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LEVEL OF AWARNESS OF MAMMOGRAPHY AMONG BREAST CANCER PATIENTS ATTENDING FOLLOW UP AT TIKUR ANBESSA SPECIALIZED HOSPITAL, ADDIS ABEBA, ETHIOPIA

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ABSTRACT

Background: - Mammography has been used widely in developed countries with considerable success rate in reducing mortality and morbidity of breast cancer but very little is known about this imaging modality in resource limited developing countries. The main objective of this study is to determine level of awareness of mammography and determining factors influencing the level of awareness among breast cancer patients who had follow up at Tikur Ambessa Hospital, Addis Ababa Ethiopia.

Method: - Hospital based cross sectional study was conducted among 270 breast cancer patients in Tikur Ambessa Specialized Hospital to assess level of awareness and factors influencing level of awareness of mammography. Interviewer-administered structured questioner was used in data collection. Independent predictors of level of awareness of mammography were identified using multiple logistic regressions.

Results of the Study: Out of the total 270 study subjects, 46 (17%) of the women have awareness of mammography. Family history of breast cancer was the most frequently reported risk factor of breast cancer. Knowledge of participant about mammography is 10.4% and practice of mammography is 14.1%. Women with breast cancer those having tertiary education were 8.1 times **{AOR=8.1: 95% CI (2.24, 29.7)}** more likely to have awareness of mammography compared to women with breast cancer who are illiterate. Women with breast cancer those having good knowledge for risk factor of breast cancer were 6.7 times **{COR=6.7: 95% CI (1.7, 26)}** more likely to have awareness of mammography compared to women with breast cancer having poor knowledge of risk factor for breast cancer.

Conclusion and Recommendation: The level of awareness of mammography is low among breast cancer patients attending follow up at Tikur Ambessa Specialized Hospital. Interventions promoting awareness of this screening procedure and risk factor for breast cancer should give particular attention to the illiterate and older women while clinicians providing treatment and follow up of breast cancer patients should utilize the opportunity to inform the patients about the mammography procedure. Stablishing mammography service in healthy institutions and creating standard of practice requires particular attention.

Key words: Screening Mammography, Breast cancer (BC), Awareness, Tikur Ambessa Specialized Hospital, Mammography, Women, Awareness

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

ABBRIVATIONS

AAU……Addis Ababa University

TASH…… Tikur Anbessa Specialized Hospital

BC……Breast Cancer

BSE…….Breast Self-Examination

CBE…….Clinical Breast Examination

CDC…….Center for Disease Control

WHO…….World Health Organizations

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND INFORMATION

Breast cancer is the most common cancer type and the most common cancer related cause of death worldwide (1) in women. It makes 23 % cancer in women's and about one in eight women will develop breast cancer in her life time (2). In 2012 there was 1.7 million new case of breast cancer diagnosed (second most common cancer diagnosed). This represents 12% of all new cases of cancer and 25% of new cancer cases in the women (3). In low and middle income countries, the infrastructure and resources for routine Screening mammography are often unavailable. In such lower resource settings, breast cancers is commonly diagnosed at late stages of the disease, and women may receive inadequate treatment, pain relief, or palliative care (3). Because breast cancer is often diagnosed in late stages in women in low and middle income countries, mortality rates are often much higher compared with rates in developed countries (3).

The causes of breast cancer are not fully known. However, researchers have identified a number of factors that increase one's chances of getting breast cancer. These are called risk factors. Risk factors do not cause breast cancer, but can increase the chances of getting breast cancer. Some women have many risk factors, but never get breast cancer. And, some women have few or no risk factors, but do get the disease. Breast cancer risk factors includes family history of breast cancer; personal history of breast cancer; early menarche (< 12 years); late menopause (> 55 years); aging; alcohol; late age at first full-term pregnancy (> 30 years); never breastfed a child; recent oral contraceptive use; high fat diet; tobacco smoke; obesity (postmenopausal); recent and long-term use of hormone replacement therapy; high-dose radiation to chest; lack of physical activity (4).

There is a significant geographical variation in incidence rates of breast cancer, being highest in the developed world and lowest in the developing countries. However, in recent years, the incidence and burden of breast cancer is increasing dramatically in developing countries due to change in socioeconomic status and changing life style (3). Cancer remains a low priority for 75% of the world population from the developing world that will have to grapple with infectious diseases, the HIV/AIDS epidemic, poverty and malnutrition (5).

In sub-Saharan Africa, breast cancer is responsible for one in four diagnosed cancers and one in five cancer deaths in women (5). Despite its emerging public health importance, incidence rates are still generally low in Africa, presumably below 35 per 100,000 women in most countries (as compared to over 90–120 per 100,000 women in most European or North American countries). Precise incidence figures in Africa, however, are lacking given the absence of cancer registration in most countries. Recent data estimate that in 2012, 94,000 women developed breast cancer and 48,000 died from it in sub-Saharan Africa (5). It has been estimated that by 2050, the incidence of BC in Africa will de double of current 2012 estimate (5). The average age of diagnosis of breast cancers among African women tends to be young, with estimates that a majority of cancers develop among women 50 years or younger; a considerably younger age than seen in Caucasian populations (6). African-American women also tend to develop breast cancers at younger ages than Caucasian women in the U.S. (7) suggests that there may be additional factors involved, including either genetic or environmental factors or an interplay of the two. The average age at diagnosis in most studies was late 40's, about a decade younger than in the US or other Western populations (5). In addition, the majority of studies showed greater than 70% of patients had node positive or Stage III tumors, likely reflecting a

combination of a lack of organized screening or detection programs and potentially more aggressive tumor presentation(5).

Breast cancer is the second most often occurring cancer next to cervical cancer 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(8). According African Cancer Registry Network report, from cancer cases registered from September 2011 to August 2014 in Addis Ababa, BC was the commonest cancer with prevalence of 33 % (9). Another retrospective study conducted in TASH from 1997-2012 indicates that from total of 16,622 new cases registered, 3460 were new cases of breast cancer with prevalence of 20.8%, and approximately 216 cases per annum(3). This study also indicates increased incidence of the BC from year to year during this study time. The reasons for this was increased awareness of people to be diagnosed is improved and more cancerous patients are there in the country and inadequate or ineff ective control measure to stem its morbidity due to diversion of the health care system's attention to HIV/AIDS and malaria(3).

1.2 STATEMENT OF THE PROBLEM

Early diagnosis and early intervention is the only effective way of reducing mortality of BC. There are different modes screening for BC including breast self-examination (BSE), clinical breast examination (CBE) and mammography screening each with its own advantage and disadvantage. The American Cancer Society (ACS) recommends CBE and mammography in the early detection of breast cancer (10). According to ACS recommendations, women should know how their breasts normally feel and report any breast changes promptly to their health care providers. BSE is an option for women starting from the early 20s (10). ACS no longer recommends BSE as there is reliable data that breast cancer detection through BSE does not increase survival rate (10). Mammography is the

only breast cancer screening technique for which empirical evidence exists for its early detection and decreasing BC mortality (11). Mammography screening for breast cancer is widely available in many countries. Initially praised as a universal achievement to improve women's health and to reduce the burden of breast cancer. Screening for breast cancer with mammography aims at detecting breast cancer at an early, curable stage before the cancer has metastasized and when interventions are most effective, least invasive and debilitating. The main benefit of mammography screening is reduction of breast-cancer related death. Relative reductions vary from about 15 to 25% in randomized trials to more recent estimates of 13 to 17% in meta-analyses of observational studies (11). Randomized, controlled trials of women invited to mammography screening conducted between 1963 and1990 showed that early detection and treatment of breast cancer led to a 25% to 30% decrease in breast cancer mortality (12). More recent studies of service screening in Sweden and Canada have shown that screening mammography can reduce breast cancer mortality by 40% to 50% compared to unscreened women (12). As a result, the American Cancer Society recommends that asymptomatic women age 40 years and older have an annual mammogram and receive a clinical breast examination as part of a periodic health examination, preferably annually (12)

Even though there is no enough well documented data on the burden of BC in Ethiopia, annually many patients die of this disease because of majority of them presenting in late stage of the disease when nothing can be done to stop disease progression. For example, according to retrospective study conducted in BLH on 125 BC patients 60.2% of the patients had stage III and IV disease, in nearly all locally advanced stage III disease at presentation (13). This study also indicates that the majority of patients are in the age range of 30-49yrs (13).

Although risk reduction might be achieved with prevention, these strategies cannot eliminate the majority of breast cancers that develop in low and middle

income countries. Therefore, the key strategy in reducing breast cancer related mortality, improving breast cancer outcome and survival is screening to early detect and manage breast cancer. This is very important because an excellent prognosis is directly associated with the stage at which the tumor is initially detected and how localized the lesion is. Early diagnosis usually results in successful treatment before metastasis and signifies a better outcome (14)

Despite breast cancer being one of the few cancers that can be detected early before seeing symptoms using mammography, mammography is still only performed on a low proportion of the women population in Ethiopia. Despite the wealth of literature available globally documenting knowledge, attitudes and practices of women about breast cancer and mammography, there is still paucity of literature on the African experience including Ethiopia in this area. The aforementioned gaps form the basis of the present study. Hindrances to accessing mammography services not only in Ethiopia or Africa, but also globally should be identified and then health care authorities should establish strategies to overcome them.

In Ethiopia, communicable and chronic diseases are the major health issues and all the efforts and recourses are engaged into it. So far Government, non-government organizations and international partners all are giving their utmost effort to cope with these diseases. Cancer is on the bottom of their priority list. That's why there is no much infrastructure and facilities to fight against breast cancer in this country. Mammography is currently available in in few regional cities of the country where only few individuals have access to it. They are also limited to private owned facilities. Again in Ethiopia where literacy rate is not that high; poverty, culture and religion play an important role for health seeking behavior. Especially for women in rural areas one can easily assume that knowledge will be poor and practice will be even poorer. Furthermore there is lack of a uniform information, education and communication about breast cancer.

And this makes difficult to state the exact situation about the knowledge of breast cancer risk factors and practice of breast cancer screening methods in Ethiopia (15).

The thrust of this present study is to identify the factors that influence awareness of mammography among BC patients attending TASH. Understanding the relationship between patient's characteristics, perceptions, level of utilization of health services and practices related to breast cancer and mammography awareness could assist in identifying key variables in planning interventions for women in Ethiopia and similar low resource settings. Therefore, this study was conducted to assess awareness of mammography among breast cancer patients having treatment and follow up at Tikur Anbessa Specialized Hospital in Addis Ababa.

CHAPTER TWO

LITERATURE REVIEW AND SIGNIFICANCE OF THE STUDY

2.1 LITERATURE REVIEW

In 1963 the first randomized trial of mammography screening was launched within the Health Insurance Plan in New York, and several other trials followed (12). Many countries of Developed countries have included screening mammography in their health policy with tremendous reduction of breast cancer mortality. Although there have arguments and discussions regarding the appropriate age to have the first mammogram, American Cancer Society recommends asymptomatic women age 40 years and older to have an annual mammogram and receive a clinical breast examination as part of a periodic health examination, preferably annually(12).

Many developed countries have included screening mammography in their health care system. They have also high educational level and easy access to information. So it is not difficult to think that developed nation have good awareness of screening mammography. For example Study conducted in Spain showed that the awareness of mammography in the general population is 95.03 % (16). Another study conducted on women's attending health facility in Brazil showed that the awareness of mammography was 93.5% and their health centers were the main instrument to provide this knowledge (17). In study done in Delhi city, India Only four participants had not heard about the term mammography before. But despite high awareness of mammography, the knowledge and practice of the screening mammography is low in this study (18).

Despite the benefits of mammography, several previous studies demonstrated poor knowledge, attitudes and utilization among variable study populations in the developing world. Several factors have been identified as influencing the level of knowledge and utilization of screening services in general. Socio-demographic

characteristics such as younger age group and education have been reported with higher levels of awareness and utilization of screening services commoner among the educated and those with high socioeconomic class (11). Other variables associated with utilization of breast cancer screening services included access to health care (11). For example, according to study done Abidan city of Nigeria, only 5% of women's attending health care facility have ever heard about mammography. From this 5%, 71% of them have tertiary level of education. This low awareness level was attributed to low educational level and low information provided at care giving centers (11). This study also showed the highest proportion of awareness of mammography among those who obtained information from newspapers or magazines followed by friends or colleagues, hospital, and radio or television.

There are few researches conducted in East Africa on awareness of mammography. One study conducted in Uganda indicates 71% women's attending health facility had never heard about screening mammography (19). This was explained by lack of information and unavailability of mammography at health facility.

Many of studies previously done in Ethiopia focused on the knowledge, attitude and practice BC risk factor and screening methods especially on BCE. In Ethiopia there are no similar studies conducted before on the assessment of awareness of mammography on breast cancer patients. Some of the studies conducted before mainly focused on female health professionals, nurses, female students and teachers. According to study conducted on female health professional working in the government Hospitals of Addis Ababa, awareness of mammography as screening for BC was 81.4 %(15). But the most interesting result of this study was 84% of study population never had mammography screening test. The main reasons for this were lack of recommendation to have the test, insufficient availability of facility giving the service and fear of the result. Another study done

on nurses in the University Hospitals in Addis Ababa indicated their awareness of mammography screening test as means for early detection for breast cancer was 22.5 and 42.5% of nurses have no knowledge on BC and screening methods. (20).

2.2 SIGNIFICANCE OF THE STUDY

- Studies have not been conducted so far on the assessment of awareness of mammography and factor affecting in BC patients in Ethiopia.

- Findings from this study will provide a starting point for health authorities to raise awareness amongst women about mammography.

- This study will also serve as milestone for Minister of Health and other Governmental and non-governmental organization to introduce this imaging modality to the governmental health facilities.

- This study would serve as baseline information for future intervention program on breast cancer.

- Last but not least it will be helpful for health program planners to consider breast cancer in their priority health issues.

CHAPTER THREE

OBJECTIVES

3.1 GENERAL OBJECTIVE

- To access the awareness of mammography in breast cancer patients in Tikur Anbessa Specialized Hospital.

3.2 SPECIFIC OBJECTIVES

- To determine awareness about mammography in BC patients.
- To evaluate level of knowledge and practice about mammography
- To determine factors associated with awareness of mammography.

CHAPTER FOUR:

MATERIAL AND METHODOLOGY

4.1 STUDY AREA

The study was conducted at Radiology Department, Tikur Anbessa Specialized Hospital (TASH), and Addis Ababa, Ethiopia. TASH is a largest referral teaching hospital, under the administration of Addis Ababa University, located in Addis Ababa, Ethiopia. It has divisions such as internal medicine, surgery, gynecology and obstetrics, pediatrics, radiotherapy, adult oncology, pediatric oncology Hematology, Nuclear medicine, Psychiatry, Laboratory, Orthopedics, and Pharmacy etc. The hospital has 700 beds and give diagnostic and treatment service for about 370,000-400,000 patients per year. The Radiology department is one of the many departments in the institution which gives radiologic medical service and academic activities. The department is equipped with high-tech radiologic machine including 128 slice CT scanner and MR scanner but no mammography machine on service currently.

4.2 STUDY DESIGN AND DURATION OF STUDY

Hospital based descriptive cross sectional study using interviewer-administered questionnaire. The study was conducted from April to September 2017.

4.3 POPULATION

4.3.1 SOURCE POPULATION

All breast cancer patients having follow up at Oncology Department, Tikur Anbessa Specialized Hospital

4.3.2 STUDY POPULATION

All breast cancer patients who come to radiology Department for follow up imaging during study period.

4.4 SAMPLE SIZE DETERMINATION AND SAMPLING TECHNIQUE

4.4.1 SAMPLE SIZE

The sample size is determined using EPinfo version 20 considering 95% confidence intervals, and 5% marginal error. From previous retrospective study in the BLSH, the prevalence of BC in TASH was about 20.8 %(3). This figure was used as base line to estimates proportion of BC patient's in the study to be 20%. The following single proportion formula is used to estimate the sample size.

$$N= z^2p\ (1-p)/w^2$$

Where N- sample size

p- Proportion

Z- Level of confidence

W= marginal error

So total sample size was 270.

4.4.2 SAMPLING TECHNIQUE

Simple random sampling technique was used for sampling technique.

4.5 DATA COLLECTION PROCEDURES (INSTRUMENT, PERSONNEL, DATA QUALITY CONTROL)

4.5.1 DATA COLLECTION INSTRUMENT AND DATA COLLECTOR

Interviewer administered questionnaires was used to obtain information from the patients about their socio-demographic characteristics as well as their knowledge and utilization of breast cancer screening services. The questioner has sociodemographic characteristics such as age, marital status, and level of education, type of profession. The questioner also includes knowledge and Practices related to mammography. Since the main outcome variable in this study is awareness of mammography, the patients were asked "Have you ever heard mammography?" For patients who have heard before further questions related

with source of information, knowledge of mammography, practice of mammography was asked.

For women with no formal education, the most accurate description of the procedure in the local language was given based on a consensus determined by the Advisors.

Data was collected by Radiology Residents after adequate information about the study and contents of questioner is given.

4.5.2 DATA QUALITY CONTROL

To ensure quality of data, pre-test of data collection tools was done on patients not included in the main study by taking 5% respondents of the total sample size. The purpose of the pre-testing is to ensure that the respondents are able to understand the questions and to check the wording, logic and other ambiguity of the questions in a sensible way to the respondents.

4.6 STUDY VARIABLES

4.6.1 DEPENDENT VARIABLES

The dependent variable in this study is awareness of mammography.

4.6.2 INDEPENDENT VARIABLE

The independent variables in this study are all sociodemographic characteristics such as age, marital status, and level of education and employment. Family history of breast cancer, knowledge of risk factors for breast cancer and perception toward early detection of BC is also other independent variables in this study.

4.7 INCLUSION AND EXCLUSION CRITERIA

4.7.1 INCLUSION CRITERIA

The inclusion criterion for this study was breast cancer patients who are having treatment and follow up at BLSH.

4.7.2 EXCLUSION CRITERIA

The exclusion criteria are patients who are not enrolled at TASH. Severely ill and non-communicative patients are also excluded from study.

4.8 TERMS AND OPERATIONAL DEFINITIONS

Mammography: A mammogram is an x-ray of the breast with high special resolution, high soft tissue contrast and low radiation dose.

Screening mammography: A *screening mammogram* is used to look for signs of breast cancer in women who don't have any breast symptoms or problems. X-ray pictures of each breast are taken from 2 different angles.

Diagnostic mammography: Mammography done for diagnostic purpose in patients with sign or symptom of breast or abnormal screening mammography result.

Awareness: Those patients who had ever heard of mammography.

4.9 DATA PROCESSING AND ANALYSIS

Data was checked for completeness on a daily basis. To be edited and cleaned, the collected data was entered in Epi-Data version 3.1 and exported into SPSS version-20 for analysis. Incomplete and inconsistent data was excluded from the analysis.

The data was processed by using descriptive analysis, including frequency distribution, cross tabulation and summary measures. Test of association between the outcome variable and some of the respondent's socio-demographic features was investigated with bivariate logistic regression analysis method. To see the presence of independent predictor variables in relation to dependent will be measured using multivariate logistic regression method (adjusted odds ratios (OR) and 95% confidence interval (CI)) P values less than 0.05 was considered statistically significant.

4.10 ETHICAL CONSIDERATION

Data collection was started after getting permission from the ethical review committee of the Department of Radiology, TASH, and Ababa University. The purposes and the importance of the study was clearly explained by the data collectors when the study subjects came for imaging and informed consent was obtained from each participant

based on the information and consent form prepared for this particular study. The participants were informed about the confidentiality of their response and were maintained crucially by the data collectors as well as investigators. Participant's involvement in the study was on voluntary basis; participants who are unwilling to participate in the study and those who wish to quit their participation at any stage were informed to do so without any restriction.

4.11 DESSIMINATION OF THE RESULT

The results of the study will be presented to the research week which will be organized by the Department of Radiology Research Committee. Depending on the result of the study, it will be presented to those who are in need of this result and accordingly will advocate for those who can implement it. It will also be submitted to medical journal for publication.

CHAPTER FIVE

RESULT

5.1 Socio Demographic Characteristics of the Respondents

A total of 270 study participants were included with a response rate 100 %. The mean age of breast cancer patients participated in this study is 44.3 years and a range of 18-85 years. Majority of the participants in the study were aged between 40 to 49 years which account 26.7% followed by age range of 30-39, 22.6%. Age less than 30, 50-59 and above 60 year was 15.9%, 18.9% and 15.9% respectively. Amhara and Oromo ethnic group accounts the largest ethnic group participated in this study which accounts 40% and 29.9% respectively. Nearly three forth (68.5%) of the women follow orthodox Christianity. Majority of the participants, 75 (27.8%) do not have formal education. Those with primary education, secondary education and tertiary education ware 21.9%, 27.45 and 23% respectively. Largest proportions are not employed with proportion representing 203(75.2%) and the remaining 24.8% are employed. The majority of participants (84.4%) were married and 11.5% were single while the remaining 4.1% were either widowed or divorced. Only 33 (12.2%) of the women had family history of breast cancer (Table 1).

Table.1. Socio-demographic characteristics of women with breast cancer in Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2017 (N= 270)

Variables		**Frequency**	**Percentage**
Age	<30	43	15.9
	30-39	61	22.6
	40-49	72	26.7
	50-59	51	18.9
	≥ 60	43	15.9
Ethnicity	Oromo	80	29.6

	Amhara	108	40
	Sidama	2	0.7
	Tigre	24	8.9
	Walayta	9	3.3
	Other *	47	17.4
Religion	Orthodox	185	68.5
	Protestant	35	13
	Muslim	46	17
	Other **	4	1.5
Educational level	None	75	27.8
	Primary education	59	21.9
	Secondary education	74	27.4
	Tertiary education	62	23
Employment status	Employed	67	24.8
	Not employed	203	75.2
Marital status	Single	31	11.5
	Married	228	84.4
	Divorced	7	2.6
	Widowed	4	1.5
Number of pregnancy	None	50	18.5
	One	76	28.1
	Two	54	20
	Three and above	90	33.3
Family history of breast cancer	Yes	33	12.2
	No	237	87.8

Note * *Gurage, Somali* *** Catholic*

5.2. Knowledge of Participants about Risk Factor of Breast Cancer

Study participants reported various factors that predispose the woman to increased risk of developing of breast cancer. Family history of breast cancer has been mentioned most repeatedly (42.2%) as a risk factor for breast cancer, followed by obesity and no breast feeding which respectively were reported by 28.5% and 20% of the respondents. Least mentioned risk factors are no child birth (2.2%), advanced age (10%) and late menopause (1.5%) (Table 2).

Table.2. knowledge of women with breast cancer about risk factor of breast cancer in Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2017 (N= 270)

Variables		**Frequency**	**Percentage**
Advanced age	Yes	27	10
	No	243	90
No child birth	Yes	33	12.2
	No	237	87.8
Obesity	Yes	77	28.5
	No	193	71.5
Family history of breast cancer	Yes	114	42.2
	No	156	57.8
No breast feeding	Yes	54	20
	No	216	80
Late menopause	Yes	4	1.5
	No	266	98.5

5.3 Over all Knowledge of the Participants' about Risk Factor for Breast Cancer

To categorize the knowledge of women with breast cancer regarding to risk factors of breast cancer, from the given six risk factors, those mentioned > 4 were considered as having good knowledge, 3-4 as fair knowledge and those mentioned ≤ 2 were considered to have poor knowledge of risk factor.

From all participants, 224 (83%) had poor knowledge of risk factors while 13.7% and 3.3% of the participants have fair knowledge and poor knowledge respectively (Fig 1)

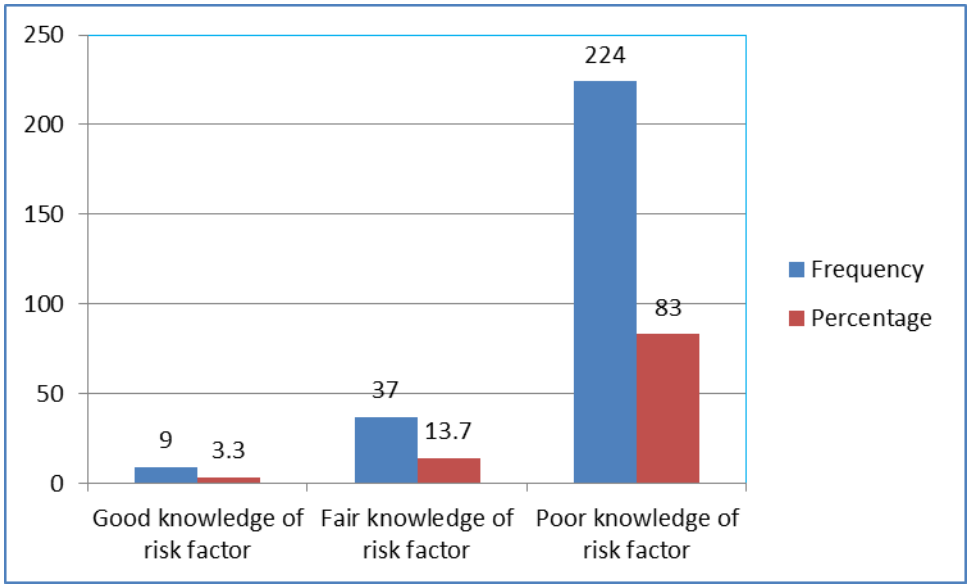

Figure .1 Knowledge of women with breast cancer about risk factor of breast cancer in Tikur Anbessa Hospital, Addis Ababa, Ethiopia, 2017 (N= 270)

5.4 Perception about Breast Cancer Early Detection

From all the respondents, 236 (87.4%) were agreed that early detection of breast cancer have better outcome. Only 39 (14.4%) of participant know at least one of the screening method of breast cancer. Among those mentioned breast cancer early detection method,

breast self-examination, clinical breast examination and mammography were reported by 72.1%, 4.6% and 23.3% of the respondents respectively (Table 3).

Table.3. Perception of women with breast cancer about breast cancer early detection in Tikur Anbessa Hospital, Addis Ababa, Ethiopia, 2017 (N= 270)

Variables		**Frequency**	**Percentage**
Early detection of breast cancer will have better outcome	Yes	236	87.4
	No	34	12.6
Any discussion about breast cancer in your community	Yes	34	12.6
	No	236	87.4
Know any screening test for early detection of breast cancer	Yes	39	14.4
	No	231	85.6
Which method do you know if you have early detection	BSE	31	72.1
	CBE	2	4.6
	Mammography	10	23.3

NB: Since multiple answers were possible for methods of early detection of breast cancer, the total may be greater than 39.

5.5 Awareness and Knowledge of Participant about Mammography

To access level of awareness of the participants about mammography, there was awareness question which indicates whether they have ever heard of mammography or not. Those women who have heard of mammography were taken as having awareness while those haven't heard of mammography were considered as no awareness. Most of the respondents, 224 (83%) had no awareness of mammography while 46 (17%) of them had awareness of mammography (Fig 2).

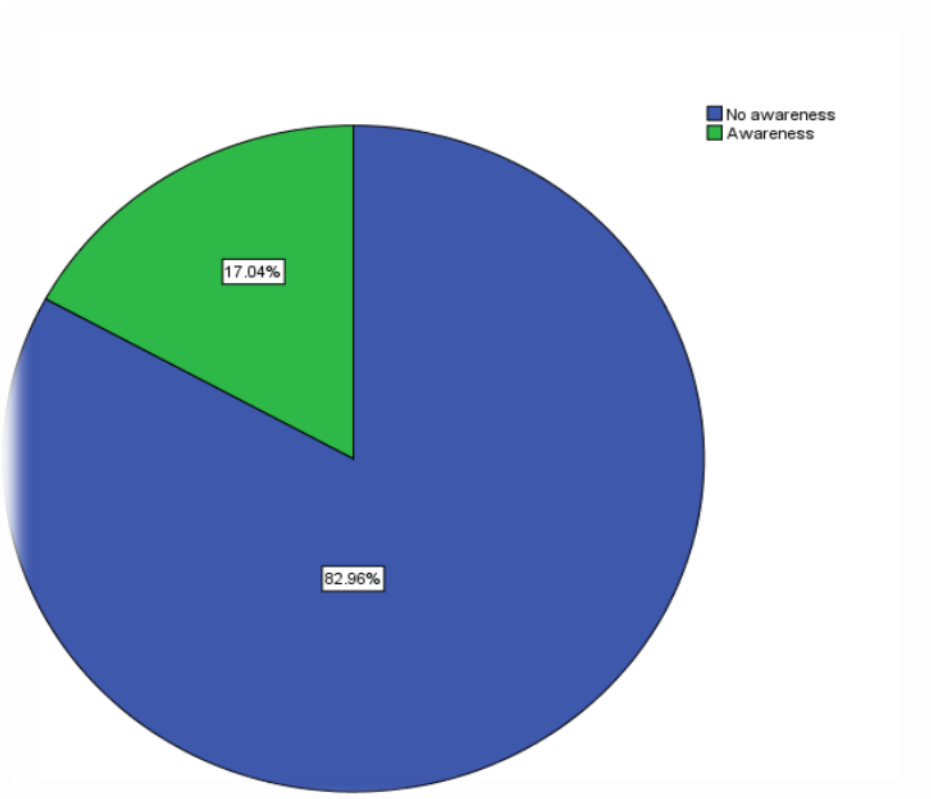

Figure .2 The overall awareness of women with breast cancer about mammography in Tikur Anbessa Hospital, Addis Ababa, Ethiopia, 2017 (N= 270)

Thirty four (73.9%) were heard of mammography after they diagnosed to have breast cancer and only 12 (26.1 %) women were heard before they diagnosed to have breast cancer. Health facility is the major source of information (71.7%) while the remaining 28.3 % mentioned television, radio, friends and neighbors as source of information about mammography.

Among breast cancer patients who have heard of mammography, 23(50%) correctly answered as mammography as x ray of breast. Half (50%) of them who have heard of mammography also knew the purpose of mammography. Majority of them, 42(91.3%) didn't know age at which base line screening mammography start. Only 3(6.5%) knew that screening mammography is done every year. Majority of them, 34(73.9%) didn't know whether mammography is the same as ultrasound or not (Table 4).

Table.4. Awareness and knowledge of women about mammography in Tikur Anbessa Hospital, Addis Ababa, Ethiopia, 2017 (N= 270)

Variables		**Frequency**	**Percentage**
Have you heard of mammography	Yes	46	17
	No	224	83
source of information	radio/ television	11	23.9
	Health facility	33	71.7
	Neighbors or friend	2	4.4
When you heard about mammography	Before diagnosed to have breast cancer	12	26.1
	After or at the time when diagnosed to have breast cancer	34	73.9
What is mammography	X ray of breast	23	50
	Do not know	23	50
Purpose of mammography	To diagnose breast cancer	23	50
	I don't know	23	50
Age at which first mammogram should be done	Whenever problem in the breast	2	4.3
	Above 40 year	2	4.3
	I don't know	42	91.3
Recommended frequency for mammography screening test	Ones a year	3	6.5
	I don't know	43	93.5
Is mammogram same as ultrasound	Yes	3	6.5
	No	9	19.5
	I don't know	34	73.9

To calculate knowledge score the points was given for each knowledge questions. The responses were summed up and a total score obtained for each respondent. The mean was calculated and those scored above mean were considered to have good knowledge and those scored below mean were considered poor knowledge.

Among women who have mammography awareness only 10.4% have good knowledge about mammography and large proportion of them have poor knowledge. (Fig 3).

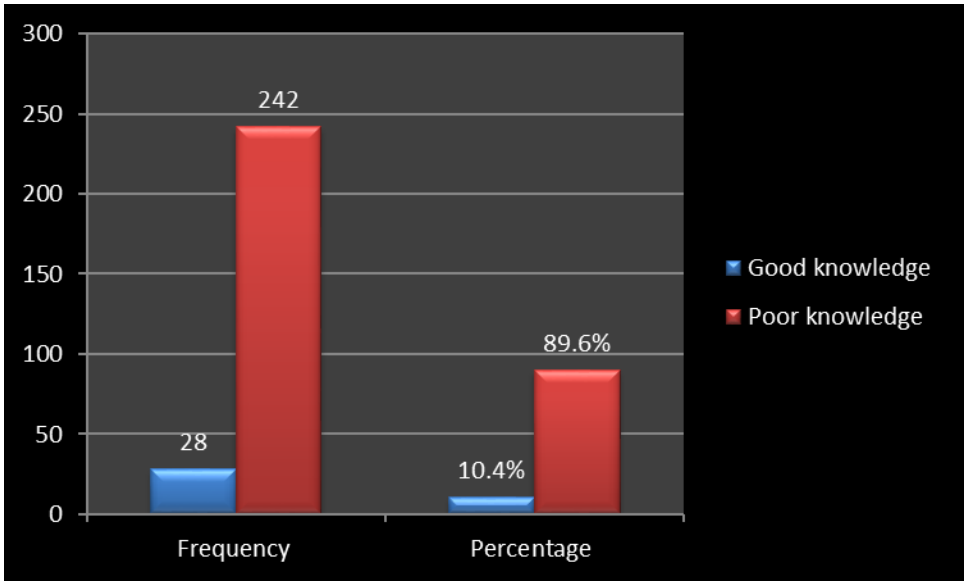

Figure .3 The overall knowledge of women with breast cancer about mammography in Tikur Anbessa Hospital, Addis Ababa, Ethiopia, 2017 (N= 270)

5.6. Practice of Mammography

Out of the total 270 women participated in the study only 38(14.1%) had mammography test. Among this 37(97.3%) were diagnostic mammography and only one (2.7%) patient had screening mammography test. Majority of them, 47.8% women whose age were above 40 years reported that they do not know that screening mammography test was supposed to be done. Other reasons mentioned for not having screening mammography were lack of advice from physician, non-availability of the procedure and lack of knowledge about screening mammography. (Table 5).

Table.5. Practice of mammography among women with breast cancer in Tikur Anbessa Hospital, Addis Ababa, Ethiopia, 2017 (N= 270)

Variable		**Frequency**	**Percentage**
Have you had mammography test	Yes	38	14.1
	No	232	85.9
purpose of the test	Diagnostic mammography	37	97.3

	Screening mammography test	1	2.7
Reason for not having mammography	don't know that it was supposed to be done	129	53.4
	No physician told me to do so	56	23.2
	It is not available to get the procedure	41	16.9
	Not required as there was no problem of breast	12	4.9
	I didn't know where to go	4	1.6

NB: Since multiple answers were possible regarding to reason for not having mammography, the total may exceed 232.

5.7 Factors Associated with Awareness of Mammography

Binary Logistic regression was used to assess the association of each independent variable with awareness of mammography. The binary logistic regression analysis indicates that level of education, marital status and good knowledge of risk factor for breast cancer has association with awareness of mammography. The associated factors which showed a p-value< 0.2 and less were added to multivariate regression model for analysis.

In the binary logistic analysis, women with breast cancer those having good knowledge for risk factor of breast cancer were 6.7 times **{COR=6.7: 95% CI (1.7, 26)}** more likely to have awareness of mammography compared to women with breast cancer having poor knowledge of risk factor for breast cancer.

Women with breast cancer those having tertiary education were 5.7 times **{COR=5.7: 95% CI (1.9, 16.53)}** more likely to have awareness of mammography compared to women with breast cancer who had no formal education. Women with breast cancer those have secondary education were 3.2 times **{COR=3.2: 95% CI (1.1, 9.5)}** more likely to have awareness of mammography compared to women with breast cancer patients with no formal education.

The other variable that was associated with awareness of mammography was marital status. Women with breast cancer those divorced were 7 times **{COR=7: 95% CI (1.03, 47.4)}** more likely to have awareness of mammography compared to women with breast cancer those single.

The multi regression analysis revealed that (P-value <0.05) level of education is a variable which is found to have association with awareness of mammography. Women with breast cancer those have secondary education were 3.2 times **{AOR=4.5: 95% CI (1.39, 14.77)}** more likely to have awareness of mammography compared to women with breast cancer those illiterate. Women with breast cancer those have tertiary education were 8.1 times **{AOR=8.1: 95% CI (2.24, 29.7)}** more likely to have awareness of mammography compared to women with breast cancer those illiterate (Table 6).

Table.6. Bivariate and multivariate logistic regression analysis of mammography awareness and its explanatory Variables

Variables	**Awareness**		**P Value**	**COR, 95%CI**	**AOR, 95%CI**
	Yes	**No**			
Age					
<30 years	1(2.2%)	19(8.5%)		1	1
30-39 years	15(32.6%)	53(23.7%)	0.23	0.2 (0.03-2.20)	3.7.(0.41-33.58)
40-49 years	14(30.4%)	64(28.6%)	0.43	1.3 (0.53-3.57)	2.43(0.25-22.91)
50-59 years	8(17.4%)	49(21.9%)	0.34	1.0 (0.41-2.77)	2.98(0.30-28.89)
>=60 years	8(17.4%)	39(17.4%)	0.22	0.79 (0.27-2.31)	4.24(0.41-43.99)
Level of education					
None	5(10.9%)	70(31.3%)		1	1
Primary	9(19.6%)	50(22.3%)	0.10	2.5 (0.79-7.9)	2.77(0.82-9.33)
Secondary	14(30.4%)	60(26.8%)	0.01	**3.2 (1.1-9.5)***	**4.54(1.39-14.77)****
Tertiary	18(39.1%)	44(19.6%)	0.001	**5.7 (1.9-16.53)***	**8.16(2.24-29.70)****
Employment status					
Employed	12(26.1%)	55(24.6%)	0.13	1.08 (0.52-2.23)	0.50(0.20-1.22)
Not				1	1

employed	34(73.9%)	169(75.4%)			
Marital status					
Single	3(6.5%)	28(12.5%)		1	1
Married	39(84.8%)	189(84.4%)	0.57	1.9 (0.55-6.65)	1.58(0.32-7.87)
Divorced	3(6.5%)	4(1.8%)	0.14	**7 (1.03-47.4)***	5.66(0.54-59.15)
Widowed	1(2.2%)	3(1.3%)	0.36	3.1 (0.24-40.1)	3.86(0.20-73.31)
Number of pregnancy					
None	6(13.0%)	44(19.6%)		1	1
One	19(41.3%)	57(25.4%)	0.91	1.44 (0.9-6.63)	1.07(0.29-3.93)
Two	8(17.8%)	46(20.5%)	0.71	1.2 (0.40-3.97)	0.77(0.19-3.07)
Three and above	13(28.3%)	77(34.4%)	1.0	1.2 (0.43-3.48)	1.0(0.27-3.70)
Family history of breast cancer					
Yes	4(8.7%)	29(12.9%)		1	1
No	42(91.3%)	195(87.1%)	0.54	1.56 (0.52-4.67)	1.43(0.42-5.03)
Good knowledge of risk factor					
Yes	5(10.9%)	4(1.8%)	0.09	**6.7 (1.7-26.0)***	3.72(0.79-17.44)
No	41(89.1%)	220(98.2%)		1	

***P** value is significant at P < 0.2* ***** P** value is significant at P < 0.005*
***COR** crude Odd Ratio* ***AOR** Adjusted Odd Ratio*

CHAPTER SIX

DISCUSSION

This facility based cross sectional study was done to assess the level of awareness of mammography screening among breast cancer patients attending follow up at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia.

This study indicates poor knowledge of participants about risk factor for breast cancer. Majority of them (83%) have poor knowledge of risk factors. In contrast to this study, study conducted in Addis Ababa Ethiopia among female health workers indicates satisfactory knowledge of risk factor for breast cancer where 27.7% of the study participant have good knowledge of risk factors and only 15% have poor knowledge (15). The difference of this study with studies can be explained by difference in sample size, composition of study population, educational level, access to health care and information like mass Medias.

Health facilities and health care providers are not only responsible for delivering specific treatment for the patient. They have to play critical role in awareness creation how to prevent the disease and treat the disease at early curable stage. Breast cancer is one of the cancer in which early detection has great impact on treatment outcome. This early detection can be achieved by BSE, CBE and screening mammography. American Cancer Society (ACS) no longer recommends BSE as early detection mechanism CBS and mammography are currently widely used. Mammography is the only breast cancer screening technique for which empirical evidence exists for its early detection and decreasing BC mortality (11). In current study about 87% of the participant have good perception of early detection of breast cancer will have better outcome. Despite this, there is the disappointingly low level of knowledge of participants on early detection mechanism. In this study only 39(14.4%) of participant know at least one of this early detection mechanisms and 72.1% of them mentioned BSE while mammography was mentioned by 23.3% of respondents. Similar study conducted in Uganda indicates that 66% women's involved in the study know BSE and none of them know mammography.

This low level of knowledge about mammography as means for early detection of breast cancer can be explained by low level of knowledge and facts about breast cancer. Low educational level of in this study is another factor and women's may not get access to accurate information about breast cancer.

This study has found low level of awareness of mammography and important sociodemographic and health related variables predicting level of this awareness. Proportion of patients who had ever heard of mammography was 17%. This figure is higher than proportion reported among women's of Nigeria. Obajimi et al. (11) found that only 5% of women's attending outpatient clinic had mammography awareness. This difference can be explained by difference in characteristics of study population. About 74% of patients having mammography awareness in current study ever heard of mammography after or at the time of their breast cancer diagnosis. From this we can understand that health education and diagnostic work up during breast cancer work up have contributed for increased awareness. However this current study awareness level is inconsistent with that of Developed and middle income countries. Study conducted in India (18) indicates high proportion of mammography awareness which accounts 99%. This difference can be explained by difference in level of education of study participant, where 55.5% of Indian study are women's of University graduate while in current study on 25% of the patients have tertiary level education. From this we can understand that education mass media can create awareness in the community.

Information plays great role in creating awareness in the community. This can be achieved both at community level and health facilities through mass media, health education and other means of interpersonal relationships. In this study about 72% of the participants who have mammography awareness get information from health facility and about 24% get from mass media. This result is inconistitant with result from study done in Nigeria (11) which indicates mass media as main source of mammography awareness. This difference can be explained by difference of educational level in which 80%

participants in Nigerian study had formal education while in current study 28% of the patients have no formal education. From this we can understand that health facilities are main area of awareness creation in current study. But mass media have more chance of reaching large population especially in our context where health facility are not well expanded to rural areas of the country where the largest population found.

This study indicated low level of knowledge about mammography. Only 10.4% have good knowledge of mammography among patients who have mammography awareness. In this study 50% of patients who had mammography awareness knew that mammography is x ray of breast with the purpose of diagnosing breast cancer. Study from India (22) also showed that about 56% of the participant knew what mammography is and 27.3% knew the purpose of mammography. This difference in knowledge of purpose of mammography can be explained by large proportion of the patients in current study get awareness of mammography after diagnosed to have mammography. Among 14% of patients who undergone mammography test was also for diagnostic purpose. So this this two reasons can explain better knowledge of purpose of mammography in this study. In this study only 4.3% of patients who had mammography awareness know screening mammography start at the age of 40 and only 6.3% know it should be done every year. This knowledge parameter is low. This is lower than the study conducted in India(22) where 11.8% and 21.6 of participant women's knew age at which base line mammography should be done and frequency to done respectively. This difference can be explained by difference in composition of study population and difference in educational level.

In the current study practice of mammography test was about 14 % and 97.3% of the test was for diagnostic purpose while only 2.7% was for screening purpose. This result is better than Nigerian study (11) and Uganda study (19) where none of the participant have mammography test before. This difference can be explained by variability in composition of study population between the two studies. However this finding was inconsistent with the finding in the Brazil were 38% of women were practiced mammography screening test (17). The explanation for this difference may be due to the high level of knowledge

about mammography in Brazil study with proportion of 93% compared with low level of knowledge in current study, nearly 10%. This all facts support that mammography screening is not popular among women's. In this study there are many reasons mentioned by patients above age of 40 year for not having screening mammography before. Majority (54.4%) of the patients reported that they do not know that it was supposed to be done. The other 23% mentioned lack of order from physicians and other 16.9% stated not availability of procedure. The same reasons was mentioned in Indian study (18) where 38.5% of our women did not know they were supposed to get it done and 25% mentioned lack of order from physicians, In a study from Mulago, Uganda also majority reported they did not go for mammography because they had never heard of it and its use in investing breast cancer (19). This suggests that physicians and the media should focus on teaching community. Hospitals and other health facilities also need to be equipped with mammography and necessary human power.

The findings from association between mammography awareness and variables revealed that education was strongly significantly associated with mammography awareness. . Having tertiary level of education AOR=8.1: 95% CI (2.24, 29.7)} was significantly associated with awareness of mammography. Obajimi et al. (11) also showed similar association ($p<0.001$) of awareness of mammography and level of education. Similar finding was also reported by Akinola (23) and Lee et al. (24). Educated women are more likely to benefit from most messages concerning breast cancer knowledge and methods of prevention and thus more likely to learn about mammography. The same finding was reported in the study done in United Arab Emirates among women where maternal education ($p = 0.001$) significantly associated with the awareness of mammography (21).

Another variable which has significant association with awareness of mammography is knowledge of breast cancer risk factors. Patients who have good knowledge for risk factor of breast cancer were 6.7 times **{COR=6.7: 95% CI (1.7, 26)}** more likely to have awareness of mammography compared to women with breast cancer having poor knowledge of risk factor for breast cancer.

Family history of cancer was not significantly associated with awareness of mammography. Similar results were found by Akinola et al. (23) and West et al. (25). One would have expected a higher level of anxiety among women with family history of breast cancer which should translate to a higher level of mammography awareness. However fear of having a positive screening test could make utilization of breast cancer screening services low (23)

CHAPTER SEVEN

CONCLUSION

Early detection of breast cancer the best way to reduce breast cancer mortality and morbidity. This can be achieved through implementing screening mammography which is currently standard mechanism worldwide. The result of this study indicates low proportion of women with breast cancer who have awareness about mammography which accounts about 17%. There is also low level of knowledge and practice of mammography. Majority of them get awareness after diagnosed to have breast cancer from health facility. Knowledge of participants about risk factor for breast cancer is also low. Family history of breast cancer was the most frequently mentioned risk factor of breast cancer. This study also indicates that only 14.1 % participants have practice of mammography and almost all was for diagnostic purpose with only one patient underwent screening mammography before. Knowledge of risk factor for breast cancer and level of education was significantly associated with awareness of mammography among women with breast cancer. There is a need to design awareness creation program plan and implementation. This study has provided some information about factors

influencing mammography awareness in a developing country. Important opportunities for interventions have been identified based on these factors. Clinicians and other health workers have an important role to play in improving the level of awareness concerning mammography especially among hospital attendees.

CHAPTER EIGHT

RECOMMENDATIONS

Based on the finding of the study the following important recommendation is forward for respective body on increasing awareness of mammography. Therefore this study recommend to :-

Federal ministry of Health

- FMOH should prepare awareness creation program by using different means like media and campaign to increase knowledge and practice of women regarding mammography screening test. There is also need to stablish mammography cervices in hospitals.

Non-Governmental Organizations

- Non-governmental organizations should also be engaged in awareness creation and in providing mammography cervices in collaboration with other respective stakeholders.

Health Care Providers

- Breast cancer patients come from different corner of the country as TASH is only oncology center in the country currently. So they can play important role in

dissemination of information related BC and early detection mechanism like screening mammography. Health care providers should use this opportunity to provide education and necessary information on mammography in the community at large.

Other Researchers

- Further research should be conducted as this study is the first study conducted in the country.

CHAPTER NINE

STRENGTHS AND LIMITATION OF THE STUDY

9.1 STRENGTHS

- This study is the first study that attempted to assess awareness of mammography among breast cancer women in Ethiopia
- Found base line information for future health plan.
- Can be used as a resource for future study.

9.2 LIMITATION

- Since the study design is cross sectional it does not show causal relationship.
- Presence of very limited similar studies in the country for comparison purpose.

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ANNEX - I

ENGLISH VERSION QUESTIONNAIRE

INFORMED CONSENT SHEET

ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE

SCHOOL OF POST GRADUATE STUDIES DEPARTMENT

RADIOLOGY

Good morning/afternoon, my name is _____ and I am a data collector. The principal investigator is Dr Abdi Alemayehu, student in Addis Ababa University for partial fulfillment in requirement post graduate degree in Radiology.

Currently we are conducting a study on awareness of mammography screening test among breast cancer patients in Black Lion Specialized Hospital. We believe that the study findings will help to improve outcome of breast cancer patients. If you participate in the study, it will not take more than 15-20 minutes. The information that you give using this questionnaire used only for research purpose and all information you provide to me will be strictly confidential. The study has no risk to you and your family members but mild time consuming. Therefore I politely request your cooperation to respond at all or to withdraw in the meantime, but your input has great value for the success of my objective. Do you agree? Now please tell me if you agree to participate in the filling of the questionnaire.

Yes continue No good bye

Thank you for your cooperation!!

Interviewer name _____ signature _____Date _____ month_____ year_____

Supervisor name _____ signature _____Date _____ month_____ year_____

ANNEX-II

QUESTIONER

Instructions: This format contains questions which are pertinent to the research objectives. You are kindly requested to answer all as complete as possible and carefully by filling the blank spaces and encircling one appropriate choice from the alternatives given.

Date ----------

Sociodemographic related questions

1. Age of the patient……..
2. Ethnicity.

   A. Oromo B. Amara. C. Sidama D. Tigre E Walayita F. Others (specify)
3. Religion.

   A. Orthodox B. Protestant C. Muslim. D. Waaqeffataa E. Others (specify)
4. Educational level

   A. None B. Primary education. C. Secondary Education. D. Tertiary education and above
5. Employment

   A. Employed. B. Not employed.
6. Marital status

   A. Single B. Married C. Divorced D. Widowed
7. Number of pregnancy

   A. None B. 1 B. 2 C. 3 D. 4 or above.
8. Family history of breast cancer

A. Yes B. No

Questions to assess knowledge of participant about risk factor for breast cancer.

Fill the following table by writing 'yes' mentioned factor is a risk to develop breast cancer and 'No' if it is not risk factor.

Risk factor breast cancer	Yes	No
Advanced age		
No child birth		
Obesity		
Family history of breast cancer		
No breast feeding		
Late menopause		

Questions related to perception about breast cancer early detection

1. Do you think that early detection of breast cancer will have better outcome?
   A. yes B. No
2. Do you have any discussion about breast cancer in your community?
   A. Yes B. No
3. Do you know any screening test for early detection of breast Cancer?
   A. yes. B. No
4. If your answer is yes, mention method you know (more than one answer possible).
   A. BSE B. CBE. C. Mammography

Questions Related to awareness and knowledge of participant about mammography.

1 Have you heard of mammography?

A. Yes B. No

2 If your answer is yes what was the source of your information?

Radio/Television	
Health Facility	
Neighbors or friend	
Work place	
Ikub/idir.	
I don't remember	
Others……	

3 When you heard about mammography

A. Before diagnosed to have breast cancer.

B. B. After or at the time when diagnosed to have BC

4 If your answer to number one question is yes what is mammography?

A. X ray of breast

B. Ultrasound of breast

C. I don't know

5 What is the purpose of mammography?

A. To diagnose breast Cancer

B. To treat breast cancer

C. I don't know

6 What is the age at which first mammogram should be done?

A. Whenever problem in the breast

B. Above 40 year

C. I don't know

7 What is the recommended frequency for mammography screening test?

A. One's a year

B. When Doctor advice

C. Every five year

D. I don't know

8 Is mammogram same as an ultrasound?

A. YES

B. No

C. I don't know

Questions related with practice of screening mammography test.

1. Have you had mammography test?
   A. Yes B. No
2. If your answer is yes what was the purpose of the test?
   A. Diagnostic mammography
   B. Screening mammography test

Question related to the reason for not having mammography screening test (only for patients above 40 years of age)

Fill the following table for the reason why you don't have mammography screening test. Write 'x' for your reason (more than one answer is possible)

I don't know that it was supposed to be done	
No physician told me to do so	
It is not available to get the procedure	
Not required as there was no problem of breast	
I didn't know where to go	

Thank you for participation.