Research Article

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Prevalence and Factors Contributing to Late Diagnosis of Breast Cancer among Women Attending Tikur Anbessa Specialized Hospital, Oncology Unit, Addis Ababa, Ethiopia, 2017

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Abstract

Background: Breast cancer is the leading cause of cancer death among women in the world. In Ethiopia breast cancer is becoming the first common cancer and higher maternal deaths.

Methods: Cross-sectional study design was conducted from March 01, 2017 to April 15, 2017. Systematic sampling technique was used evolving 215 study participants. The collected data was cleaned for incompleteness and inconsistencies using Epi info 3.1 versions. Data analysis was done by using SPSS 20 version. Bivariate and multivariate logistic analysis using Odds Ratio (OR) was employed to evaluate association between dependent and independent variables.

Result: The study involved a total of 215 patients with response rate of 207 (96.3%). From the total of study participants the majority 184 (88.89%) were late stage breast cancer diagnosis patients and the rest 23 (11.11%) study participants were early stage breast cancer diagnosis. According to this study, around 77 (52%) of the respondents mentioned they have lack of awareness about breast cancer symptoms and the reason for late diagnoses was also mentioned by 61 (41.2%) patients that breast cancer relieve by itself, and 57 (38.5%) of patients have difficulties to make decision to go to health facility for seeking help as the reasons for late diagnosis breast cancer related with the patient.

Conclusion: The study revealed that almost third fourth of the women were diagnosed for breast cancer at late stage. The awareness of breast cancer patients about early detection of disease was also very low.

Keywords Breast cancer; Maternal death; Late diagnosis, Factors

Introduction

Breast cancer is one type of cancer which is a malignant tumor that starts in the cells of the breast [1]. Literature indicate that risk factors for breast cancer comprises; family history of breast cancer, personal history of breast cancer, early menarche, late menopause, aging, excessive alcohol use, late age at first full-term pregnancy, never breast feeding a child, high fat diet, tobacco smoking, post-menopausal obesity, recent and long term use of hormone replacement therapy, high-dose radiation to chest and lack of physical exercises [2,3].

As it was indicated on breast cancer statics breast cancer is the most common cancer in women globally, with nearly 1.7 million new cases diagnosed in 2012. This represents about 12% of all new cancer cases and 25% of all cancers in women. Statics of breast cancer also shows it is the most common cause of cancer death among women globally [4]. The existing incidence varies across the world ranges from 19.3 per 100 000 yearly in eastern Africa to 38.1 per 100 000 in Southern and Western Africa [5].

Breast cancer is the first most often occurring among women in Ethiopia. Thousands of more cases unreported as women living in rural areas often seek treatment from traditional healers before seeking help from medical centers [6]. According to GLOBOCAN [6], breast cancer was reported to be the first out of the ten top cancers registered in Tikur Anbessa specialized hospital oncology unit.

A delay in diagnosis can occur for many reasons. When an individual does not attend for screening, when the screening service does not diagnose the cancer or initiate a treatment pathway; when an incidental finding is not appropriately acted upon; when an individual does not recognize a symptom of cancer. When an individual with symptoms does not seek health care advice or when a healthcare practitioner or system fails to detect a cancer or initiate a treatment pathway [7].

Survival from breast cancer depends on two main factors. These are early detection and best treatment options however as different research indicates, most women need consultation only when the disease is already at an advanced stage. The key strategy in reducing breast cancer related mortality, enlightening awareness about breast cancer early recognition methods. This is very important because an excellent prognosis is directly associated with the stage at which the tumor is initially identified and how the tumor is localized [8].

The most common cancer among adults in Ethiopia are breast cancer, cervical cancer, head and neck cancer, esophageal cancer, sarcoma, colorectal cancer, liver cancer, non-Hodgkin lymphoma and skin cancer [9]. So assessing prevalence and factors contributing to late

diagnosis of breast cancer among women is very important to improve early diagnosis for better prognosis of breast cancer.

Methods

Facility based quantitative cross-sectional study design was conducted from March 01, 2017 to April 15, 2017 at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia. Tikur Anbessa Specialized Hospital is found in Addis Ababa City, Lideta Sub City.

Sample size determination

To determine the sample size assuming number of the study subjects as n, the standardized normal distribution curve value for 95% confidence level (1.96), taking 50% of population because no previous similar study, and taking the margin of error to be 5%. And applying single population proportion formula for a cross-sectional survey, the sample size was 384.

$$n=(1.96)^2 \times 0.5 \times 0.5/(0.05)^2$$

$$n=[(z/2)2 \times P \times (1-p)]/d2$$

$$n=384$$

Where, n=required sample size; z=critical value at 95% CI; p=prevalence rate (p is taken as 50%); d=Margin of error to be 5%

Since the study population was less than 10,000, the finite correction formulas were used to calculate the sample size.

$$nf=n=384=195$$

$$=(1+n)/N$$

$$=(1+384)/398$$

Where, nf=desired sample size; n=the calculated sample size; N=total population

After adding 10% non-response rate the final sample size was 215.

Inclusion criteria: Female patients diagnosed with breast cancer at the time of data collection and who has clear stage (newly diagnosed and on follow-up female patient).

Exclusion criteria:

- Critical ill patient and patients with mental problem.
- Those patients who had cancer from another site of the and disseminated to the breast.

Sampling procedure

According to the one year record of breast cancer, 3186 cases were seen in the oncology unit at Tikur Anbessa Specialized Hospital. Since the duration of the study was six weeks, the calculated flow within the six weeks was 398 and the required sample size was 215. Therefore, "K" was 2.02.

Instrument and measurement

A structured questionnaire was prepared from reviewing different literatures with modification was used to collect data by interview guided and information from patients medical records. The questionnaires were developed in English and translated into Amharic (National language) version for better understanding of enumerators by patients. The translated Amharic version was translated back to English to ensure consistency. Four data collectors' nurses were recruited from other department for data collection.

Dependent variable: Late diagnosis of breast cancer

Independent variables

Age, marital status, educational status, occupational status, area of residence, income, awareness about the disease, use of alternative therapy, personal and familial history, first symptom recognition and interpretation, health seeking behavior, primary health care factor, hospital factor and health practitioner factor.

Operational definition

Early diagnosis: Patients diagnosed with breast cancer stage 0 and stage IA.

Late diagnosis: Patients diagnosed with breast cancer stage IB, stage IIA, stage IIB, stage IIIA, stage IIIB, stage IIIC and stage IV.

Breast cancer staging: Based on American Joint Committee on Cancer (AJCC) which is based on tumor size and the extent of spread of disease in the chest and distant organs.

Data processing and analysis: The data collection instruments were coded and data were checked and entered using Epi data version 3.1. and cleaned and edited accordingly and then exported to SPSS version 20 for analysis and was also checked for missing values before analysis. The analysis finding was presented using tables, figures and graphs. Binary logistic regression analysis was used to measure association of each covariate with outcome variable. The result of the final model was expressed in terms of Odd Ratio (OR) and 95% Confidence Intervals (CI) and Statistical significance was declared with the P-value of 0.05.

Result

Socio demographic characteristics

The study involved a total of 215 patients with response rate of 207 (96.3%). Of the total study participants the majority 184 (88.89%) were late stage breast cancer patients and the rest 23 (11.11%) study participants were early stage breast cancer. The mean age of the study subjects who attended oncology unit was 41.6 ± 9.7 years and about 47 (22.7%) patients were between the age group of 35-39 years old. Most of the study participants were from urban area 148 (71.5%). Majority of the study participant's ethnicity were Amhara 82 (39.6%), Oromo 66 (31.9%) and Gurage 31 (15.0%). Among the participants 105 (50.7%) follow orthodox Christianity and 9 (4.3%) were Catholic religion followers. Out of total study subjects, 148 (71.5%) were married and the rest 36 (17.4%) were single and also 169 (81.6%) were gave birth. Concerning the educational status of participants' those who are illiterates accounted 55 (26.6%) and high school educated were 51 (24.6%). Most of study participants were house wives 75 (36.6%). Regarding to the respondents marital status, 148 (71.5%) were married and 6 (2.9%) were widowed. The largest portion of participant 127 (61.4%) travels one to four hours and 44 (21.3%) travels one day and more than one day by available means to arrive Tikur Anbesa Specialized Hospital to get health care service for breast cancer from their home (Table 1).

| Variables	Frequency	Percentage (%)
Places of residences		

Rural	59	28.5		Farmer	13	6.3
Urban	148	71.5		Government employee	35	16.9
Ethnicity				Daily laborer	12	5.8
Amhara	82	39.6		Merchant	5	1.9
Oromo	66	31.9		**Family monthly income**		
Guraga	31	15		<500	21	10.1
Tigrae	15	7.2		501-1000	79	38.2
Welayta	13	6.3		1001-1500	83	40.1
Religion				1501-2000	17	8.2
Orthodox	105	50.7		>2000	7	3.4
Catholic	9	4.3		**Time taken to come to hospital**		
Protestant	48	23.3		1-4 hrs	127	61.4
Muslim	45	21.7		5-8 hrs	22	10.6
Age				9-12 hrs	14	6.8
25-29	19	9.2		≥ 1 day	44	21.3
30-34	21	10.1				
35-39	47	22.7				
40-44	46	22.2				
45-49	30	14.5				
>50	44	21.3				
Marital status						
Married	148	71.5				
Single	36	17.4				
Divorced	17	8.2				
Widowed	6	2.9				
Give birth						
Yes	169	81.6				
No	37	17.9				
Educational status						
Illiterate	55	26.6				
Informal education	23	11.1				
Primary education	46	22.2				
High school education	51	24.6				
Diploma	27	13				
Degree and above	5	2.4				
Occupation						
House wife	75	36.2				
Private employee	68	32.9				

Table 1: Socio-demographic characteristics of women of breast cancer in Tikur Anbessa Specialized hospital oncology unit Addis Ababa, Ethiopia, March 01-April 15, 2017.

Prevalence of late diagnosis of breast cancer

Out of 207 women with breast cancer 184 (88.89%) of them were late diagnosed and the rest 23 (11.11%) were early diagnosed breast cancer patients (Figure 1).
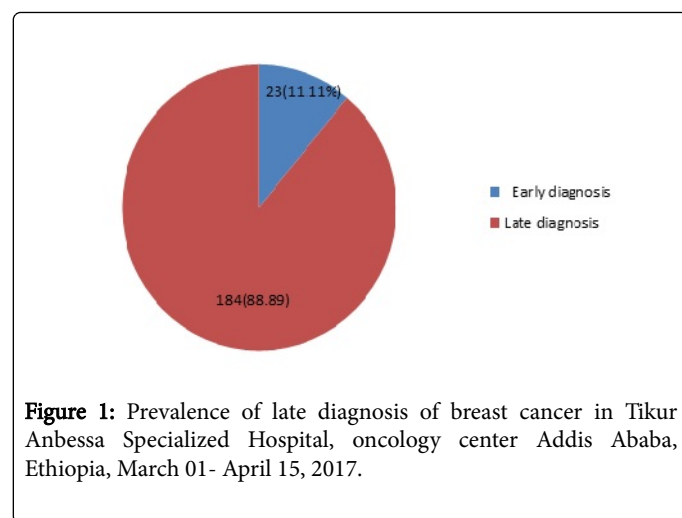
Figure 1: Prevalence of late diagnosis of breast cancer in Tikur Anbessa Specialized Hospital, oncology center Addis Ababa, Ethiopia, March 01- April 15, 2017.

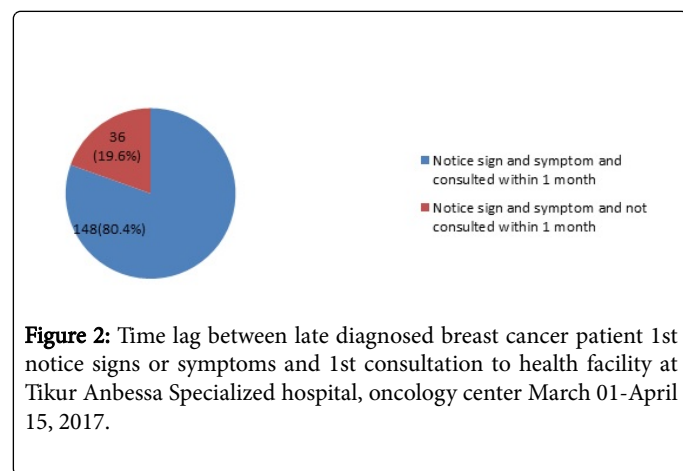## History of diagnosis of breast cancer among patients

Most of patients 101 (48.8%) were consulted at one health facilities, whereas 86 (41.5%), 20 (9.7%) were consulted at 2-3 and greater than three health facilities, respectively before being referred to Tikur Ambesa Specialized Hospital. Among the study participants 173 (83.6%) were advised for any test from health facility for breast cancer.

And also breast examination was done for 177 (85.5%) of women during initial consultation at health facility (Table 2).

Variable	Frequency	Percentage (%)
Health facilities consulted before being referred to this Hospital		
1	101	48.8
2-3	86	41.5
>3	20	9.7
Health facilities advised you for any test for Breast cancer in HF you visited first for current symptom		
Yes	173	83.6
No	34	16.4
Health facilities did breast examinations in initial consultation		
Yes	177	85.5
No	30	14.5

Table 2: History of breast cancer diagnosis among patients in Tikur Anbessa specialized hospital, oncology center Addis Ababa, Ethiopia, March 01-April 15, 2017.

From the total late diagnosed breast cancer patients, 148 (80.4%) were notice sign and symptom and consulted within one month and 36 (19.6%) were notice sign and symptom but not consulted within one month (Figure 2).

Figure 2: Time lag between late diagnosed breast cancer patient 1st notice signs or symptoms and 1st consultation to health facility at Tikur Anbessa Specialized hospital, oncology center March 01-April 15, 2017.

Reasons related to personal factors, health facility factors and healthcare provider factors for late diagnoses of breast cancer among patients

According to this study, around 77 (52%) of the respondents mentioned that they have lack of awareness about breast cancer symptoms as a reason for late diagnoses and 61 (41.2%) of them reported that breast cancer relieve by itself. Among the late diagnosed patients, 77 (52%) were identified as lack of awareness about breast cancer symptoms, 61 (41.2%) thought it relieve by itself and 57 (38.5%) of patients have difficulties to make decision for going to health facility for seeking help, as the reasons for late diagnosis of breast cancer related with the patient.

From the total study participants only 79 (42.9%) were mentioned a time lag between presentation of breast cancer and diagnosis. Waiting time in the reception was mentioned by 58 (73.4%) late diagnosed breast cancerthe reason for late diagnosis of breast cancer related to hospitals (Table 3).

Variable Reason for late diagnosis	Frequency	Percentage (%)
Patient related factor		
Lack of cash money	35	23.6
Thinking that cancer will not be cured	7	4.7
Sought traditional healer and alternative practices	15	10.1
Difficulty to make decision	57	38.5
I thought it will relief by itself	61	41.2
I thought it is related to breast feeding	10	6.8
Lack of awareness about BC symptoms	77	52
Lack of time	2	1.4
Time lag between presentation and diagnosis		
Yes	79	42.9
No	105	57.1
Hospital related factor		
Waiting time in the reception	58	73.4
Waiting time to see a doctor	7	8.9
No appropriate Physician	11	13.9
Inappropriate diagnosis	16	20.3
Availability of investigations	2	2.5
Health professionals related factor		
Professionals lack of appropriate attention	23	29.1
unable to examine the patient appropriately	6	7.6
Time lag between referral and presentation		
Yes	36	19.6
Lack of cash money at that time	15	41.7
Sought traditional faith healer and alternative practices	12	33.3
Distance from health facility	12	33.3
No	148	80.4

Table 3: Information on reasons for delay of breast cancer patients at Tikur Anbessa hospital, Oncology Center, Addis Ababa, Ethiopia 2017.

Patient's history on seeking of help from health care professional, health awareness and obstetric history

Majority of patients 166 (80.2%) said they need help from health care professionals when they noticed lump in the breast which can awareness for the presentation of breast cancer. Among all study participants, 139 (67.1%) shared the problem with someone else. From those who shared the problem, 79 (56.8%) shared the problem to their husbands and 63 (45.3%) of them shared to other family member. Among the participants only 77 (37.2%) of them heard about breast cancer previously and 31 (15.0%) of them heard about breast cancers early detection methods. Among all participants only 10 (4.8%) of them were undergone breast cancer early screening and 11 (5.3%) of them has family history of breast cancer. From the total study subjects 72 (34.8%) of them were mentioned the use of contraceptives, 36 (50.0%) of them used Depo-Provera and 22 (30.6%) were used pills and most of the study participants 43 (59.7%) were used contraceptives for less than five years (Table 4).

Variable	Frequency	Percentage (%)
Sign and symptoms		
Lump in the breast	166	80.2
Discharge	5	2.4
Pain or in the breast	19	9.2
Change in size of the breast	8	3.9
Dimpling of the breast	9	4.3
Ulceration of the breast	7	3.4
Changes in shape of the breast	10	4.8
Pulling in of nipple	7	3.4
Swelling of the breast	30	14.5
Lump under armpit	3	1.4
Share the problem to other		
Yes	139	67.1
No	68	32.9
To whom shared the problem		
Husband	79	56.8
Friends	26	18.7
Family members	63	45.3
Neighbors	1	0.7
First contacted for help		
Traditional healers	30	14.5
Health extension workers	8	3.9
Nowhere /Self medication	109	52.7
Health facility	60	29
Previously heard about breast cancer		
Yes	77	37.2
No	130	62.8
Previously heard about breast cancer early detecting		
Yes	31	15
No	176	85
Familiar history of breast cancer		
Yes	11	5.3
No	196	94.7
Starting Age of menarche		
Nov-15	172	83.1
>15	35	16.9
Ever used contraceptive		
Yes	72	34.8
No	135	65.2
Which type of contraceptive		
Pills	22	30.6
Dipoprovera	36	50
Implant	14	19.4
For how long use contraceptive		
<=5	43	59.7
>=6	29	40.3

Table 4: Information on seeking help from health care professionals, awareness and obstetric history of breast cancer patients at Tikur Anbessa specialized hospital, oncology center, Addis Ababa, Ethiopia, March 1st to April 15, 2017.

Factors independently predicted late diagnosis of breast cancer

Bivariate and multivariate analysis was performed between late diagnosis of breast cancer and socio demographic factor, personal factor, health care provider's factor and health facility factor. Occupation of patients was significantly associated with late diagnosis of breast cancer in multi logistic regression. In a binary logistic regression analysis, it was found that married women were 7.7 times more likely to be late diagnosed compared to widowed women {COR=7.7; 95% CI (1.24-4.79)}. Women who were private employee were 71% less likely to be late diagnosed than those women who were house wife, {COR=0.29; 95% CI (0.08-0.96)}.

In multi-logistic regression analysis, it was found that women who were Private employee were 80% less likely to be late diagnosed than those women who were house wife, {AOR=0.2; 95% CI (0.001-0.80)}.

Bivariate and multivariate analysis was performed between late diagnosis of breast cancer and history of diagnosis of breast cancer. Health facility consulted before being referred to Tikur Ambesa Specialized Hospital and women's who were examined for breast in initial consultation were significantly associated with late diagnosis breast cancer in binary logistic regression. Health facility consulted before being referred Tikur Ambesa Specialized Hospital and women's who were breast examination done in initial consultation were significantly associated with late diagnosis of breast cancer in multi logistic regression. On Binary logistic regression women who were consulted at health facility 2-3 times were 11.02 times more likely late diagnosed breast cancer compared to those who were one times consulted at health facility {COR=11.02; 95% CI (2.50-4.85)}. The patients whose breast examination were done for them at initial consultation were 0.2 less likely to be late diagnosed breast cancer compared to those who breast examination was not done at initial consultation {COR=0.2; 95% CI (0.08- 0.52)}.

On multiple logistic regression analysis, those women consulted at health facility 2-3 times were 13.21 times more likely late diagnosed breast cancer compared to one times consulted at health facility {AOR=13.21; 95% CI (2.97-5.86)}. Women whose breast examination was done for them at 1st consultation were 0.34 times less likely to be late diagnosed breast cancer compared to women whose breast examination was not done for them at the 1st consultation {AOR=0.34; 95% CI (0.096-0.97)}. Women who had family history of breast cancer were 5.32 more likely to be diagnosed late for breast cancer compared with women who did not have family history of breast problem {COR=5.32; 95% CI (1.42-19.85)} (Table 5).

Variable	Late diagnosed		P-value	COR (95% CI)	AOR (95% CI)
	Yes	No			
Marital status					
Married	139 (75.5%)	9 (39.1%)	0.02	7.7 (1.24-4.79)	5.9 (0.23-87.2)
Single	29 (15.8)	7 (30.4%)	0.45	2.0 (0.3113.67)	1.4 (0.05-37.43)
Divorced	12 (6.5%)	5 (21.7)	0.85	1.2 (0.16-8.79)	1.8 (0.56-64.6)
Widowed	-2.20%	2 (8.7)	0.42	1	1
Occupation					
Housewife	71 (38.6%)	4 (17.4%)	0.001	1	1
Private employee	57 (31.0%)	11 (47.8%)	0.04	0.29 (0.08-0.96)	0.2 (0.01-0.80)
Farmer	11 (6.0%)	2 (8.7%)	0.2	0.31 (0.05-1.89)	0.1 (0.02-1.15)
Government employee	31 (16.8%)	4 (17.45%)	0.26	0.43 (0.10-1.85)	0.05 (0.003-1.01)
Daily laborer	10 (5.4%)	2 (8.7%)	0.17	0.28 (0.04-1.74)	0.1 (0.005-2.14)
Merchant	4 (2.2%)	0 (0%)	0.98	0.98 (0.01-1.97)	0.4 (0.47-1.37)
Health facility consulted before being referred Hospital					
1	80 (43.5%)	21 (91.3%)	0.001	1	1
02-Mar	84 (45.7%)	2 (8.7%)	0.002	11.02 (2.50-4.85)	13.21 (2.97-5.86)
>3	20 (10.9%)	0 (0.0%)	0.98	0.98 (0.01-1.87)	2.76 (0.01-1.26)
Breast examination done in initial consultation					
Yes	154 (83.7%)	12 (52.2%)	0.004	0.2 (0.08-0.52)	0.34 (0.096-0.97)
No	30 (16.3%)	11 (47.8%)	0.001	1	1
Family history of breast cancer					
Yes	7 (3.8 %)	4 (17.4 %)	0.001	5.32 (1.42-19.85)	3.3 (0.37-30.35)
No	177 (96.2 %)	19 (82.6 %)	0.37	1	1

Table 5: Factors independently predicted late diagnosis of breast cancer March 01 to April 15, 2017.

Discussion

The prevalence of late diagnosis of breast cancer among women attending Tikur Anbessa Specialized Hospital oncology unit was 88.9%. This finding is higher as compared to the studies which were carried out in Tanzania and Egypt which were reported that the prevalence were 69% and 60% respectively. This higher prevalence of late diagnosed of breast cancer in our study than other countries could be due to low awareness about the breast cancer and early detection methods and also could be due to low medical care help seeking, in Tanzania and Egypt there was breast cancer campaign that can increase early detection of the disease [9-17].

A cross-sectional study done in Morocco among 137 study participant, revealed that, Reasons for late diagnosis related to patient was sought traditional healer (12.7%) among late diagnosed patients was identical to the current study which was 10%. Breast lump was a first alarm symptom in majority of our patients (81%) which was consistent with the study done in Morocco [11]. In Systematic Literature Review Factors Contributing to Late Presentation of Breast Cancer in Africa acknowledged that 27.8% of breast cancer patients delayed because they believed that symptoms would disappear over time. 3.2% of breast cancer patients were not keen to seek medical help for a trivial breast abnormality that could be due to pregnancy or lactation. However, a higher percentage (47.5%) was stated by Ukwenya for patients not considering symptom to be serious. In Nigeria and Kenya, 12.0% and 23.5% of breast cancer patients respectively delayed because the lump they noticed was painless [18].

In relation to place of residence, more than half of the respondents were from urban areas which are comparable with research done in Egypt [12]. And also similar findings were reported in the study conducted in Africa, Morocco and Iran, where the breast cancer is more in urban areas than rural areas [11,15,16]. The areas where there is increased risk factor for breast cancer and increased other risk behaviors.

Majority of the respondents in the current study were not aware of the breast cancer (63%) and early detection (84.8%), as result for most

of them their first contacted for help was not health care providers, for example 10.1% of them sought traditional healer and alternative practice, this shows why most of the women did not seek medical help early and rather focus on different issues. This finding was consistent with study conducted in Egypt where only one third of the women initial contact were health facility [10] and in Tanzania, where 37% were receiving treatment at traditional healer [13].

Those who delayed in seeking treatment were asked for reasons for their delay for seeking health care after being diagnosed with breast cancer, among them lack of money (41.7%) and distance from health care facilities (33.3%) was the reason for delay of seeking early medical help. This is somehow similar with study conducted in Tanzania where Lack of money and distance from health care facility was 34% and 15% respectively [13].

Breast lump was among the most common presentation of breast cancer this is consistent with study done in Botswana among cancer patients in hospital [14].

In our study patient delay for diagnosis of breast cancer was most common among women older than 35 years of age. But in Iran, women younger than 35 years of age were most commonly delayed for breast cancer diagnosis. This could be due to the mean age for breast cancer in Iran is about ten years less than the average in developed countries [16].

Women who had consulted a health care provider within one month following appearance of symptoms were 11.1%. This is inconsistent with studies done among Iran and Malaysia women which were 68.3% and 33.2% respectively. This discrepancy can be explained due to the difference in awareness about early detection of the breast cancer [9,16]. Results of this finding show that majority of the sample had menarche at age less than or equal to 15 years and more than half of the women had no family history of breast cancer and did not heard about breast cancer early detection methods, similar finding was identified in Egypt [12].

Conclusion

The majority of patients notice lump as the sign of the breast cancer, however this did not reduced the patient delay. Awareness of breast cancer patients about early detection methods was low. Among the reasons reported by the patients for delaying, lack of money and thought as it relief by itself were frequently identified. Breast examination has indirect association with late diagnosis of breast cancer and consulting health facility has direct association with late diagnosis of breast cancer. Those patients more consulted health facility was more likely to be late diagnosed and breast examination was done for them at initial consultation was less likely to be late diagnosed. Those patients who were house wife were more likely to be late diagnosed.

Declaration

We declare that we are the sole authors of this paper. To the best of our knowledge this thesis contains no material previously published by any other person.

Ethics Approval and Consent to Participate

Ethical clearance was obtained from ethical clearance committee of Addis Ababa University, college of health sciences, school of allied department of nursing and midwifery. After receiving ethical clearance, permission to conduct the research was obtained from oncology center of Tikur Ambesa Specialized Hospital. Information sheet were prepared and read to all eligible participants, their participation is voluntary and written consent was obtained. Name of the participant was omitted from the questionnaire; instead we use code number to confirm confidentiality.

Consent for Publication

This manuscript contains original material. Neither the article nor any part of its essential substance, tables, figures, has been or will be published elsewhere. We have submitted for publication without conflict of interest among authors.

Availability of Data and Materials

The data that support the findings of this study are available on request from the corresponding author.

Competing Interests

We declare that we have no significant competing financial, professional or personal interests that might have influenced the performance or presentation of the work described in this manuscript.

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Authors' contributions

HA, TM and AH conceived the study. HA, TB, TM, and AH were involved in the design, field work, data analysis and interpretation, report writing and manuscript preparation. In addition, TB drafted the manuscript. All authors reviewed, read and approved the final version of the manuscript.

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