (78.9 %) and training 46(17%), 41.5% and 43.3% were from radio &television and reading books respectively ,very few of them from other sources (3.7%).(Figure-5)



*Percent may exceed 100% as multiple answers are possible

Figure 5: Source of information about breast cancer among nurses in university hospitals of Addis Ababa Ethiopia, March 2011.

5.3.2 Knowledge about risk factors of breast cancer

Regarding the knowledge of risk factors for breast cancer, 241 (89.3%) knew that there are risk factors involved in the development of breast cancer, while 24(8.9%) said no and 4(1.5 %) claimed they don't know. About 81(30.0%) of those who knew there is a risk factor, were able to mention two and more correct risk factors. From these more than half of the respondents 188 (69.6 %) mentioned family history of breast cancer as a risk factor and other risk factors like wearing tight bra 53 (19.6%), prolonged breast feeding 27 (10%) and multiparity 38 (14.1 %)cracked nipple as a risk factor .

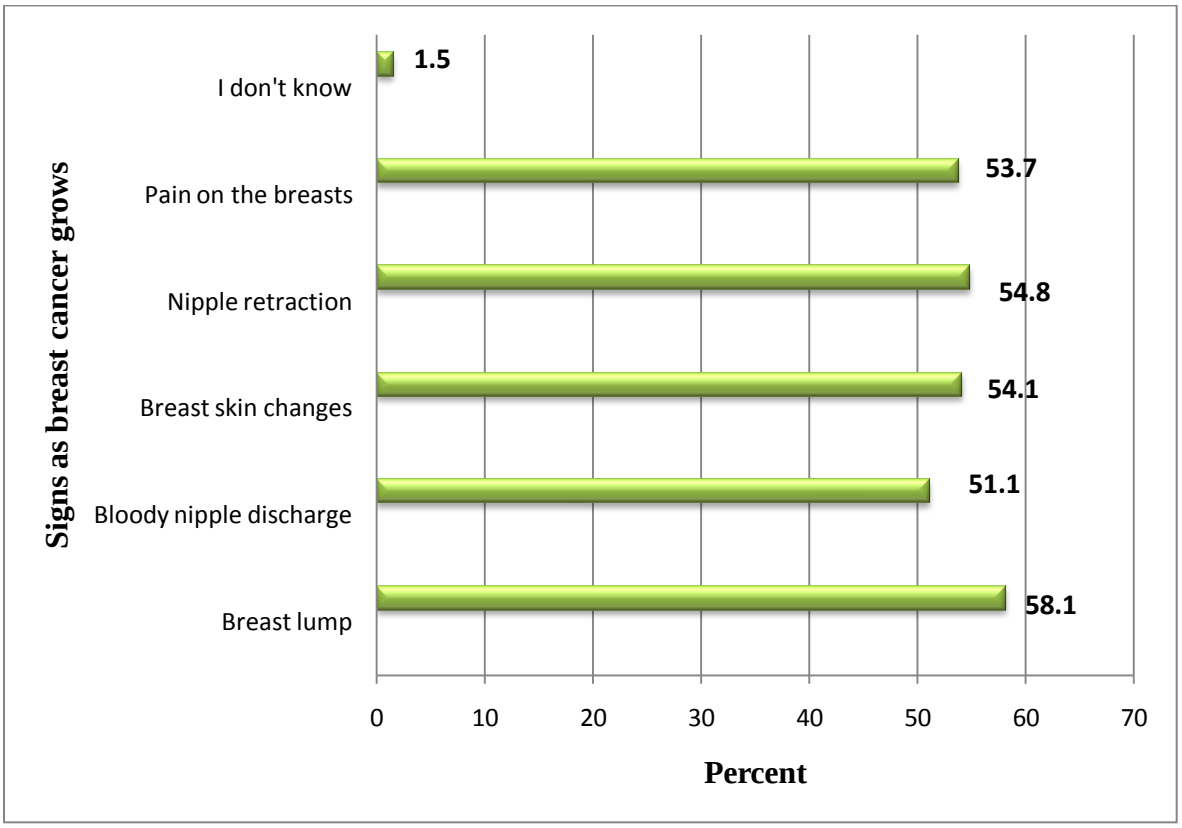
Table 3: Knowledge of nurses on risk factors for Breast Cancer at the university hospital of Addis Ababa, Ethiopia, April 2010

Risk factors	Number	Percent
Use of oral contraceptives	99	36.7
Prolonged breast feeding	27	10
Early menarche	66	24.4
Late menopause	51	18.9
Delayed first pregnancy	54	20.0
Infertility	76	28.1
Smoking	147	54.4
Increasing age	86	31.9
Obesity	79	29.3
Family history of breast cancer	188	69.6
Tight bra	53	19.6
Multi parity	38	14.1

*Percent may exceed 100% as multiple answers are possible

5.3.3. Knowledge of nurses about signs of breast Cancer

Concerning early breast cancer 122 (45.2 %) respondents mainly mentioned that it doesn't cause pain and symptom. As to the stage of diagnosis breast cancer is curable 199(73.7%) respond at stage of 0 and I followed by 55 (20.4%) at stage 0, I and II and 15 (5.6 %) agreed it is not curable at all. As shown in the figure below regarding signs as breast cancer grows, breast lump was the predominantly mentioned symptom by the respondents 157(58.1%) followed by nipple retraction, breast pain, breast skin change, bloody nipple discharge and the remaining claimed they don't know(Figure - 6).



*Percent may exceed 100% as multiple answers are possible

Fig.6. Distribution of study subjects by their frequency of knowing signs of breast cancer, at university hospitals of Addis Ababa, March 2011

5.3.4 Knowledge of nurses about screening methods

A sequence of questions regarding screening of breast cancer was asked to assess the respondents' knowledge of breast cancer. Respondents were asked to state the early detection measures for breast cancer; 202(74.8%) mentioned BSE, 120(44.4%) identified breast examination by a health professional (CBE), and only 104(38.5%) stated mammography as an early detection measures. Majority of the respondents 156 (57.8 %) knew that breast cancer can be prevented at early stage of the disease, 89 (33.0%) of them responded it can be prevented before the disease manifests, while 19(7.0%) said it can't be prevented at all. Concerning treatment options for the disease 150(55.6%) identified surgery, 95 (35.2%) and 112 (41.5 %) knew that breast cancer can be treated with radiation therapy and chemotherapy respectively. In addition one fourth of the nurses 121(44.8%) did respond that breast cancer can be successfully treated without mastectomy.

About 178 (65.9%) were aware that doing regular breast cancer screening has a great deal in curing breast cancer while 20 (7.4%) indicated it has little or no difference.

For the question how often should breast self examination be performed 139 (51.5%) of the study subjects reported that monthly 1-7 days after, together with that 194 (71.9%) respondents identified starting age to perform BSE to be at year of 20 (Table 4).

Table 4: Study participant's knowledge about BSE, at the university hospitals of Addis Ababa, Ethiopia March 2011

Variables	Frequency	Percent
Age to begin BSE		
20 years	194	71.9
25 years	40	14.8
30 years	12	4.4
35years	24	8.9
How often should BSE be performed		
Every six month to time of ovulation	57	21.1
Monthly 1-7 days after menses	139	51.5
Once a week before raising out of bed	74	27.4

Knowledge of specific aspects of mammography revealed that age group most appropriate to start mammography screening 129 (47.8%) stated that 20 years every 2-3 years, 66(24.4%) 30 year every 5 years and 75 (27.8%) 40 years every 1-2 year. 11 (4.1%) of the study participants reported that screening for mammography should be done weekly, 36 (13.3%) monthly, 134 (49.6 %) every six month and 89 (33%) yearly. Concerning the purpose 61 (22.6%) of the respondents were aware of mammography as a breast cancer diagnostic method rather than as a screening method (Figure -7).

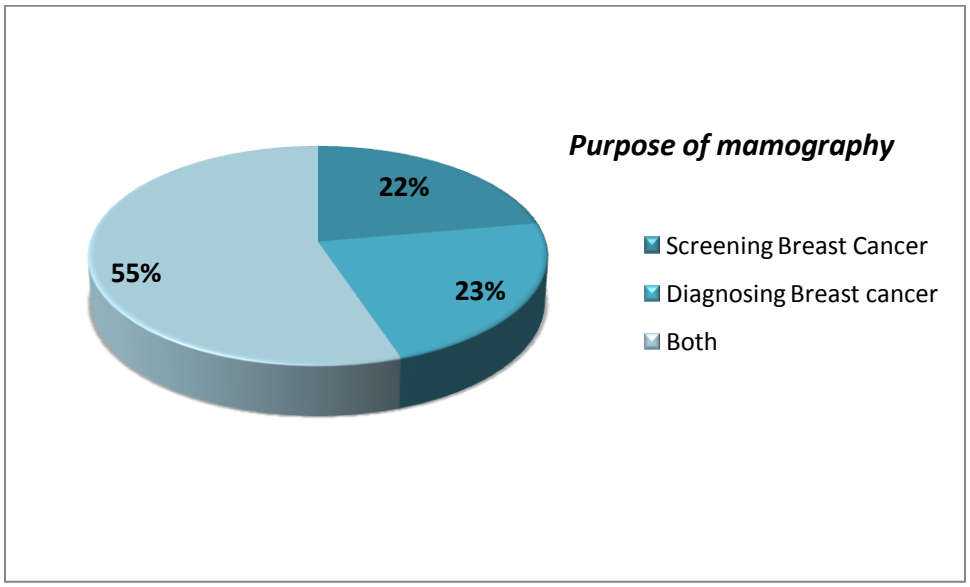


Fig.7. Distribution of study subjects by their knowledge of use of mammography, at university hospitals of Addis Ababa, March 2011

This study regard to the overall knowledge of breast cancer, the median score was computed and among the 270 respondents, 156(57.8%) of them were knowledgeable about breast cancer and 114(42.2%) were not knowledgeable with a score of median and above median.

5.4Association of socio-demographic variable with the knowledge of nurses about breast cancer and screening method

Knowledge of breast cancer was found to be significantly associated with regular course in nursing [AOR=3.874, 95% CI (1.908- 7.866), P < 0.01]. Also knowledge of breast cancer appears to be significant with family history of respondents. Nurses with family history of breast cancer were more likely to be knowledgeable than nurses with no family history of breast cancer [AOR=3.042, 95%CI (1.636- 5,656), P<0.01]. In addition knowledge of breast cancer was found to be significantly associated with the respondents unit of work. Nurses working in the oncology unit were [AOR= 4.865, 95% CI (1.895- 26.439), P= 0.03] times knowledgeable than those working in surgical unit. Further significant association has been made with years of nursing experience. That is nurses working for 6-10 years were less likely to be knowledgeable {COR= 0.411, 95% CI (0.200- 0.844), P= 0.015} than the nurses with nursing experience ≤ 5 years. Marital status also has a significant association with the knowledge of breast cancer in the aspect that, unmarried respondents are {COR= 0.527, 95%CI (0.314-0.884), P= 0.015} times knowledgeable than married one's.

Other socio demographic factors like age, sex, history of breast disease, ever nursed patient with breast cancer, nursing qualification, were not found to be significantly associated with knowledge of breast cancer though age was significantly associated during analysis with simple logistic regression.

Table 5: Socio-demographic correlates of breast cancer knowledge of nurses in the university hospitals of Addis Ababa, Ethiopia, March 2011.

Variables	Knowledge of breast cancer, N=270		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
	Yes (≥ 9)	No (≤ 8)			
Age					
20-25	70 (25.9%)	35 (13.0%)	1.00		
26-30	44 (16.3%)	41 (15.2%)	.537 (.298- .966)	.947(0.226-3.969)	0.941
31-35	14 (5.2%)	10 (3.7%)	.700 (.283- 1.734)		
36-40	12 (4.4%)	11 (4.1%)	.545 (.219- 1.359)		
41-45	8 (3.0%)	6 (2.2%)	.667 (.215- 2.071)		
≥ 46	8 (3.0%)	11 (4.1%)	.364 (.134- .986)	1.152(0.196-6.770)	.876
Sex					
Male	61 (22.6%)	38 (14.1%)	1.284(.775-2.128)	**	.332
Female	95 (35.2%)	76 (28.1%)	1.00		
Marital status					
Unmarried	115(42.0%)	68 (25.2%)	1.00		
Married	41 (15.2%)	46 (17.0%)	.527 (.314- .884)	0.573(0.313-1.049)	.071
Nursing qualification					
Diploma	71 (26.3%)	62 (23.0%)	.701(.431- 1.138)	**	.150
Degree	85 (31.5%)	52 (19.3%)	1.00		
Nursing experience					
0-5	141(52.2%)	91 (33.7%)	1.00		
6-15	14 (5.2%)	22 (8.1%)	.411 (.200-.844)	0.317(0.141-0.714)	.06
16-25	1(.4%)	1(.4%)	.645(.040-10.448)		
Current unit of work					
Surgical	29(10.7%)	25(9.3%)	1.00		
Labor	8 (2.96%)	1 (0.4%)	6.897(.806-59.00)		
Medical ward	58(21.48%)	49 (18.1%)	1.020(.529-1.967)		
Gynecology	26 (9.6%)	21 (7.8%)	1.067(.487-2.341)		
Oncology	11 (4.07%)	2 (0.7%)	4.741(.958-23.45)	4.865(1.895-26.43)*	0.03
Regular course in nursing					
Yes	134(49.6%)	79 (29.3%)	2.699(1.479-	3.874(1.908-7.86) *	0.00
No	22 (8.1%)	35 (13.0%)	4.924) 1.00		

Training Yes No	24 (8.9%) 132(48.9%)	22 (8.1%) 92 (34.1)	1.315(.696-2.486) 1.00	**	.399
History of breast disease Yes No	14 (5.2%) 142(52.6%)	8(3.0%) 106(39.3%)	1.306(.529-3.227) 1.00	**	.562
Family history of breast disease Yes No	24 (8.9%) 132(48.9%)	33 (12.2%) 81 (30.0%)	.446 (.246-.808) 1.00	3.042(1.636-5.656)*	0.00
Ever nursed a patient with breast cancer Yes No	80 (29.6%) 76 (28.1%)	69 (25.6%) 45 (16.7%)	.686 (.421- 1.120) 1.00	**	.132

- Average knowledge score ≥ 9

* Statistically significant

** Insignificant variables in the crude analysis were omitted from the multivariate analysis

CHAPTER SIX

6. DISCUSSION

In this study 281 nurses were approached, but only 270 study subjects completed the data collection process and 10% non response rate, among this 180 nurses (66.7%) were from black lion hospital. The socio demographic structure of this study identified that most of the respondent (38.9%) are between ages of 20-25years as the age increases the number of respondent decrease to the minim value 7.4% of above 46 years. 62.6% and 32.2 were single and married respectively and greater than 60 of the participants were female with the remaining 36.7 % being male. More over 49.3% had diploma in nursing, 50.7% are degree holder. Regarding the working experience 61.1% of them had five year and less experience, 6.7% of them had 11-20 years and 1.5 % 31 and more years of work experiences. 39.6% and 20.0% of the nurses were working in medical and surgical units respectively and only 17.4 percent are assigned in gynecology unit .At last 8.9 percents of subjects had history of breast cancer and 21.1 had in their family (Table- 1, 2)

The investigation have come up with findings like major source of information for breast cancer for the 270 nurses participated in the study 78.9 % to be regular course in nursing followed by radio/television 43.3%, 41.5% books, 28.1% work colleagues, 17% from training and 3.7% of them mentioned internet as means of information which is consistent with a study conducted in 2004 in Singapore to assess breast cancer knowledge among healthcare professionals. Majority of the respondents 74% received breast cancer information via formal teaching both in school and in the workplace. Posters and brochures were the next frequently-used portals of information 42%.

Other means included the television 24%, and internet 19% [17].The rationale for the slight difference could be due to economical factor and inadequate electronic media.

6.1. Knowledge about risk factors of breast cancer

About 81(30.0%) of those who knew there is a risk factor, were able to mention four and more correct risk factors. From these it was found that family history of breast cancer 69.6 %, smoking 54.4%, and use of oral contraceptive 36.7%, increasing age 31.9% and infertility 28.1% were well distinguished risk factors. On the other hand, a small percentage of the nurses assumed that early menarche 24.4% and late menopause 18.9% were the risk factors of the breast cancer. In comparison with a cross-sectional study conducted among 125 nurses working in Pamukkale University Hospital in Denizli. Of the nurses, 74 (57.6%) correctly known at least four risk factors. It was found that increasing age 72%, familial history 94.4%, childlessness 85.6%, absence of breast feeding 82.4%, taking birth control pill or hormone replacement therapy 50.4% were well-known risk factors. However, a small percentage of the nurses believed that early menarche 23.2% and late menopause 28.8% were the risk factors of the breast cancer [20]. The discrepancy may have arise as a result the, disease of breast cancer being considered as disease of the developed countries much awareness and emphasis had been given to this issue in which one way or another making the nurses of Turkey be knowledgeable than nurses of university hospitals of Addis Ababa.

Results of this study also showed that 29.3% of the nurses were aware that obesity is a risk factor for breast cancer which is consistent with a cross-sectional survey conducted in seven teaching hospitals of Karachi ,Pakistan, in 2003 showed that 28% of the nurses knew that in some women being overweight increases the risk of developing breast cancer [16]. The similarity could be because of the fact that obesity is predisposing factor for most of chronic diseases.

6.2. Knowledge about signs and symptoms

On this study regarding signs as breast cancer grows, breast lump was the predominantly mentioned symptom by the respondents 157(58.1%) followed by nipple retraction, breast pain, breast skin change, bloody nipple discharge. An enormous difference had been seen when compared with a descriptive study conducted on breast self-examination among nurses and midwives, in 2004 at the State Hospital, all public Health Cabins and Family Health Centers in the rural area of Izmir, western region of Turkey, as 70% of the subjects believed that the presence of masses (breast lumps), and nipple discharge were signs of breast cancer [20]. In 2004 a similar study conducted in Singapore to assess breast cancer knowledge among healthcare professionals; the two most frequent symptoms named were a palpable breast lump and nipple discharge [17]. As it has been mentioned earlier the rationale behind for this difference is similar.

6.3. Knowledge of nurses on the screening method

When nurses were asked about BSE, 139 (51.5 %) believed that it should be done monthly 1-7 days after menses and 202 (74.8%) of the study subjects were aware BSE as an early detection measure for breast cancer. Of the two hundred seventy nurses only 89 (33.0%) said that screening for mammography should be done yearly. A cross-sectional study conducted in Pamukkale University Hospital in Denizli; about BSE, 113 (90.4%) believed that it should be done monthly, 85 (68%) believed that it should be done at luteal phase of menstruation [21]. Other cross-sectional descriptive study carried out to assess knowledge, attitudes and practice of breast cancer screening among female health workers in the two major government health institutions in Benin City, Edo State capital in Nigeria relatively low knowledge (45.5%) about Breast Self Examination (BSE) as a screening method was found [23].

This gap might existed with the reason that the nurses in the western's are engaged in treating patient with breast cancer which make them to be alarmed about the frequency of performing BSE and its significance as early detection measure for disease of breast cancer.

This study on knowledge of specific aspects of mammography revealed that only 75 (27.8%) 40 years every 1-2 year knew age group most appropriate to start mammography screening and only 89 (33%) the study participants reported that screening for mammography should be done yearly. Concerning the purpose 61 (22.6%) of the respondents were aware of mammography as a breast cancer diagnostic method and 60 (22.2%) as a screening method and the remaining percent knew MMG serve for both purposes. As to the result obtained from a cross-sectional descriptive study carried out in Nigeria the awareness of mammography as a diagnostic method was very high (80.7%), but an extremely low knowledge of mammography as a screening method was found [23]. And that of Pamukkale reported, all of the nurses participated said that MMG should be done yearly [21]. Possible reason could be sufficient availability of mammogram which has its own impact in knowing the frequency to do mammography to nurses in the developed than nurses of developing countries.

6.4. Knowledge of treatment Options

From this study concerning treatment options for the disease 150(55.6%) identified surgery, 95 (35.2%) and 112 (41.5 %) knew that breast cancer can be treated with radiation therapy and chemotherapy respectively. In addition one fourth of the nurses 53(19.6%) did respond that breast cancer cannot be successfully treated without mastectomy. The results were congruent with a study conducted in 2004 in Singapore to assess breast cancer knowledge among healthcare professionals.

Where treatment for breast cancer was concerned, 20% thought that a mastectomy was the available treatment. Majority (93%) was aware that apart from surgery, other modalities such as radiotherapy and chemotherapy might be necessary [17].

This study regard to the overall knowledge of breast cancer, the median score was computed. Among the 270 respondents, 156(57.8%) of them were knowledgeable about breast cancer and 114(42.2%) were not knowledgeable with a score of median ≥ 9. This result goes in line with a study done Singapore on knowledge and practice of breast cancer screening amongst public health nurses to assess their knowledge and practice of breast cancer screening. Response rate was 96.4%. Median knowledge score was nine and 58.3% of nurses scored >9 [18].

From this investigation knowledge of breast cancer was found to be significantly associated with regular course in nursing, family history of respondents, unit of work, years of nursing experience and marital status. Other socio demographic factors like age, sex, history of breast disease, ever nursed patient with breast cancer, nursing qualification, were not found to be significantly associated with knowledge of breast cancer. Some difference has been observed with a study that was carried out in Singapore statistically significant factors influencing knowledge scores were related to the nursing profession, namely, nursing qualifications and current workplace. There was no significant association between knowledge score and age of the nurses, number of years in nursing, history of breast disease or family history of cancer [18]. And other cross-sectional survey conducted in seven teaching hospitals of Karachi the largest city of Pakistan, in 2003 showed that graduates from private nursing schools, nurses who had cared for breast cancer patients, those having received a breast examination themselves or those who ever examined a patient's breast were more likely to have good knowledge [16].

CHAPTER SEVEN

7. STRENGTH AND LIMITATIONS OF THE STUDY

7.1. Strengths of the study

- The study focused on a topic very rarely studied; so may give baseline information about breast cancer.
- Making use of adopted standardized questionnaire related to the study

7.2. Limitation of the study

- Absence of similar studies especially in Ethiopia made it difficult in comparing results.
- The error implicit in the method of data collection (self administered questionnaire) may have launched some response biases.
- The profession by itself benefits respondents to be somehow knowledgeable regarding breast cancer. For this reason the outcome found in this study couldn't represent the general population.

CHAPTER EIGHT

8. CONCLUSION

- The results of this study which provides important baseline information about awareness of breast cancer risk factors and cancer screening in health professions revealed, nearly half 114(42.2%) of the nurses were not knowledgeable.
- From the finding regular course in nursing was cited as the main source of information about breast cancer by majority of the respondents.
- The study shows the nurses at the university hospitals are relatively aware of the risk factors, signs and screening modalities for breast cancer. Some discrepancy was observed regarding the suitable time for BSE, age to start BSE, purpose, frequency and age to begin mammography, despite being aware of the fact that multimodality approach (surgery, chemotherapy and radiation therapy) is the key to success in treatment of breast cancer.
- Among the socio demographic characteristics, regular course in nursing, family history of breast disease, unit of work has strong and positive association on the knowledge of breast cancer and its screening methods. In addition, marital status and nursing experience has inverse association. Other variables like age, sex, nursing qualification, history of breast disease and ever nursed a patient with breast cancer appears to be insignificant to knowledge of breast cancer.

CHAPTER NINE

9. RECOMMENDATION

- Lack of knowledge on breast cancer and its screening methods among nurses is crucial in encouraging patients to obtain screening: as a result a need to improve breast cancer content in the nursing curriculum; designing it to be inclusive of screening methods for early detection breast cancer to decrease morbidity and mortality rate.
- As the implementation of the revised curriculum may take some time, this study highlights the need for nurses in the university hospitals of Addis Ababa, who are frontline medical professionals, to undergo more workplace training in the area of breast cancer and screening methods relatively early.
- The participation of governmental organization like MOH, FMOH, non-governmental and charitable organizations like ECA (Ethiopia Cancer Association) to update knowledge of nurses by publishing brochures and preparation of workshops about breast cancer and its screening methods will have an impact in narrowing the gap to make all nurses knowledgeable.
- The media should let a wide range of air time to provide comprehensive information about breast cancer as it can reach many nurses at the same time many people.

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ANNEX: I Information Sheet

Good Morning /Good Afternoon

Information Sheet prepared for nurses who are going to participate in research project, Assessment of Knowledge of Breast Cancer and Screening methods among Nurses in University Hospitals in Addis Ababa, Ethiopia.

Name of Principal investigator: Semarya Berhe

Name of the organization: Addis Ababa University College of Health Science Department of Nursing and Midwifery

Name of the Sponsor: Addis Ababa University

Introduction

This information sheet is prepared to explain the study you are being asked to join. Please listen carefully and ask any questions about the study before you agree to join. You may ask questions at any time after joining the study. The investigator is final year Maternity and Reproductive Health in nursing post graduate student from the school of nursing and midwifery, college of health science, university of Addis Ababa.

Purpose of Research Project

The purpose of this research is to assess the knowledge of nurses to breast cancer and its screening, in the university hospitals of Addis Ababa. The study will be helpful in determining the current level of knowledge of nurses about breast cancer and its screening. It also will serve as a launch pad for subsequent studies in the country.

Procedure

To assess the knowledge of nurses to breast cancer and its screening in the university hospitals of Addis Ababa, we invite you to take part in this project. If you are willing to participate in this project, you need to understand and sign the agreement form. Then after, you will fill the questionnaire provided by the data collectors. You do not need to tell your name to the data collector and all your responses and the results obtained will be kept confidentially by using coding system whereby no one will have access to your response.

Risks

By participating in this research project, you may feel that it has some discomfort especially in wasting time about 25 minutes. I hope you will participate in the study for the sake of the benefit of the research result. There is no risk in participating in this research project.

Benefits

If you participate in this research project, there may not be direct benefit to you but your participation is likely to help in the study and your information to questions asked will have great input in efforts made at ameliorating the nursing profession.

Incentives

You will not be provided any incentives or payment to take part in this project.

Confidentiality

The information collected from this research project will be kept confidential and information about you that will be collected by this study will be stored in a file, without your name, but a code number assigned to it. And it will not be accessible to any third party except the principal investigator and will be kept locked with key.

Right to refuse or withdraw

Your participation in the study will be totally based on your willingness and having full right to refuse from participating in this research. You can choose not to respond to some or all questions if you do not want to give your response. You have also the full right to withdraw from this study at any time you wish, without losing any of your right.

ANNEX II: CONSENT FORM

Here I undersigned at Addis Ababa University College of Health Science Department of Nursing and Midwifery post graduate program, at present I will be undertaking research on a topic entitled as "Assessment of Knowledge of Breast Cancer and Screening methods among Nurses in University Hospitals in Addis Ababa, Ethiopia."

To dear participant;

I am going to ask you few questions about your willingness to participate in this study. After reading the following statement, please give your responses as either agree or disagree to participate in the study. You may confirm your agreement or disagreement by either giving your signed consent in the respective space given below.

I the invited participant, given that all pertinent information with reference to the purpose of this particular study, participants to be include, the procedure of selection of the study participant, the benefits and risk of the study explain to me. I decided to agree or disagree to participate in respective study mentioned above.

Agree response Disagree responses

Sign ---------- Sign ----------

The principal investigator

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

Sign Date

ANNEX III: QUESTIONNAIRE

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

A study to asses Nurses knowledge of Breast Cancer and Screening methods in University Hospitals in Addis Ababa, Ethiopia.

This questionnaire has 2 parts: Part 1 socio-demographic characteristic of nurses' and part 2 about nurses' knowledge on breast cancer and screening methods.

Please read each item carefully and give your honest response to each item. If you overlook any item without response, it will affect the study. So, please check that you have given response to all items.

I thank you for your genuine responses and cooperation.

PART I: Demographic Characteristics of Respondents

Put tick mark (√) on the box provided to give your response accordingly.

No.	**Questions**	**Response**	**Code**
101	Age	_____ in years	
102	Sex	A. Male ☐ B. Female ☐	
103	Marital status	A. Single ☐ B. Married ☐ C. Divorced ☐ D. Widowed ☐ E. Separated ☐	
104	Nursing qualifications	A. Diploma ☐ B. Degree ☐ C. Other categories ☐	
105	Nursing experience (No. of years in nursing)	_____ completed years	
106	Current nursing Post	A. Clinical Nurse ☐ B. Midwife ☐	

107	Current unit of work	A. Medical ward ☐ B. Surgical ward ☐ C. Labor ☐ D. Gynecology ☐ E. Oncology ☐ F. Family planning ☐ G. Others specify _____	
108	Medical history	A. History of breast disease Yes ☐ No ☐ B. Family history of breast cancer Yes ☐ No ☐	
109	Have you ever nursed a patient with breast cancer?	A. Yes ☐ B. No ☐	

Part II: Breast cancer knowledge related questions

No.	Questions	Response	Code
201	What was your source of information about breast cancer? (More than one answer is possible)	A. Regular Course in nursing ☐ B. Radio/Television ☐ C. Books/magazines ☐ D. Trainings ☐ E. Work colleagues ☐ F. Others (specify) _____	
202	Are there risk factors that make a person vulnerable for breast cancer?	A. Yes ☐ B. No ☐ C. I don't know ☐	
203	If your answer for question no. 202 is yes, which one of these are risk factors for breast cancer? (Choose all that apply)	A. Use of oral contraceptive pills ☐ B. Prolonged breastfeeding ☐ C. Early menarche ☐ D. Late menopause ☐ E. Delayed first pregnancy ☐ F. Infertility ☐ G. Smoking ☐ H. Increasing age ☐ I. Multi parity ☐ J. Obesity ☐ K. Family history of breast cancer ☐ L. Tight Bra ☐ M. Other (specify)_____	
204	Which of the following is true about early breast cancer?	A. Have pain ☐ B. Does not cause pain ☐ c. Has symptom ☐ D. Does not have symptom ☐	

		E.A and C ☐ F.B and D ☐	
205	Signs as breast cancer grows could be? (Choose all that apply)	A. Breast Lump ☐ B. Bloody nipple discharge ☐ C. Breast skin changes ☐ D. Nipple retraction ☐ E. Pain on the breasts ☐ F. I don't know ☐	
206	Breast cancer is?	A. Preventable at early stage of the disease ☐ B. Can't be prevented at any stage of the disease ☐ C. Can be prevented before the disease manifests. ☐ D. Not preventable at all ☐	
207	Which of the following are measures for early detection of breast cancer? (Choose all that apply)	A. Breast self examination ☐ B. Examination of the breast by a health worker ☐ C. Mammography ☐ D. I don't know ☐ E. Others (specify)_____	
208	What are the treatment options for the disease?	A. Surgery ☐ B. Radiation therapy ☐ C. Chemotherapy ☐ D. Others (specify)_____	
209	For many women, breast cancer can now be successfully treated without breast removal (mastectomy).	A. Yes ☐ B. No ☐ C. I don't know ☐	
210	At which stage of diagnosis is breast cancer curable?	A. Stage 0 and I ☐ B. Stage 0,I and II ☐ C. Stage III and IV ☐ D. Not curable at all ☐	
211	At what age should a young woman begin doing breast self examination?	A. 20 yrs ☐ B. 25 yrs ☐ C. 30 yrs ☐ D. 35 yrs ☐	
212	How often should breast examination be performed?	A .Every 6 month near to time of ovulation ☐ B. Monthly 1to7days after menses ☐ C. Once a week before raising out of bed ☐	
213	How much difference does regular breast cancer screening make in the chance of curing breast cancer?	A. A great deal ☐ B. Some difference ☐ C. Little or no difference ☐	

214	A woman who gets regular mammography does not need to do breast Self Examination or have physical examinations?	A. Yes ☐ B. No ☐ C.I don't know ☐	
215	Mammography is used for the purpose of?	A. Screening breast cancer ☐ B. Diagnosing breast cancer ☐ C. Both ☐	
216	Age group most appropriate to start mammography screening?	A.20 years every 2 to 3 years ☐ B.30 years every 5year ☐ C.40 years every 1 to 2 year ☐	
217	Screening for mammography should be done:	A. Weekly ☐ B. Monthly ☐ C. Every six month ☐ D. Yearly ☐	
218	A woman who regularly feels her breasts is doing one of the most effective methods of breast cancer detection.	A. Yes ☐ B. No ☐ C.I don't know ☐	

ANNEX IV: BIOGRAPHY

1. **Biography of advisor**

Personal Information

Full Name - Workinsh Sinishaw

Place of birth - Gojjam

Date of birth-January19, 1968 G.C

Sex- Female

Marital status - Married

Nationality - Ethiopian

Current address; P .O .Box 4412

Telephone +251116 29 06 33

Mob- +251911 35 06 54

I-Level of education

	Education	**Institution**	**Years**	**Awards**
1	MPH in reproductive health	Addis Ababa University	2004-2008	Masters
2	Bsc Nursing	Jimma institution Of health	1994-1996	Degree in Nursing
3	Midwifery	Asmera Midwifery school	1990-1991	Diploma in midwifery
4	Comprehensive Nursing	Centralized school of nursing	1984-1986	Diploma

5	9th -12th grade	Damot secondary School	1979-1982	Certificate
6	7th-8 grade	Dembech Junior Primary school	1978 Double promotion	Certificate
7	1st -6th	Arbegheh Elementary school	1974-19977	Certificate

II-Courses and Training

- Research Methodology for 7 days
- Skill training for simulation for three consecutive days each years
- Prevention of mother to child transmission of HIV PMTC
- Post abortion care and harmful traditional practices in 1995 and 2000subsequentlly

III-Work experience

	Year	**Place**	**Responsibility**
1	1992-1993 2010-1996	Centralized school of nursing	✶ Basic Nursing Art theory and demonstration ✶ Medical surgical and obstetric nursing &gynecology ✶ Family health Nursing ✶ Clinical practice
2	1991-1996	Entoto health center	Acting head nurse of Delivery room
3	1988-87	Fenoteselam Hospital	As a staff nurse
	1986-1987	Metekel settlement center	As staff and acting head nurse

Other experiences

I have participated in preparation and conducting Nurses National examination for two consecutive years starting from 1997-1998.

Research Activities

Title;

1-Assessment of attitude and knowledge of women towards the delivery care in

Jimma hospital as a partial fulfillment of Bsc in nursing

2- Assessment of quality antenatal care at the primary care unit in Addis Ababa as a partial fulfillment of MPH degree .in reproductive health, in 2008

References

1-Prof.Asrate Demisse, Bsc,in nursing and MSc in education

2-Ato Brehane G/kidan Asst. Professor

3-Dr Negusie Daressa MD, MPH Advisor

2. Biography of principal investigator

***Personal Information*:**

Name : Semarya Berhe Lemlem

Date of Birth : September 29, 1987 G.C.

Sex : Female

Place of Birth : Addis Ababa

Nationality : Ethiopian

Marital Status : Single

LANGUAGE FLUENCY

Language	Writing	Speaking	Reading	Listening
Amharic	*Excellent*	*Excellent*	*Excellent*	*Excellent*
Tigergna	*Fair*	*Good*	*Good*	*Excellent*
English	*Excellent*	*Excellent*	*Excellent*	*Excellent*

Present Address: Addis Ababa, S/City – *Bole* Kebele: *01* H. No. -754

Tel. (Mobile): +251 911 01 03 47 (Residence): 251 116 18 56 07

P.O. Box- 23299 E-mail: semitaye@yahoo.com

Educational Background:

Higher education

- Years 2009/10- 2010/11: MSc fellow in Maternity and Reproductive health in Nursing, Addis Ababa University
- Years 2005/06-2007/08 : BSc Degree in Nursing, Addis Ababa University

High-school

- Years 2001/02-2004/ 05 : Nativity Girl's School

Elementary

- Years 1992/93-2000/01 : Assai Public School

Work Experience:

- Years 2007/08- 2008/09 : Mekelle University College of Health Science as Teaching Staff in rank graduate assistance GA I

Trainings and Skills:

- In service training on Rapid Testing by ITECH
- Pedagogy
- International English Language Testing System (IELTS) certificate
- Basic computer skill
- Research and computational Skills

Hobbies:

- Exploring Internet
- Watching movies
- Visiting historical places

References:

- Ato Asrat Demisse (Asst. Prof, BSc ,RN, MSc)
  Director of College of Health Science Department of Nursing and Midwifery
  Addis Ababa University
  Mob- +251911 20 11 35 E-mail- asrat_dem@yahoo.com
- Ato Alemayehu Bayray (BSc,RN, MPH, PhD fellow)
  Director of College of Health Science Department of Nursing and Midwifery,
  Mekelle University
  Mob- +251914 70 32 61 E-mail- alemayehub35@yahoo.com
- Ato Temesgen Tesfaye Woldekidan
  Mob- +251911-17-83-81 E-mail- temitw2002@yahoo.com

ANNEX V: DECLARATION

I, the undersigned, maternity and reproductive health in nursing student declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Masters in nursing has not been presented in any other university and that all sources of materials used in this thesis have been duly acknowledged.

Name: Semarya Berhe
Signature: _____

Place of submission: College of health sciences, Department of nursing and midwifery, university of Addis Ababa

Date of Submission: _____

This thesis work has been submitted for examination with my approval as university advisor.

Name: Sr. Worknish Sinishaw (BSc, MPH in RH)
Signature: _____
Date of Submission: _____