



**Saint Paul's Hospital Millennium Medical College Department of
Public Health**

Ethiopian Field Epidemiology Training Program

**Knowledge, Attitude and Practice on Breast Cancer and
Factors associated with Breast Self Examination among
residents of Addis Ababa city, Ethiopia, 2019**

**By
Wondimu Tsegaye (MD)**

**A thesis submitted to St. Paul's Hospital Millennium Medical
College Department of Public Health for Partial Fulfilment of the
Degree of Master of Public Health in Field Epidemiology**

**October, 2019
Addis Ababa, Ethiopia**

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October, 2019

Addis Ababa, Ethiopia

DECLARATION

I hereby declare that, this thesis is my original work and has not been presented for a degree by another person in this or any other university and all source materials used for this compiled body work have been duly acknowledged.

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Date _____

The MPH in Field Epidemiology thesis has been submitted for examination with my approval as a university academic advisor

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Signature_____

Date_____

**St. Paul's Hospital Millennium Medical College (SPHMMC)
Department of Public Health**

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**DEPARTMENT OF PUBLIC HEALTH, ST. PAUL'S HOSPITAL
MILLENNIUM MEDICAL COLLEGE**

APPROVAL BY EXAMINING BOARD

Chair person, School Graduate Committee

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ACKNOWLEDGMENT

First of all I would like to thank my advisors, Mrs. Frehiwot Worku and Mr. Tesfalem Teshome, for their guidance and constructive comments given during the preparation of this thesis work.

I am also thankful to staffs at Addis Ababa Public health Emergency and Research Directorate and the respective Sub cities and woreda health offices for their facilitation role in execution of the study. My sincere thanks also go to all the study participants, data collectors and supervisors who made this happen.

Additionally my heartfelt gratitude goes to SPHMMC, Department of Public health for giving me the opportunity to prepare thesis.

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ACRONYMS

AOR	Adjusted Odds Ratio
BSE	Breast self-examination
CBE	Clinical Breast Examination
CI	Confidence Interval
COR	Crude Odds Ratio
KAP	Knowledge ,Attitude and Practice
OPD	Outpatient Department
OR	Odds Ratio
ROC	Reproductive organ cancers
SD	Standard Deviation
SPSS	Statistical package of social sciences

ABSTRACT

Background: Breast cancer is a major life-threatening public health problem of great global concern. Lack of early detection and management service and limited awareness of early signs and symptoms of cancer make the situation worse in developing countries. However in Ethiopia, only few researches were done and thus limited information. The study assessed the level of knowledge, attitude and practice about breast cancer among residents of Addis Ababa City.

Methods: A cross- sectional study was conducted on a sample of 630 women. The sample size was equally divided among three randomly selected woredas. Samples were selected by systematic sampling technique. Data were collected by trained data collectors through a face-to-face interview using pre-tested, semi-structured questionnaire. Bivariate and multivariate logistic regression analyses were done and P-value and 95% confidence interval for odds ratio were used to decide the significance of the associations.

Result: The study revealed that only 45.6 % of participants had good overall knowledge about breast cancer and BSE. Although 53% of the study participants had positive attitude towards BSE; only 17% reported that they practice BSE monthly. A significant association was found between occupational status and practice of breast self examination (AOR 2.73, P=0.011). The same was for knowledge towards breast self examination (AOR 11.5, P=0.000)

Conclusion and recommendation: Majority of women in Addis Ababa had low knowledge and insufficient breast self examination practices though most had positive attitude towards breast self examination. The region's health bureau and local mass-media need to work on breast cancer awareness and practice of the women in the city.

Key Words: *Breast cancer, Breast self examination, Ethiopia*

Word count: 252

1. Introduction

1.1. Background

Breast cancer is a major life-threatening public health problem of great global concern [1,2]. Increase in the incidence of this disease is being observed in both industrialized and developing countries. Breast cancer is the most prevailing cause of cancer morbidity and mortality among women in most parts of the world [3]. It is the leading type of cancer in women [4] and is the most common cancer among women in many parts of Africa [5]. The emergence of breast disease and the subsequent development of cancer tend to be more aggressive in young women compared with breast cancer progression in the older population. Young age at diagnosis correlates with worse prognosis and defines a subset of breast cancers with shared patterns of gene expression. The high mortality rate among young women is mainly due to lack of breast cancer awareness [6].

Early discovery of breast lumps through breast self-examination (BSE) is important for the prevention and early detection of this disease. Young women aged 20-29 years with breast cancer experienced mortality rate of 72.4% from the diseases [7]. Early detection of breast cancer plays an important role in decreasing its morbidity and mortality [8]. Though BSE is one of the inexpensive and easy screening methods for early detection of breast cancer [9,10], however, women in developing countries do not perform BSE for various reasons [11]. Most advanced techniques for early detection is not readily available to most of the women in Sub Saharan Africa [12, 13]. BSE is appealing as a routine screening method because the examination has no financial cost (apart from the initial instruction sessions), and can be conducted in private [14]. Most studies on the effectiveness of BSE have been observational. These studies suggest that women are more likely to find their breast tumors themselves, the tumors tend to be smaller and that these women have an increased survival [15].

The evidence of primary cancer prevention is slowly growing; its strategies cannot yet be implemented in clinical prevention programs, therefore, secondary prevention and early detection of cancer remains the main focus for reducing breast cancer mortality. The early detection and diagnosis rate of breast cancer is considerably low among Ethiopian women

compared to women in Western countries [16]. This fact reflects the lack of awareness of breast cancer as well as low cancer detection and prevention activities among Ethiopian women. Therefore, many women miss early detection and treatment opportunities due to lack of information, knowledge, and awareness of breast cancer, as well as cancer screening practices [17]. Although there is no cancer registry in Ethiopia, clinical records from Black Lion Hospital Radiotherapy centre, Addis Ababa, indicates that among the top 10 cancers seen there, carcinoma of the cervix and breast ranks number one and two, respectively. The fact that there is paucity of literature in women understanding of breast cancer in the community, this study is planned to be undertaken to assess the knowledge, attitude and practice of breast cancer and BSE among residents of Addis Ababa, Ethiopia.

1.2. Statement of the problem

Breast cancer is one of the most commonly diagnosed cancers worldwide which account (1.7 million, 11.9%) in 2012 and there were 6.3 million women alive who had been diagnosed with breast cancer in the previous five years. Since the 2008 the mortality rate of breast cancer is increased by 14%. Breast cancer is also the most common cause of cancer death among women (522,000 deaths in 2012) and the most frequently diagnosed cancer among women in 140 of 184 countries worldwide. It is also the leading cause of cancer death in less developed countries of the world. Even though the incidence of breast cancer is higher in developed countries but the mortality is higher in less developed countries due to lack of early detection and management service as well as limited awareness of early signs and symptoms of cancer among the public and health care providers (4,7).

Unlike early detection in western world, women in Ethiopia usually present late screening for breast cancer and are expected to have a very limited life span. The Oncologic service in Ethiopia is limited to only one Radiotherapy Center at Black Lion Specialized Hospital (10).

In Ethiopia, It is estimated that around 10,000 Ethiopian women have breast cancer with thousands of more cases unreported because the women living in rural areas preferred a treatment from traditional healers. In Ethiopia, Breast cancer become fatal due to late presentation, limited resources, low awareness of breast cancer and its detection, symptoms, prevention and strong traditional beliefs that can delay biomedical care (11).Therefore, many

women miss early detection and treatment opportunities due to lack of information, knowledge, and practice of early detection breast cancer.

In Ethiopia, communicable and chronic diseases have been given a major concern and all the efforts and recourses are engaged into it. Government, non-government organizations and international partners all focused to these diseases. The detection and treatment of reproductive organ cancers (ROCs), particularly breast cancer is low. Despite its prevalence ROC are not managed as a major public health problem at any levels of health care delivery system. Nationwide, there is no organized ROC prevention, education, screening or curative care program. Little is known about the scale of the problem, which makes it all the more difficult to formulate policies and/or develop practical strategies for dealing with it. It may be one of the reasons for absence of adequate facilities to fight against breast cancer in this country (11,12)

Even though women knew about the various breast cancer screening methods, findings from female Medical Students in Haramaya University, Ethiopia , indicated that the practice of BSE while perceived as being important is not frequently practiced by the students(13).

Prevention remains the cornerstone of the fight against breast cancer. In order to prevent or reduce the mortality, morbidity of breast cancer diagnosis of breast cancer during the early stage of the disease play big role and it helps in reducing the cost of management (14).

The screening methods for early detection of this fatal disease are: mammography, clinical breast examination and breast self-examination. Although some early detection methods, may remain inaccessible to women in developing countries due to limited diagnostic and curative facilities. Mammography cannot be routinely applied in countries with limited health service resources(15),since it is expensive it need technology and trained professional. CBE also need professional skills and health facility visit to be conducted (14).BSE is still recommend as a general approach to increasing breast health awareness and allows for early detection of any abnormalities. BSE continues to be recommended by health care practitioners because it is free, simple, need low technology and teaching is possible (16). BSE also recommended in low resource countries like Ethiopia where resources are inadequate (mammography is not available) for early breast cancer detection (13).

Moreover limited studies are conducted about knowledge attitude and practice about breast cancer and breast self examination among Addis Ababa residents and this calls for exploration of knowledge and practice of breast cancer and BSE among the community.

Significance of the study

This study provides information towards knowledge and practice of breast cancer and BSE among residents of Addis Ababa, Ethiopia. Better documenting women's knowledge and practice of BSE would be useful to relevant stakeholders in the design of interventions aimed at effective prevention of breast cancer through increased awareness and/or improved screening and also encourage other researchers and policy makers to carry out a more extensive research in the area by serving as base line.

As this study is focused on community, it reinforces cancer prevention at grass root level, provides opportunities for shaping health behaviors and also encourages dialogues between community members. Finally it is hope that, the problem of late presentation can be curbed and the survival of breast cancer patients would be improved.

This study is also considered vital because BSE can be a simple means through which early detection of a breast disease could be made. So assessing the knowledge and practice of breast cancer and breast self-examination will be helpful over scarce diagnostic services.

2. Literature review

Studies related to knowledge, attitude and practice on breast self examination and breast cancer.

A cross-sectional descriptive study was conducted in Kashmir to assess knowledge, attitude and practice (KAP) regarding breast self-examination (BSE) on among students. The study involved a cohort of 203 female dental students. These study findings revealed that the total mean knowledge score was 14.22 ± 8.04 with the fourth year students having the maximum mean score (19.98 ± 3.68). The mean attitude score was 26.45 ± 5.97 . For the practice score, the overall mean score was 12.64 ± 5.92 with the highest mean score noted for third year 13.94 ± 5.31 students. KAP scores upon correlation revealed a significant correlation between knowledge and attitude scores only ($P < 0.05$). The study concluded that the need for educational programs to create knowledge, attitude and practice regarding regular breast cancer screening behaviour (18),

A descriptive study was conducted to assess the level of awareness regarding breast cancer among 864 Kashmiri females. The questionnaire had 18 questions and on the basis on score attained, the subjects were classified as having poor, average or good breast cancer awareness. Out of 864 participants, 703(81.37%) had poor breast cancer awareness and 103(11.92%) had average awareness. Only 58(6.71%) had good awareness about breast cancer. The study concluded that the level of awareness regarding breast cancer in Kashmiri females is very low and there is a need to spread awareness about this disease among the general population(19).

A cross- sectional study was conducted in India to determine the level of knowledge regarding breast cancer and to measure breast self-examination (BSE) performance in a group of 80 women aged 40 years and above. Total 80 women were interviewed by means of a structured questionnaire (after obtaining written informed consent) .Further; attitude towards BSE was also evaluated. The study findings revealed that Breast cancer awareness was found to be 52% in this group of women even though 95% women claimed to have heard of the disease. Only 12% of all women had received information about breast cancer. About 38% women had never heard of BSE and among those that had heard of it, 15% were regular while 23% were irregular performers. Thus performance of BSE was found to be inadequate in this group. The study

concluded that inadequate knowledge is the reason for lack of attitude and practice on breast self examination (20).

A descriptive and cross-sectional study was conducted on Indian college students to assess knowledge on breast self examination among 718 female high school students. The female high school students had insufficient knowledge about breast self-examination and a low percentage of students reported that they had performed breast self examination monthly. The most common reason for not doing breast self- examination was "not knowing how to perform breast self-examination" (98.5%). personal history of breast cancer (68.7%). The study concluded that there is a need to increase knowledge of adolescent females about the risks of breast cancer and benefits of early detection (21).

A cross sectional study was conducted to investigate the awareness of BSE among women patient and other female attendees visiting an Indian teaching hospital for 2 months. Total 300 women were studied. A semi structured questionnaire about the awareness of BSE and source of information was administered by the investigator to collect data Mean age of the participants was 26.5 years. About 2% women were aware about BSE. Main information and source was health workers in 50% of aware women. Younger, married women and with more years of schooling were significantly more aware. Awareness about BSE among women of Andhra Pradesh is very poor. The study concluded that knowledge of women about BSE improved through various means like health workers, breast health care programs and targeting girl students (22).

Studies related to knowledge on breast cancer and its risk factors

A descriptive cross sectional analysis was conducted in India to assess awareness about breast mass/lump, cardinal symptom of breast cancer among women. Respondents known to symptoms of breast cancer were 47.2% (463). The two main causes of breast cancer according to respondents were late initiation of breast feeding (150, 15.3%) or not practicing breast feeding (166, 16.9%).Late marriage being a risk factor was known only to 55(5.9%) respondents and relation of obesity with breast cancer was known to only 89(9.1%) subjects. The main preventive modality, breast self exam was known by only (324, 33%) subjects. Of those who knew about breast self examination correct methodology was known only to 1/4th of respondents (255,

25.9%). The study concluded that women have knowledge deficits about breast cancer and various factors related to it (23).

A case control study was conducted in Indira Gandhi Govt Medical college Hospital to identify knowledge regarding risk factor for breast cancer. The study consisted 105 hospitalized cases confirmed on histopathology and 210 group matched controls selected without malignancy. Bivariate analyses included odds ratio (OR), 95% confidence interval (CI) for odds ratio. Earlier age at menarche < 12 years of age, late age at first full term delivery, null parity, lack of breast feeding were found to be significantly associated with the risk of breast. The study concluded that the knowledge regarding breast cancer is essential in reduction of breast cancer (24).

A case control study was conducted to assess risk factor breast cancer in a tertiary hospital in India. Over a 1 year study period 105 consecutive biopsy or fine needle aspiration cytology confirmed breast cancer patients were interviewed by direct questionnaire method regarding risk factors attending Surgery and Radiotherapy OPD while taking other 105 patients attending Surgery Department for some other disease as controls. Among the cases, rural residence, illiteracy and low socio-economic status was significantly higher than controls. Late onset of menarche, late onset of menopause, ever OCP usage, breast feeding for 1-2 years and age of 1st childbirth between 20-30 years were found to be significant protective factors. The study concluded that women should be made aware regarding the modifiable risk factors to prevent breast cancer (25).

A Case control study was conducted in Puducherry to study the association between breast cancer selected exposure variables and to identify risk factor for breast cancer among 188 participants in which 94 cases and 94 controls groups are selected. All the study participants were between 25 to 69 years of age group. The cases and controls were matched by ± 2 years age range. The study revealed that non vegetarian diet was one of the important risk factors (OR 2.80, CI 1.15-6.81). More than 7 to 12 years of education (OR 4.84 CI 1.51-15.46) had 4.84 times risk of breast cancer as compared with illiterate women. The study concluded that non vegetarian diet is the important risk factor for Breast Cancer and the risk of Breast Cancer is more in educated women as compared with the illiterate women (26).

A case control study was conducted in Malaysia to identify and quantify various demographic, reproductive, socio-economic and dietary risk factors among women with breast

cancer. Pathologically confirmed breast cancer women were selected as case and controls were age-matched women from medicine and surgery wards without any current breast problem or previous breast cancer. A total of 152 cases and 152 controls were enrolled. They were interviewed for parity, breast feeding, past history of benign breast lesion, family history and dietary history with a pre-tested interview schedule after obtaining informed written consent. The significant risk factors were (odds ratios with 95% CI) previous history of biopsy for benign breast lesion 10.4 (1.3-86.3), nulliparity 2.4 (1.14-5.08), consumption of fats more than 30 g/day 2.4 (1.14-5.45) and consumption of oils containing more of saturated fat 2.0 (1.03-4.52). The study concluded that nulliparity, past history of benign breast lesion, high fat diet and consumption of oils with more saturated fats were the risk factors for breast cancer (27).

A study conducted in Iran, from a sample of 1402 women studied, 138(10%) of the participants had positive family history of breast cancer. And among those with family member with breast cancer, 36% reported that their first degree relative (Mother, Sister or daughter) had been affected with breast cancer (28).

3. Objective of the study

3.1.General objective

- The general objective of this study was to assess the knowledge, attitude and practice of Breast cancer and associated factors of Breast self examination among residents of Addis Ababa City, Ethiopia, 2019.

3.2. Specific objectives

- To assess the knowledge of breast cancer among residents of Addis Ababa City,Ethiopia,2019
- To determine their attitude towards breast cancer among residents of Addis Ababa City Ethiopia,2019
- To assess their practice towards breast self examination among residents of Addis Ababa City Ethiopia,2019
- To identify factors associated with practice of breast self-examination among residents of Addis Ababa City Ethiopia,2019

4. Methods

4.1. Study area

This study was conducted in Addis Ababa city administration. Addis Ababa is the capital city of Federal Democratic Republic of Ethiopia. The city has 10 sub-cities and 116 woredas. The total population of the city is estimated to be 3,433,999 of whom 1,809,000 were women. Women of reproductive age group in the city are estimated to be 1188164. The study was conducted

4.2. Study design and Period

A community based cross-sectional study was conducted from July 14 to August 11, 2019.

4.3. Source population

The source population for this study was all women of 20-49 years old group who were permanent residents of the Addis Ababa city administration.

4.4. Study population

The study population was selected women aged 20-49 years who has been living in study setting for at least six months during the study.

4.5. Inclusion and exclusion criteria

Inclusion criteria

Women aged 20-49 years old who stayed for at least six months in Addis Ababa and were found in their usual residence houses during the time of data collection were included in the study.

Exclusion criteria

Women, who were seriously sick, mentally impaired and those unable to respond the survey questions were excluded from the study.

4.6. Sample size determination

The required sample size was determined by using a single population proportion formula, by considering the following assumptions:-

No.	Variables	prevalence	Type1 error	power	Estimated sample size	Non-respondent rate	Final sample size
1	Knowledge(31)	34.7	5%	80	348	10%	382
2	Attitude(29)	59.2	5%	80	371	10%	408
3	Practice(31)	53.6	5%	80	382	10%	420

- Prevalence of self-breast examination practice is equal to 53.6% (31).
- Confidence level (95%)
- margin of error(d)=5%

The formula for calculating the sample size (n) was: $n = (Z_{\alpha/2})^2 P(1-p)/d^2$, therefore “n” becomes 382, by adding 10% non-response rate and multiplying it by a design effect of 1.5, the total sample size required for the study will be **630**.

4.7. Sampling procedure

Multi- stage random sampling was used to select the study participants. Addis Ababa city administration has 10 sub-cities and 116 woreda. Out of ten sub cities in the administration, three were selected using lottery method to represent 30% of the total sub-cities. Repeating the same technique, one woreda was selected from each of the three sub-cities. Then the calculated sample size (630) was equally divided among the three woredas (210 each). Selecting of households was made randomly in each woreda. Whenever there was more than one eligible woman aged 20-49 years in the selected household, one of them was randomly selected as a study participant.

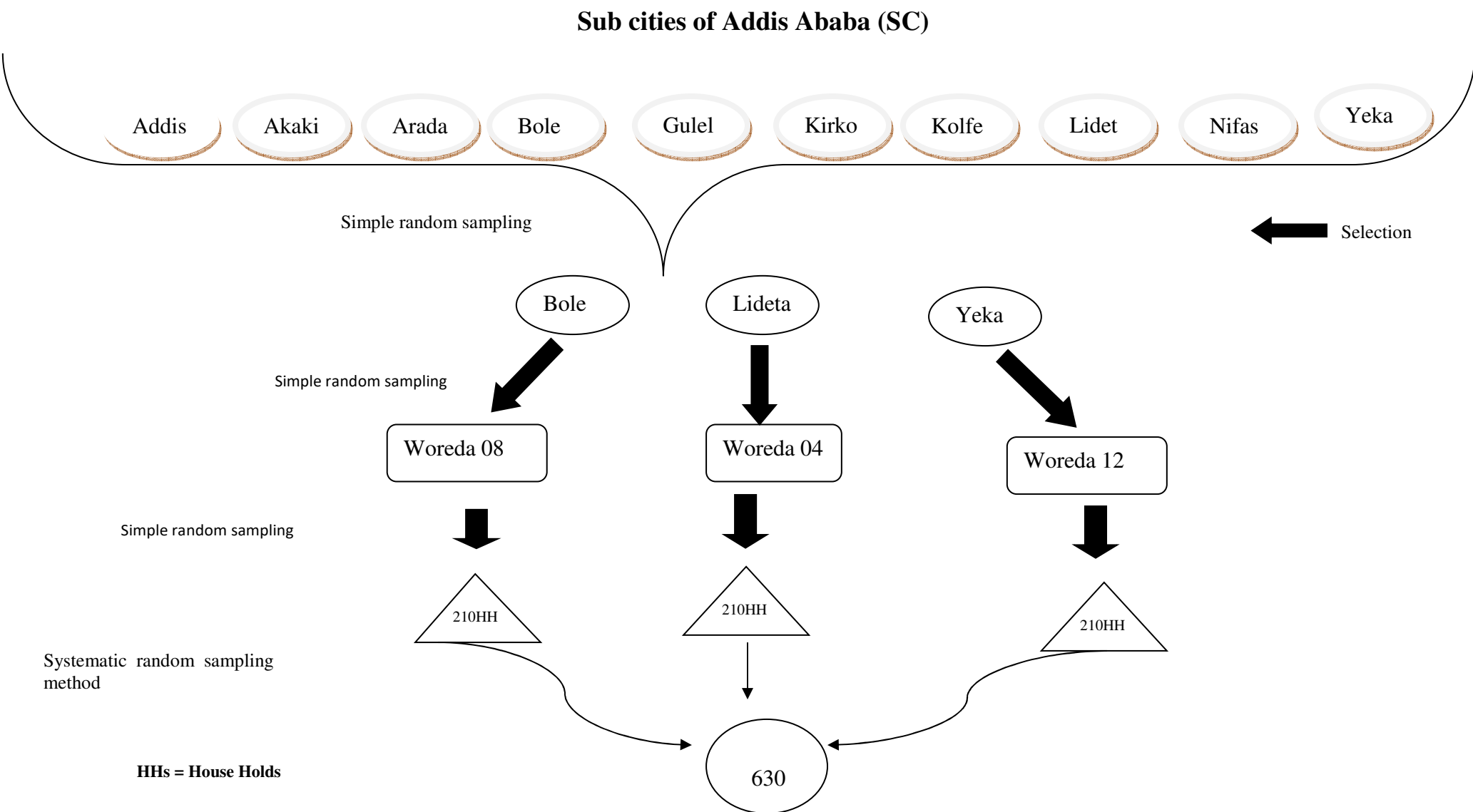


Figure 1. Schematic Presentation of the sampling procedure, AA, 2019

4.8. Data collection tools and procedure

Data was collected using a pre-tested structured questionnaire. The questionnaire was first prepared in English reviewing pertinent literatures and translated in to Amharic language, for data collection purpose and back to English again by different person in order to check clarity of the translation of the instrument. The survey was supervised by two health professionals with BSC degree. Six data collectors with diploma in nursing participated in the data collection. All of the field staffs included are females, and face to face interview were employed.

4.9. Data quality assurances

The questionnaire was pre-tested on five percent of the total sample size (30) before conducting the actual data collection and corrections were made accordingly. Training was given for data collectors and supervisors for one day by the principal investigator on the purpose of the study, methods of interviewing and keeping confidentiality of information and other basic principles related to data collection. The completeness of the questionnaire was checked by supervisors at the end of each day and double checked by the researcher /principal investigator.

4.10. Data processing and analysis Plan

After the data collection was completed, data was checked for completeness and consistencies, and then entered in to SPSS version 20 for analysis.

Descriptive statistics was used to see frequency, mean, median, standard deviation and percentages. Presentation of data was done by using tables and figures. Binary logistic regression was used to assess the relationship between independent variable with the outcome variable of interest.

The knowledge of breast cancer and breast self-examination was assessed by multiple questions each correct answer was given a score of 1 and a wrong response a score of 0.

On the other hand, the attitude towards BSE was measured using composite variable. The belief and feelings was assessed by liker's scale rating system. The question of liker's scale that ranged from strongly agree, agree, neither agree nor disagree, disagree and strong disagree. The scoring system used with respect to respondents were as follows, strongly agree was scored as 5, agree 4,

neutral 3, disagree 2, strongly disagree 1. The responses were summed up and a total score was obtained from each respondent. The skewness of the distribution of the cumulated score was explored either the mean or the median score was used to dichotomize it. Then, those scored above the mean or median was positive attitude and below the mean or median was considered has having a negative attitude towards breast self-examination for breast cancer.

Moreover, the practice of breast self-examination was assessed by asking each respondent whether she had any experience of breast self-examination in her life time and for those who had such a practice they were asked the frequency of practice in the past three months, month and week before the study.

Then socio-demographic characteristics of study participants were presented using tables. Besides knowledge, attitude and practice levels have been presented using tables and figures as necessary.

The overall associations between the different covariates with BSE were done with a chi-square test. Those that turned out statistically significantly associated with BSE were modelled using binary logistic regression. The odds ratio along with their 95% CI was used to measure the degree and direction of association in addition to ascertaining statistical significance

4.11. Measurement variables

Independent variables

- Socio-demographic characteristics:-
 - Age in years
 - Marital status
 - Educational level of women
 - Occupational status
- Breast cancer history
 - Family history of breast cancer
 - Personal history of breast cancer
- Knowledge on breast cancer
- Knowledge on breast self-examination

- Attitude towards breast self-examination

Dependent variable

- Practice of breast self-examination

4.12. Operational definitions

Breast self examination:-is an examination done by women to her breasts to check for lumps or other changes. According to this study, breast self examination is described as women in a community who use their hands to inspect and palpate their breast and the surrounding areas for any abnormality.

Knowledge: It refers to the level of understanding of women regarding signs, risk factors for breast cancer and breast self examination which is measured by structured questionnaire

Good knowledge: - participants who scored the mean and above value from the provided closed ended questions about Breast cancer and BSE.

Poor knowledge:- participants who scored below the mean value of the provided closed ended questions about Breast cancer and BSE.

Attitude: It refers to the opinion expressed by the women regarding risk factors for breast cancer and breast self examination which is measured by Likert scale.

Good Attitude: - participants who scored point equal to and greater than the mean of attitude questions.

Poor Attitude:- participants who scored point less than the mean of attitude questions.

Practice on breast self examination: it refers to the skill women have on practicing breast self examination.

BSE practice: - BSE ever practiced monthly

Regular BSE practice: - a woman who performs BSE once in a month consistently.

Permanently resident means for this study women who live in Addis more than six month.

4.13. Ethical consideration

Ethical approval has been obtained from the research ethics committees of the Saint Paul's Hospital Millennium Medical College and Addis Ababa Health Bureau Public Health Research and Emergency Management Directorate. The respondents were informed of the purpose of the study and their right to decline to participate if they were not convinced with its purpose. The privacy of respondents was respected and confidentiality of information ensured.

4.14. Dissemination of results

The thesis will be presented in an open defense at Department of Public Health, Saint Paul's Hospital Millennium Medical College. The finding will also be shared to the Addis Ababa Health Bureau Public Health Research and Emergency Management Directorate. It can also be published and presented in scientific conferences.

5. Results

5.1. Socio demographic characteristics of respondents

From a total of 630 sample size, 621 participants responded making the response rate 98.5%. The ages of participants ranged from of 20 to 49, the mean age being 32.3 with a [SD±6.4]. Regarding their marital status, the majority of the study participants 397 (63.9%) were married followed by singles which accounts for 148 (23.8%).

Their educational status was also diverse with a little more than one third of the participants 238(38.3%) achieving secondary education and above while 91(14.7%) participants were illiterate. Most of the interviewees were house wives, 224(36.1%), followed by private employees that contribute 140 (22.5%) of the participants. Students took the least share, 43 (6.9%), of the study participants. [Table1].

Table 1. Socio demographic characteristics of respondents in Addis Ababa, Ethiopia, 2019 (n=621)

Variable	Frequency	Percent
Age in Years		
20 -29	233	37.5
30 -39	295	47.5
40 -49	93	15.0
Marital Status		
Single	148	23.8
Married	397	63.9
Divorced	47	7.6
Widowed	11	1.8
Separated	18	2.9
Educational Status		
Illiterate	91	14.7
Read and write	154	24.8
Primary school	138	22.2
Secondary school and above	238	38.3
Occupation		
House wife	224	36.1
Government employee	94	15.1
Private employee	140	22.5
Merchant	67	10.8
Daily labourer	53	8.5
Student	43	6.9

5.2. Family and personal history of breast cancer of respondents

Majority of study participants 596 (96%) have reported that they did not have history of breast cancer in their families. Twelve (48%) of the participants said it is their aunts who had breast cancer while only nine (36%) reported their mothers had breast cancer. Regarding their personal history, only five (0.8%) had reported having breast cancer. [Table 2]

Table 2. Family and personal history of breast cancer among respondents in Addis Ababa, Ethiopia, 2019 (n=621)

Variable	Frequency	Percent
Family history of breast cancer		
Yes	25	4
No	596	96
Family members who are affected with breast cancer N=25		
Mother	9	36
Sister	2	8
Aunt	12	48
Grand mother	2	8
Personal history of breast cancer		
Yes	5	0.8
No	616	99.2

5.3. Knowledge of the respondents regarding breast cancer signs and risk factors

Smoking was the most common risk factor identified by 484 (77.9%) of the participants, followed by Radiation exposure 443 (71.3%) and alcohol consumption 404 (65.1%).

Regarding the signs and symptoms of breast cancer, 277 (44.6%) and 265 (42.7%) of them reported that breast cancer presents as breast skin ulceration and discharge from the breast respectively. Presentation with painless breast lump is cited only by 190 (30.6%) of the respondents. More than one third of the respondents said that breast cancer presents as a change in shape/size of the breast. [Table 3]

Table 3 General awareness about breast cancer among women in Addis Ababa, 2019 (n=618)

	Variables	Frequency	Percentage
SIGNS AND SYMPTOMS	Painless breast lump	190	30.6
	Breast skin change	242	39
	Breast/nipple shape or direction change	215	34.6
	Nipple discharge	265	42.7
	Breast skin ulceration	277	44.6
RISK FACTORS	Alcohol consumption	404	65.1
	Cigarettes smoking	484	77.9
	Early Menarche	170	27.4
	Fatty meal	241	38.8
	Late child bearing	182	29.3
	Late Menopause	139	22.4
	Long use of contraceptives	190	30.6
	Non lactating	298	48.0
	Nulliparity	185	29.8
	Obesity	285	45.9
	Radiation	443	71.3

Regarding the knowledge score of breast cancer, 52.2%, 55.7% and 48.5 % of the participants were classified as having Good knowledge on the risk factors, breast self examination and sign and symptoms breast cancer, respectively. Overall, 54.4% and 45.6% of the participants were classified as having Poor and Good knowledge, respectively [Fig. 2]

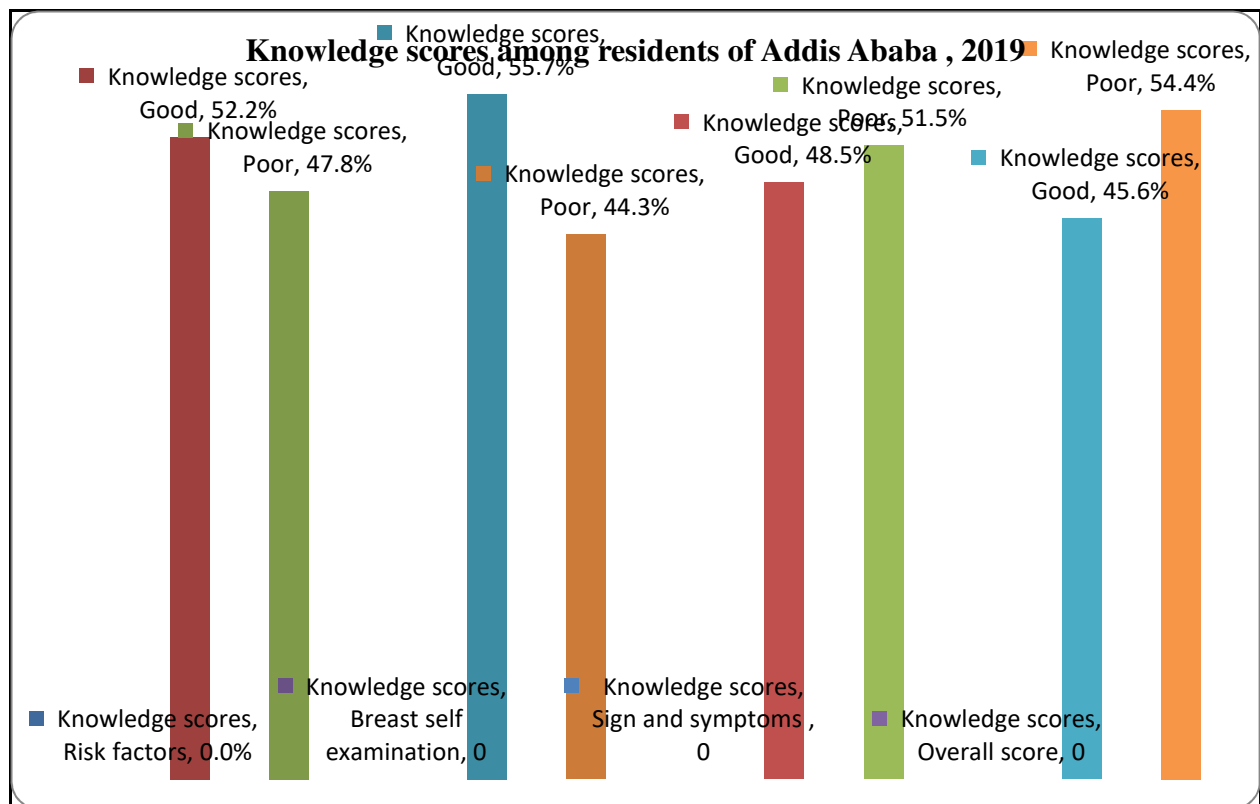


Figure 2 Knowledge scores on Breast cancer among residents of Addis Ababa, 2019

5.4. Knowledge of respondents towards breast self examination

Among the study participants 346 (55.7%), of them had good knowledge of breast self examination for breast cancer while the rest were with poor knowledge. Majority, 428 (68.9%) of respondents responded yes when asked if early detection of breast cancer would increase chance of survival. The study participants responded the more frequently affected sex group was female accounting to 585(94.2%). From the study respondents 198(31.9%) answer to question the recommended age to begin BSE was age greater than 20 years and the majority (45.2%) of the respondents did not know when to start BSE. Among the study subjects 318(51.2%) of the respondents said that breast cancer is not hereditary and one third of them responded breast cancer presents as painless lump.

An assessment of study participants' knowledge regarding screening methods showed that, 321(51.7%) participants knew breast cancer screening methods. Three hundred fifty one (52.4%) of the study participants ever heard about breast self examination. The major source of information was mass media (TV, Radio, News paper, Magazine), 163 (46%), health professional 152 (43%) and friends 36 (10%). [Table 4]

Table 4. Knowledge of respondents on breast self examination among residents of Addis Ababa, Ethiopia, 2019 (n=621)

Variable	Frequency	Percent
Sex group more affected by breast cancer		
Female	585	94.2
Male	2	.3
Both	34	5.5
Early detection increases survival		
Yes	428	68.9
No	85	13.7
I don't know	108	17.4
Curable detected early		
Yes	466	75.0
No	155	25.0
Knows methods of screening		
Yes	321	51.7
No	300	48.3
Heard about BSE		
Yes	351	56.5
No	270	43.5
Source of information for BSE		
Media	163	46
Friends	36	10
Health professionals	152	43
Others		
Breast cancer inherited		
Yes	128	20.6
No	318	51.2
Don't know	175	28.2
Recommended age to begin BSE (years)		
Age > 20	198	31.9
Age < 20	142	22.9
I don't know	281	45.2
BSE should be done by standing in front of mirror		
Yes	304	49.0
No	70	11.2
I don't know	247	39.8
Breast cancer present as painless lump		
Yes	186	30.0
No	435	70.0

5.5. Attitude of study participant's towards breast self examination.

The median for total attitude score pertaining to BSE was 44. More than half of the study participants, 332 (53%) had positive attitude towards breast self examination. [Figure 3]

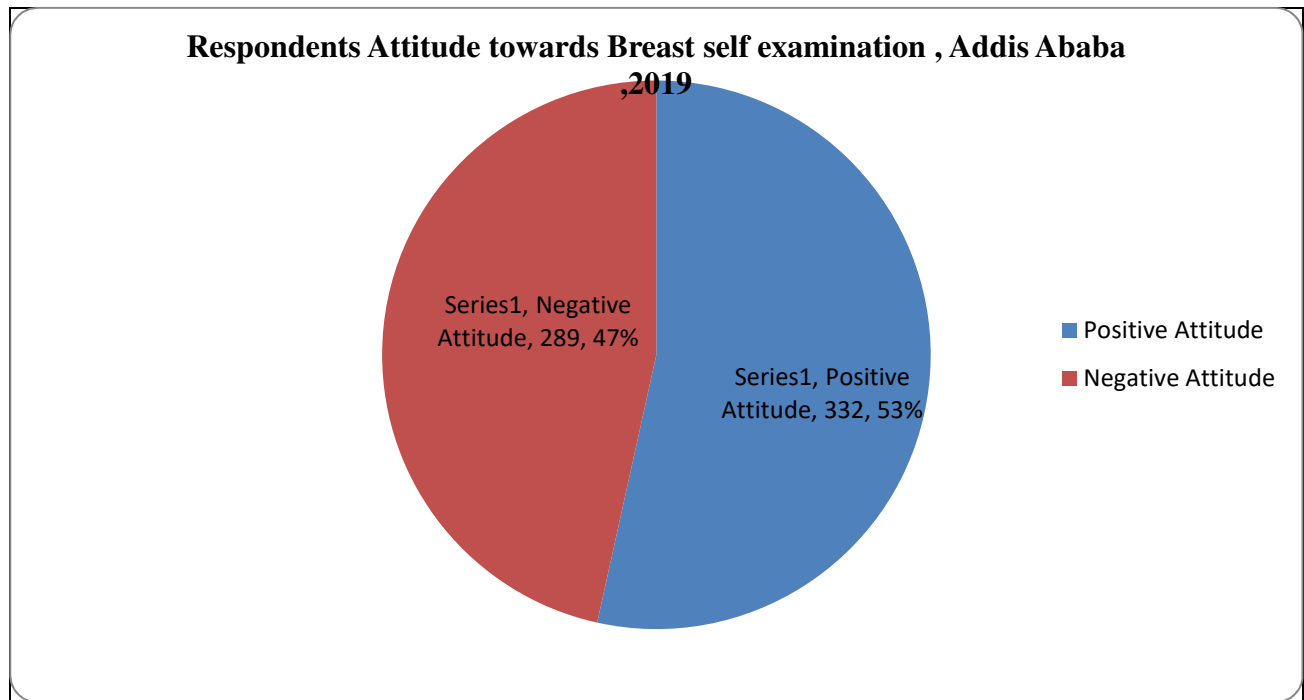


Figure 3. Overall assessment of attitude towards breast self examination among residents of Addis Ababa, Ethiopia 2019

Among the study participants, 187 (30.8%) of the respondents worry about getting breast cancer, but nearly half 297 (48 %) of the study participants do not believe their chance of getting breast cancer is high. Almost half 309 (49.8%) fear that breast cancer would threaten their relationship with a partner. And 376 (61 %) of respondents expressed that they feel good when they perform breast self examination. About 267(43%) agreed to the assertion that doing breast self examination will make them worry about breast cancer. More than half 339(55%) of study participants disagree to the statement of doing breast self examination will be embarrassing me and more than two third 409(66%) was agreed to the statement I am afraid to think about breast cancer. About 28.8 % of the study participants agreed to doing breast self examination will take much time. [Table 5]

Table 5. Frequency distribution of attitude towards breast self examination among residents of Addis Ababa, Ethiopia, 2019, n=621

Question	Strongly Disagree N(%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N(%)
Worry about getting breast cancer	100 (16.1)	58 (9.3)	41 (6.6)	235 (37.8)	187 (30.1)
Chance of getting is high	91 (14.7)	206 (33.2)	134 (21.6)	132 (21.3)	58 (9.3)
When I think about breast cancer my heart beat faster	53 (8.5)	97 (15.6)	92 (14.8)	253 (40.7)	126 (20.3)
Afraid thinking about breast cancer	61 (9.8)	88 (14.2)	63 (10.1)	250 (40.3)	159 (25.6)
Threaten a relationship	77 (12.4)	142 (22.9)	93 (15.0)	196 (31.6)	113 (18.2)
Feel good about myself	52 (8.4)	72 (11.6)	121 (19.5)	236 (38)	140 (22.5)
Regular BSE relieve worry	37 (6)	97 (15.6)	136 (21.9)	227(36.6)	124(20)
Help me to find lump	44 (7.1)	64 (10.3)	156 (25.1)	247 (39.8)	110 (17.7)
Make me worry	91 (14.7)	153 (24.6)	110 (17.7)	193 (31.1)	74 (11.9)
Doing Embarrass me	116 (18.7)	223 (35.9)	124 (20)	100 (16.1)	58 (9.3)
Take too much time	94 (15.1)	190 (30.6)	158 (25.4)	108 (17.4)	71 (11.4)
Enable to find lump	76 (12.2)	70 (11.3)	116 (18.7)	254 (40.9)	105 (16.9)
Identify normal and abnormal breast	72 (11.6)	73 (11.8)	119 (19.2)	223 (35.9)	134 (21.6)

5.6. Practice of study participants towards breast self examination

This study indicated that only 206 (33.2%) of the study participants ever practiced breast self examination. From these, 142 (69%) perform for the sake of early detection and treatment of breast cancer while 37 (18%) do it for the fear of developing breast cancer, 14(7%) had breast problem and 13(6%) fear of breast cancer from family. Regarding frequency of performing breast self examination, 34 (17%) practice once in a week while 108 (52%) do it once in a month and still 43 (21%) perform the activity once every six month. And 108 (52%) of the interviewees perform the BSE at the right time, which is 5-7 days after menstruation and 62(30%) of the respondents practice BSE at any time during the month. [Table 6]

Table 6 Assessment of breast self examination practice among residents of Addis Ababa, Ethiopia, 2019

Variable	Frequency	Percent
Ever perform BSE		
Yes	206	33.2
No	415	66.8
Reason to perform BSE		
Had breast problem	14	7
Fear of breast cancer	13	6
For early detection and treatment	142	69
Fear of developing breast cancer	37	18
Frequency of performing BSE		
Weekly	34	17
Once in a month	108	52
Once in 6 month	43	21
Once in a year	21	10
Time to perform BSE		
5-7 days after menses	108	52
2-3 days before menses	16	8
Any time during the month	62	30
Don't know	20	10
Reason not to practice BSE n=413		
Having no breast problem	69	16.7
Has no symptom of breast illness	70	16.9
Do not know how to do	212	51.4
Think not important	62	15
Ever had BSE by a doctor		
Yes	54	8.7
No	567	91.3

In this study, only 54 (8.7%) of the respondents had ever gone to a physician to have their breast examined.

About 415 (66.8%) have never practiced breast self examination. The main reason they give for not performing is diverse. Not having breast problem accounted for 16.7%, followed closely by not having breast cancer symptom accounting for 16.9% , and still 51% did not perform the examination because they do not know how to do it and 15% did not know the importance of BSE . . **[Figure 4]**

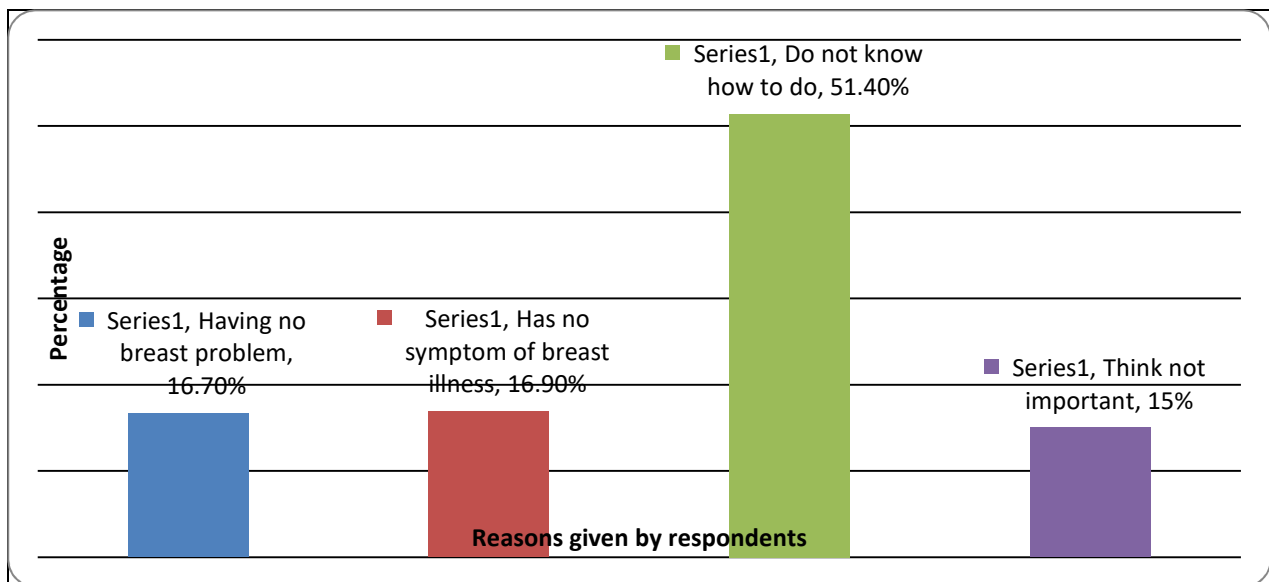


Figure 4 Reason for not practicing BSE among residents of Addis Ababa, Ethiopia, 2019

5.7. Factors associated with practice of breast self examination

Binary logistic regression analysis was done to identify factors influencing practice of breast self examination in women of reproductive age group in Addis Ababa. On binary analysis educational status, marital status, occupational status, ever use of family planning and knowledge towards BSE were significantly associated with practice of breast self examination. The variables that were with $p < 0.25$ on bivariate analysis were taken to multivariable logistic regression and after controlling confounders only three variables, occupational status, ever use of family planning method and knowledge towards BSE were significantly associated with practice of breast self examination. Those women of reproductive age group who were being employed are about 2.7 times more likely to practice breast self examination than those non-governmental employee. [AOR=2.73, 95% CI(1.26, 5.93), $p=0.011$]. There was strong association between knowledge and practice of breast self examination. Regarding knowledge of BSE, those women of reproductive age group who had good knowledge score towards BSE were 11 times more likely to practice BSE than those who had poor knowledge [AOR=11.5, 95% CI(6.3, 21.1), $p=0.000$]. Women who ever used family planning method were 2.5 times more likely to practice BSE than those who never used [AOR=2.49, 95% CI (1.01, 6.18), $p=0.049$]. [Table 7]

Table 7. Factors associated with practice of BSE among residents of Addis Ababa, Ethiopia, 2019.

Variables	BSE practice		COR(95% CI)	P value	AOR(95% CI)	P value
	No	Yes				
Educational status						
Illiterate	65	26	1.0		1.0	
Read and write	113	41	0.91(0.51-1.6)	0.74	0.69(0.31-1.54)	0.37
Primary	97	41	1.1(1.1-1.9)	0.85	0.68(0.29-1.63)	0.39
Secondary and above	139	99	1.8(1.1-3.0)	0.03*	1.34(0.58-3.12)	0.50
Marital status						
Single	101	47	1.0		1.0	
Married	253	144	1.2(0.81-1.8)	0.33	1.17(0.41-3.34)	0.77
Divorced	34	13	0.82(0.40-1.70)	0.6	1.0(0.28-3.86)	0.96
Widowed	10	1	0.22(0.03-1.73)	0.15	0.13(0.01-1.63)	0.12
Separated	16	2	0.27(0.06-1.22)	0.08	0.31(0.04-2.53)	0.28
Occupation						
House wife	152	72	1.0		1.0	
Government employee	44	50	2.3(1.47-3.93)	0.000*	2.73(1.26-5.93)	0.011**
Private employ	102	38	0.79(0.49-1.25)	0.31	0.64(0.31-1.30)	0.21
Merchant	45	22	1.03(0.58-1.85)	0.92	1.45(0.69-3.06)	0.33
Daily laborer	42	11	0.55(0.27-1.14)	0.12	0.39(0.13-1.2)	0.11
Student				.999	.000(.000	.999
Use of family planning						
No	153	47	1.0		1.0	
Yes	261	160	2(1.36-2.92)	0.000*	2.49(1.01-6.18)	0.049*
Knowledge on BSE						
Poor	251	24	1			
Good	163	183	11.74(7.35-18.77)	0.000*	11.5(6.3-21.1)	0.000**

NB: * for p-value < 0.2 and ** for p-value < 0.05

6. Discussions

The study tried to assess knowledge, attitude and practice of Breast cancer among residents of Addis Ababa, Ethiopia. The finding of this study showed that respondents with good knowledge score for risk factors, breast self examination and signs of breast cancer was 52.2%, 55.7% and 48.5 % respectively. This is in agreement with other similar studies conducted among female university students in Malaysia, Iraq and Nigeria [38, 40, and 41].

In this study, 77.9% and 65.1% of respondents knew that smoking and alcohol consumption increased the risk of developing breast cancer respectively. This finding is higher as compared to evidence from Nigeria [42] where 45.92% and 25.51% of the respondents cited smoking and alcohol consumption as risk factors of breast cancer respectively. This can be explained by the fact that the difference in magnitude could be attributed to increased awareness created through mass media.

Regarding the knowledge of participants about signs of breast cancer, this study showed that breast skin ulceration and discharge from the breast were the most common warning signs of breast cancer mentioned by 44.6% and 42.7% of the respondents respectively. Moreover, dimpling of the breast and breast lump were mentioned by only 39% and 30.6% participants respectively unlike the findings from Malaysia in which those signs were mentioned by 58.5% and 72% of the study participants respectively [38].

In this study three hundred forty six (55.7%) of the respondents have good knowledge towards breast self examination. A cross-sectional study done among female medical students in Adama health science and technology university, Ethiopia showed that only (8.7%) of the study participants had good knowledge of breast self examination (29). This significant difference may be attributed to the difference in the number of participants. Another study carried on nurses at Addis Ababa university hospital found out that 202(74.8%) had knowledge of breast cancer and breast cancer screening. This is significantly different from the result found in this study. One reason for this gap could be the difference in the careers of participants. Nurses are likely to know about breast cancer and screening more than just ordinary residents of Addis Ababa city (30). This study also found out the participants with good knowledge (55.7%) is less than the figures found for a study conducted in rural area of turkey 76.6 % (4). Study conducted on

women house hold heads in Mekele city, Ethiopia showed that 34.7% had knowledge on breast cancer and its prevention and this study found out that only 55.7 % had good knowledge which is a bit lower. In this study 68.9% of women believed early detection of breast cancer increases chances of survival, while high percentage (90.2%) of the study participants in Mekele city agreed on the statement. This could also be due to the difference in number of study participants (31).

Four hundred sixty six (75%) correctly noted that breast cancer is curable, if detected early which is high when compared to a study done in Nigeria on knowledge ,attitude and practice which was 41.4%.The discrepancy could be due to the recent attention given by government in creating awareness and treatment centres in Ethiopia (32).

The finding of the study among Female University students in Presbyterian University College, Ghana showed that 95% of the respondents had good knowledge about breast cancer and BSE (33) which was higher compared to this study. This might be explained by the fact that the study participants were female nursing students who had better clinical knowledge about BSE. The study done in Haromaya University also showed that among the study participants 85.7% noted that early detection of breast cancer increases chance of survival and 65% of students knew all the three methods of breast cancer screening which is mammography, CBE and BSE (34).The difference in this study, may be due to fact that, study participants were health science students who are expected to be knowledgeable on breast cancer self examination than women in the community of Addis Ababa.

According to this study, 351(56.5%) of the study participants had heard about breast self examination previously. On the contrary, 304(45%) of study participants had breast cancer information and heard about breast self examination in study done in Mekelle (31).

In this study the major source of information about BSE was mass Media (TV, Radio, Magazine and Newspaper) which accounted for 46%. The case was similar in other studies conducted in Ghana (48%) and Mekele, Ethiopia, 58.5% (33, 31).

This study revealed that 198(31.9%) of the study participants noted that the recommended age to begin BSE was beyond the age of 20 years, and 281(45.2%) did not know when to start BSE.

Another study done in Ethiopia, Mekele city showed that study participants know that BSE should be started after the age of 20, which accounts for 67% and 19.4% did not know at what age BSE should begin(31).

This study showed that 332(53%) of respondents had positive attitude towards breast self examination. The study carried out in Adama health science and technology university, showed that 59.2% of the study participants had positive attitude towards breast self examination (29).The gap might be due to the fact students had better opportunity to get information from college than women in community. Another study conducted in Haromaya University, showed study participants believed that breast self examination can be key instrument for early detection of breast cancer and most of the students had positive attitude (35).

This study also showed that 25.4% of study respondents did not worry about getting breast cancer. Study done in female students in Jordan, indicated that 37% of the students did not believe they were susceptible to breast cancer (36).

This study shows that 57.5% of the study respondents believe that doing breast self examination helps to identify breast normal and abnormal tissue at early stages. In contrast, a cross-sectional study conducted in south west Cameron, to assess knowledge, attitude and practice of breast self examination, showed that 88% of students perceive breast self examination as an important method in the early detection of breast cancer (37). The gap might be the study participant in Cameron was student and the study respondents of this were women of reproductive age group in community and the student might get information from school, friends and from media than women in a community.

In this study, high percentage 65.9% have fear of breast cancer and 25.4% are embarrassed by doing breast self examination .The study finding in buea, Cameron showed that 7.8% and 4.8% of the study participants were fearful of breast lump and the embracement to do breast self examination respectively (37). The discrepancy might be sample size of study participants in Cameron were 166 which is low compared to this study participant and may be students had an information regarding BSE and breast cancer and majority(88%) perceived breast self examination is important for early detection of breast cancer.

In this study, 33.2% of the study participants have practiced breast self examination at least once. The study done in Adama Health Science and Technology University, showed almost similar practice of BSE at 39.4% (29). Another study done in Cameron showed that only 62(41%) of the study participants had performed BSE. This discrepancy may be attributed to the fact that study participants in the Cameron study were health science students while it is the community in this study. (37). Compared to this study, the finding of the study done in Mekele city indicated that higher percentage of participants 53.6% practiced BSE. (32). A study carried out in Haromaya University Ethiopia, on breast cancer and practice of BSE reveal that 77% had never performed BSE.

In this study, from those who have performed BSE, 108(52%) performed BSE monthly on a regular basis which is higher than other studies done in Turkey(10.2%),Jordan (7%), Adama Ethiopia (5.5%) and Mekele city (29.5%) (4,36,29,31).

In this study 52% of those who practiced BSE perform it at the right time of 5-7 days after menstruation like the study done in Tikur anbessa specialized referral Hospital and at St.Paulos General Hospital that showed 51.5% of respondents practiced breast self examination monthly 1-7 day after menses (30).

In this study the main reasons for not practicing BSE as explained by participants were:- not knowing how to perform breast self examination at 51.1%%, not having breast problem at 16.7%, not having breast cancer symptoms at 16.9%, and the rest 15% don't know the importance of BSE. Similarly the studies carried out in Mekele and Gojam, Ethiopia also showed that the main reasons for not performing breast self examination were having no breast problem (57.4%, 53.2%) not knowing breast self examination technique(24.9%,30.6%) respectively (16, 31).

This study also found out that there is significant relationship between practices of breast self examination and some variables including occupational status, ever use of family planning methods and knowledge of BSE. Other socio-demographic factors like age of the respondent, marital status and family history of breast cancer, personal history of breast cancer, educational status were found to be not significantly associated with practice of breast self examination in multivariate analysis. But in bivariate analysis education was associated with practice of breast

self examination. Women of reproductive age group with secondary education and above were about two times more likely to practice BSE than those with no formal education [COR =1.8, 95% CI (1.1, 3.0), P=0.03].

Another study conducted in Nigeria, showed that higher level of education was significantly associated with practice of breast self examination (31).

Women with higher education and thus more informed about breast cancer better performed breast self examination. ($X^2=73.1$, $P< 0.0001$) (27). A study carried out in Kefa province in Ethiopia showed that participant knowledge increases the odds of performing BSE. (AOR= 1.1(95% CI 1.05-1.1) (37).

According to this study those women of reproductive age group who had good knowledge towards BSE were 11 times more likely to practice BSE than those who had poor knowledge[AOR=11.5, 95%CI(6.3,21.1) , $p=0.000$].

In similar study carried out in Nigeria, participants with higher knowledge were about 3 times more likely to practice BSE (AOR = 2.95, 95% CI 2.15–4.05) (32).

Cross-sectional studies conducted in different countries like Jordan ,Ethiopia and Iran all showed that marital status has significant association with breast self examination (35,30,37) .

In this study why marital status was not significant association might be age variation which is reproductive age group 20-49 years old and in other study Jordan age ranged from 18 to 59, Ethiopia, 21 to 58 and Iran, 20 to 80 years old females.

This study also indicated that there is a significant association between occupational status and practice of breast self examination. Those women of reproductive age group who were government employed were about 2.7 times more likely to practice breast self examination than those non-governmental employee. [AOR=2.73, 95% CI (1.26, 5.93), $p=0.011$].

Limitation of the Study

When interpreting the finding of this study some limitations should be considered. First, the cross sectional nature of the data made it impossible to reach at causal relationship between the

different independent and outcome variables. Second, the source of data for this study, was based on the self-report of respondents, and provided no validation of obtained information with any objective source. But biases are less likely for respondents were informed about the importance of giving accurate responses and also assured of the confidentiality of their responses.

The study was conducted among residents of Addis Ababa only and therefore might not be a representative of cities across Ethiopia as well as the generalpopulation.

7. Conclusion

The finding of this study revealed that respondents had poor knowledge of risk factors, warning signs of breast cancer and breast self examination .More than half of the study participants had positive attitude towards breast cancer and breast self examination but very few of the them ever practiced breast self examination. Not having breast problem and lack of knowledge to perform were the main reasons mentioned for not practicing breast self-examination. Occupational status and having good knowledge towards BSE were significantly associated with practice of breast self examination.

8. Recommendation

As results show that knowledge of breast cancer and practice of BSE among these reproductive age group women was inadequate. Efforts should be made to strengthen community based health education to increase knowledge related to breast cancer as well as the practice of breast self-examination. Federal Ministry of Health, Addis Ababa health Bureau and Ethiopian cancer association are responsible bodies to promote awareness creation in the community level on breast cancer and breast self examination. Carrying out further study involving a larger proportion of the general population is recommended to appreciate the existing gap in Knowledge and Attitude of breast cancer and practice of self-breast examination.

9. References

1. Ersumo T. Breast cancer in an Ethiopian population, Addis Ababa. *East & Central African J Surg* 2006;11(1): 81-86.
2. Breast cancer facts & figures 2013 – 2014. American Cancer Society, Atlanta USA, Inc., 2013. Accessed from: <http://www.cancer.org/research/cancerfactsstatistics/breast-cancer-facts-figures>
3. Loh SY, Chew SL. Awareness and practice of breast self examination among Malaysian women with breast cancer. *Asian Pacific J Cancer Prev* 2011; 12: 199-202.
4. Dundar PE, Ozmen D, Ozturk B, Haspolat G, Akyildiz F, Coban S, Cakiroglu G. The knowledge and attitudes of BSE and mammography in a group of women in a rural area in Western Turkey. *BMC Cancer* 2006; 6: 43-48.
5. Parkin DM, Bray F, Ferlay J, Pisani P. Estimating the world cancer burden: Globocan 2000. *Int J Cancer* 2001; 94: 153–156.
6. Anders CK, Hsu DS, Broadwater G, Acharya CR, Foekens JA, et al. Young age at diagnosis correlates with worse prognosis and defines a subset of breast cancers with shared patterns of gene expression. *J Clin Oncol* 2008; 26: 3324-3330.
7. Soyer MT, Ciceklioglu M, Ceber E. Breast cancer awareness and practice breast self examination among primary health care nurses: influencing factors and effects of an in-service education. *J Clin Nurs* 2007; 16: 707-715.
8. Richards MA, Westcombe AM, Love SB, Littlejohns P, Ramirez AJ. Influence of delay on survival in patients with breast cancer: a systematic review. *The Lancet* 1999, 353: 1119-1126.
9. Tavafian SS, Hasani L, Aghamolaei T, Zare S, Gregory D. Prediction of breast self-examination in a sample of Iranian women: an application of the Health Belief Model. *BMC Women's Health* 2009; 9: 1-7.
10. Avci IA. Factors associated with breast self-examination practices and beliefs in female workers at a Muslim community. *Eur J Oncol Nurs* 2008; 12: 127-133.
11. Fung S. Factors associated with breast self-examination behaviour among Chinese women in Hong Kong. *Patient Edu Counseling* 1998; 33(3): 233–243.
12. Anderson BO, Braun S, Carlson RW, Gralow JR, Lagios MD et al. Overview of breast health care guidelines for countries with limited resources. *Breast J* 2003; 9(Suppl 1): S42-S50.

13. Duffy SW, Tabar L, Vitak B, Warwick J. Tumor size and breast cancer detection: what might be the effect of less sensitive screening tool than mammography? *Breast J* 2006; 12 (Suppl 1):S91-95.
14. Hackshaw AK, Paul EA. Breast Self Examination and death from breast cancer: a meta analysis. *BJC* 2003; 88: 1047 – 1053.
15. Hackshaw AK. Screening for breast cancer in young women using Breast Self Examination. In Evidence guided prescribing of the pill, Hanna Ford PC Webb AMC (Eds). 1996. Royal College of general Practitioners. Parthenon Publishing Group, Lancs, UK.
16. Azage M, Abeje G, Mekonnen A. Assessment of Factors Associated with Breast Self-Examination among Health Extension Workers in West Gojjam Zone, Northwest Ethiopia. *Inter J Breast Cancer* 2013, <http://dx.doi.org/10.1155/2013/814395>
17. Peacey V, Steptoe A, Davidsdottir S, Baban A, Wardle J. Low levels of breast cancer risk awareness in young women: an international survey. *Eur J Cancer* 2006; 42: 2585–2589.
18. S.A. Salat, A. Rather, S. Ahmad, A.B. Khan Breast Cancer Awareness among Females in a Developing World - A Study from Kashmir; Mar-Apr 2010: Vol. 15, No. 1, pp. 16-21.
19. S Ahuja and N Chakrabart. To Determine The Level Of Knowledge Regarding Breast Cancer And To Increase Awareness About Breast Cancer Screening Practices Among A Group Of Women In A Tertiary Care Hospital In Mumbai, India *The Internet Journal of Public* 2013; Volume 1 Number 1
20. Shalini, Divya Varghese, and Malathi Nayak Awareness and Impact of Education on Breast Self Examination Among College Going Girls *Indian j palliate care* 2011 may-aug 17(2):150-42
21. Pawan Kumar Sharma, Enakshi Ganguly, Disha Nagda and T Kamaraju Knowledge, attitude and preventive practices of South Indian women towards breast cancer *The Health Agenda*, Volume 1. Issue 1. January, 2013
22. Pawan Kumar Sharma , Disha Nagda , T. Kamaraju and Enakshi Ganguly Awareness of Breast Self Examination (BSE) Among Women of Andhra Pradesh, India *Research Journal of Medical Sciences* Year: 2012 | Volume: 6 | Issue: 6 | Page No.: 272-274
23. Ramchandra Kamath, Kamaleshwar S Mahajan, and T S Sanal. A Study on Risk Factors of Breast Cancer Among Patients Attending the Tertiary Care Hospital, in udupi district *Indian j community med.* 2013 aprl-jun:38(2):95-99

24. Kulkarni, hiwarkar, meshram. Reproductive Risk factors for Breast Cancer: A case control study Online J Health Allied Scs. 2009;8(3):
25. Soumen Das, Santanu Sen, Anindya Mukherjee, Debadatta Chakraborty, pankaj Kumar Mondal Risk Factors of Breast Cancer Among Women in Eastern India: A Tertiary Hospital Based Case Control Study. Asian Pacific J Cancer Prev, 13 (10), 4979- 4981. Volume13_No10/4
26. S.M Balasubramanian, SBRotti, SVivekananda. Risk factors of female breast cancer: A case control study at Puducherry. 2013; vol :550, issue:6. page 65-70
27. S S. Reshma, A study to assess the effect of reproductive, socio-economic, and dietary risk on the breast cancer, Available from: <http://www.ncbi.nlm.nih.gov/pubmed>
28. Montazeri A., Vahdaninia M., Harirchi I., Harirchi MA., Sajadian A, Khaleghi F.. et.al. Breast cancer in Iran: need for greater women awareness of warning signs and effective screening methods. *Asia Pacific Family Medicine* December 2008; 7(6):
29. Segni T.M*, Tadesse M.D, Amdemichae.R , and Demissie F.H. Breast Self-examination: Knowledge, Attitude, and Practice among Female Health Science Students at Adama Science and Technology University, Ethiopia. *Gynecology Obstetrics* 2016;6(4):
30. Lemlem BS, Sinishaw W, Hailu M,* Abebe M, and Aregay A. Assessment of Knowledge of Breast Cancer and Screening Methods among Nurses in University Hospitals in Addis Ababa, Ethiopia,. *PMC* 2013;
31. Legesse B, Gedif T*. Knowledge on breast cancer and its prevention among women household heads in Northern Ethiopia. *Open Journal of Preventive Medicine* 2014;4(1):32-40.
32. Okobia NM., Bunker HC., Okonofua EF and Osime U. Knowledge, attitude and practice of Nigerian women towards breast cancer: A cross-sectional study. *World Journal of Surgical Oncology* 21 February 2006; 4(11)
33. Sarfo.A.K*, Peasah A.D, Acheampong E, and Asamoah. F. Knowledge, attitude, and practice of self-breast examination among female university students at Presbyterian University College, Ghana. *American Journal of Research Communication* 2013;1(11):395-40.
34. Ameer K, Abdulie SM, Pal SK. Breast Cancer Awareness and Practice of Breast Self-Examination among Female Medical Students in Haramaya University , Harar , Ethiopia. *Int J Interdiscip Multidiscip Stud (IJIMS)*.. 2014;2(2348 –0343):109–19

35. Petro-Nustus W, Mikhail IB. Factors Associated with Breast Self-Examination Among Jordanian Women. *Public Health Nursing* July/August 2002; 19(4): 263-271.
36. Nde P.F, Assob N.CM, Kwenti E.T, Njunda L.A and Tainenbe G.RT. Knowledge, attitude and practice of breast self-examination among female undergraduate students in the University of Buea. *BMCResearchNotes* 2015;8(43):
37. Tilaki KH and Auladi S. Awareness, Attitude, and Practice of Breast Cancer Screening Women, and the Associated Socio-Demographic Characteristics, in Northern Iran. *Iran J Cancer Preven.* 2015;8(4):e3429
38. Hadi MA, Hassali MA, Shafie AA, Awaisu A. Evaluation of breast cancer awareness among female university students in Malaysia. *Pharmacy Practice (Internet)* 2010 Jan-Mar;8(1):29-34
39. W.A. Milaat: Knowledge of secondary-school female students on breast cancer and breast self-examination in Jeddah, Saudi Arabia. *Eastern Mediterranean Health Journal* 2000;6:338-343
40. N.A.S. Alwan, W.M. Al-Attar, and F.N. Tawfeeq. Knowledge, attitude and practice regarding breast cancer and breast self-examination among a sample of the educated population in Iraq. *Eastern Mediterranean Health Journal.* 2012. Vol. 18 (4), 339
41. Isara AR, Ojedokun CI: Knowledge of breast cancer and practice of breast self -examination among female senior secondary school students in Abuja, Nigeria. *J Prev Med Hyg* 2011, 52:186–190.
42. Okolie, Uchenna Virginia. Breast self -examination among female undergraduates in Enugu, Southeast, Nigeria. *International Journal of Nursing and Midwifery*, January 2012, Vol. 4(1), pp. 1-7

Annex I: English questionnaire form

Part I- Consent form

Hello, my name is _____ and I am a data collector for the research aimed to assess Knowledge, Attitude and Practice about Breast Cancer among residents of Addis Ababa city. Thus, I am requesting your cooperation to respond to the survey questions which will take about 15 minutes to complete. Participation in this survey will be voluntary, and if you don't want to participate or if there is any question you don't want to answer you can skip to the next, or if you choose not to participate you could withdraw at any time. I assure all information that you provide will remain strictly private, and confidentiality of responses would be maintained during and after data collection. Only numbers will be assigned to each copy and no name will be required on the questionnaire. The numbers would facilitate data entry and analysis, so no one can link your identity with the registration numbers. Your individual answers will not be discussed with anyone. Findings from this research are believed to serve practitioners to design evidence based programs. Moreover studies in similar topics which may be conducted in a different scale and depth can make use of this study as baseline. I hope you will participate in the survey as your feedbacks are important.

Thank you for your willingness to be part of the study and take time to respond to the study questions

.

If you need further clarification about the survey, please contact me any time via +251912687304 or email: semegnwondimu@gmail.com

II. English questionnaire form

Code _____ Sub city _____ Woreda _____ Ketena _____

Date of Interview _____

Section 1: Socio-demographic characteristics

S.No	Questions	Response	Skip
101.	How old are you?	-----	
102.	What is your Educational Status?	1.Illiterate 2.Read and write 3.Primary school 4.Secondary school and above	
103.	Have you started penetrative sexual intercourse?	1.Yes 2.No	If your answer is NO go to number 107
104.	What is your age at first sex ?	_____age	
105.	What is your current marital status?	1.Single 2.Married 3.Divorced 4.Widowed 5.Separated	
106 .	What is your age at first marriage?	-----completed years	
107.	What is your occupation	1.House wife 2.Govenment employee 3.Private employee 4.Merchant 5.Daily laborer 6.Student	
108.	Have you ever used any family planning method?	1. Yes 2. No	If your answer is NO go to number 111
109.	Which family planning methods did use?(multiple response is possible)	1.Pills 2.Injectables 3.Implants 4.IUCD 5.Condoms 6.Sterlization 7.Traditional methods	
110	How long have you been using modern family planning methods?	_____months _____years	
111	Have you given birth to a child?	1.Yes 2.No	If your answer is NO go to

S.No	Questions	Response	Skip
			number 201
112	Did you ever breastfeed your child?	1.Yes 2.No	If your answer is NO go to number 201
113	How long have you breast feed your last child?	_____months	
114	Did you exclusively breastfeed your last child?	1.Yes 2.No	

Section 2.Family and Personal history Breast cancer

S.No	Questions	Response	Skip
201	Do you have any family history of breast cancer?	1.Yes 2. No	If your answer is NO go to number 203
202	If yes for Q.201 who is affected? (multiple answer is possible)	1.Mother 2.Sister 3.Aunt 4.Grand mother 5.Other specify-----	
203	Do you have personal history of breast cancer?	1.Yes 2.No	

Section 3. Knowledge regarding symptoms and early signs of breast cancer

S.No	Question	Response	Skip
301	Any lumps or tumours in the breast that don't hurt	1=Yes 2=No	
302	Any change in the breast skin texture/colour	1=Yes 2=No	
303	Any change in the breast shape/shape of the nipple or its direction	1=Yes 2=No	
304	Any abnormal or bloody discharge from the nipple	1=Yes 2=No	
305	Occurrence of any ulceration on the skin / nipple which doesn't heal	1=Yes 2=No	

Section 4. Knowledge level regarding risk factors of breast cancer

S.No	Question	Response	Skip
401	Late menopause	1=Yes 2=No	
402	OCPs	1=Yes 2=No	
403	Fatty diet	1=Yes 2=No	
404	Early menarche	1=Yes 2=No	
405	Obesity	1=Yes 2=No	
406	Nulliparity	1=Yes 2=No	
407	Late childbearing	1=Yes 2=No	
408	Exposure to radiation	1=Yes 2=No	
409	Alcohol	1=Yes 2=No	
410	Little or no breast feeding	1=Yes 2=No	
411	Tobacco/smoking	1=Yes 2=No	

Section 5 .Knowledge about breast cancer and Breast Self examination

501	Which sex group does breast cancer affect more frequently?	1.Female 2.Male 3.Both are affected	
502	Early detection of breast cancer increase chance of survival?	1.Yes 2.No 3.Idon't know	
503	Breast cancer is curable if detected at early stage of the disease?	1.Yes 2.No	
504	Do you know methods of breast cancer screening?	1.Yes 2.No/don't know/	
505	Did you hear about breast self examination?	1.Yes 2.No	If your answer is NO go to number 307
506	If yes for Q.NO 305 where did you hear about breast self examination?(multiple)	1.Mass media/ TV, Radio and from magazine/	If yes for Q.NO 305 where did you hear about breast self examination?(multiple
507	Breast cancer is inherited?	1.Yes 2.No 3.Idon't now	

508	When should a girl begin breast self examination?	1.Age > 20 years 2.Age < 20 years 3.Idont know	
509	BSE should be done by standing in front of mirror?	1.Yes 2. No 3.Idon't know	
510	Breast cancer usually present as painless breast lump?	1.Yes 2.No	

Section 6 .Attitude towards breast self examination

S.No	Question	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
601	I worry a lot about getting breast cancer					
602	My chance of getting breast cancer is high					
603	When I think about breast cancer my heartbeat faster					
604	I am afraid to think about breast cancer					
605	Breast cancer would threaten a relationship with boyfriend or husband					
606	When I do breast					

	self- examination, I feel good about myself					
607	If practiced monthly Breast self examination, I don't worry as much about breast cancer					
608	If I complete breast self- examination, it will help me to find lump which might be cancer in the future					
609	Doing breast self- examination will make me worry about breast cancer					
610	Doing breast self- examination will be embarrassing to me					
611	Doing breast self- examination will take too much time					
612	I am able to find lump if I perform					

	breast self-examination					
613	I am able to identify normal and abnormal breast tissue when I do breast self-examination					

Section 7. Practice of Breast self examination

701	Did you ever perform breast self-examination?	1.Yes 2.No	If NO go to Q. NO 505
702	Why do you perform breast self-examination?(more than one answer is possible)	1.Had breast problem 2.Fear of breast cancer from family 3.For early detection and treatment 4.Fear of developing breast cancer	
703	How often do you practice breast self-examination ?	Once in a month 3. Once in 6 month 4. Once in a year	
704	When do you perform breast self-examination?	1. 5-7 days after menses 2. 2-3 days before menses 3.Any time during the month 4.Idon't know	
705	For Q. Number 501 If you don't practice breast self-examination, what	1.Idon't have breast problem	

	are the main reasons?	2.I don't have breast symptoms 3.Idon't know how to perform breast self examination 4.Idon't think it is important	
706	Have you ever had breast examination by a doctor?	1.Yes 2.No	

Annex II: Amharic questionnaires

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