

# Knowledge of Breast Cancer and Associated Factors among Women Reproductive Age in Bale Zone, Southeast Ethiopia: A Community based Cross Sectional Study

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## Abstract

**Introduction:** Globally, Breast Cancer (BC) is the most prevalent cancer and the second reason of cancer deaths among women, and it is the most common women's cancer in unindustrialized countries. It is also considered to be a progressive disease with a poor prognosis if detected late.

**Methods:** A community based cross sectional study was conducted among reproductive age group women in Bale zone, southeast Ethiopia. Interviewer administered questionnaire were used for quantitative part of the study and supplemented qualitatively using Focus Group Discussions (FGD). Data were entered into EPI info version 3.5.3 and analysed using SPSS version 20. Bivariate logistic regression was done to examine the relationship between each explanatory and outcome variable. To retain for subsequent multiple logistic regression  $p$ -value $<0.25$  was considered. The strength of association was tested using adjusted odds ratio, 95% CI and value $<0.05$ .

**Results:** Four hundred twenty (50.2%) of participants heard about breast cancer. Out of these, 236 (56.2%) of respondents had knowledge score of greater than or equal to the mean knowledge score which categorized them as knowledgeable about breast cancer. Media (television and radio) was reported as a major source of information for nearly half 204 (48.6%) of the participants.

**Conclusion:** Factors such as residing in urban, having better monthly income, knowing the seriousness of breast cancer, knowing the treatability of breast cancer and previous information or health education on BC at health facility were the factors which can raise the odds of breast cancer knowledge. Therefore, it is very important to develop health service programs that can address all mothers according to their auspicious place and time to increase knowledge of breast cancer through information and health education regarding its sign and symptoms, risk factors, early detection, and management systems to reduce the burden of BC among rural community.

**Keywords:** Breast cancer; Reproductive age women; Knowledge

## List of Abbreviations

BC: Breast Cancer; BSE: Breast Self-Examination; CBE: Clinical Breast Examination; COR: Crude Odds Ratio; EB: Ethiopian Birr; FGD: Focus Group Discussion; LMIC: Low and Middle Income Countries; SPSS: Statistical Package for Social Studies; SSA: Sub-Saharan African; WHO: World Health Organization

## Introduction

The incidence of Breast Cancer (BC) is quite high in industrialized countries, but the international burden of the disease is increasingly shifting to unindustrialized worlds [1]. Over 70% of BC patients in advanced nations are diagnosed at early stage of cancer, whereas in low and middle income countries, only 20%-60% of patients are diagnosed in early stages of the illness [2]. The major problems in developing countries were non-establishment of disease searching, monitoring and controlling mechanisms of health systems. Limited established data of this world showed that the morbidities and mortalities related to BC were higher in developing countries than that of developed countries. This was demonstrated by the fact that, some previously conducted studies showed that majority (69%) of all BC deaths occur in developing world [3].

Another tragic issue in developing world was mortality to incidence ratio related to BC was higher than that of developed world; mostly due to the fact that early detection of the disease was minimal and patients were coming with disease at more progressive stages [4]. Similar information was also reported by different scholars; huge difference was observed between the two settings by the diagnosed cases and deaths of breast cancer. Diagnosed cases of BC in developing countries were twofold as many as that of developed countries for reproductive age

group women (15-49 years). It is a prime cause of cancer mortality in developing countries of the world including Africa which is evidenced by 7 out of 10 women newly identified with BC die in low resource countries whereas 2 out of 10 die in high resource countries [5,6].

Breast cancer knowledge in developing countries is not well documented, and what is known is far from encouraging 7 as comparatively few women in these areas have adequate knowledge of BC, its sign and symptoms, risk factors and preventive measures or screening techniques for early detection. The lack of knowledge and incorrectly held beliefs about BC prevention among females are responsible for the negative perception of the curability of cancer and of the efficacy of the screening tests [7,8]. According to American cancer society, the five-year survival rate for early screened BC approaches to 100%, however, if the cancer has not been early screened and then spread to wider part of the breast, the survival rate is only 60%. This is depended on the knowledge of risk factors and especially sign and symptoms of BC [9].

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In Ethiopia, BC is typically a fatal disease with high mortality [10], unlike the experience of the Western world where BC is treatable and with lower mortality [11]. Ethiopia has set comprehensive BC prevention, diagnosis, and treatment interventions and available for women [12]. But stigma toward cancer, poor knowledge of BC related signs and its treatability, and system overload continue to account for delays in reaching care [13]. An important component of the knowledge-action chain is to understand Ethiopian women's recognition of sign and symptoms, risk factors of BC and their motivations for taking action. Ethiopian women typically present for care at a late stage in the disease [10], where treatment is most ineffective, and while system-related barriers to care account for a portion of that delay, women's attitudes and lack of awareness of BC also account for a stalled initiation of action [14].

In Ethiopia, breast cancer is typically a fatal disease with high and mortality [10], unlike the experience of the Western world where BC is treatable and with lower mortality [11]. Ethiopia has established comprehensive BC prevention, diagnosis, and treatment interventions and available for women [12]. But stigma toward cancer, poor knowledge of BC related signs and its treatability, and system overload continue to account for delays in reaching care [13]. An important component of the knowledge-action chain is to understand Ethiopian women's recognition of sign and symptoms, risk factors of BC and their motivations for taking action. Ethiopian women typically present for care at a late stage in the disease [10], where treatment is most ineffective, and while system-related barriers to care account for a portion of that delay, women's attitudes and lack of awareness of BC also account for a stalled initiation of action [14]. So, this study was designed to evaluate the knowledge of breast cancer and associated factors among reproductive age women in Bale zone, Ethiopia.

## Methods and Materials

### Study design, area and period

A community based cross-sectional study was conducted from March to May/2017 in Bale Zone. The Bale zone has 20 districts. Robe town is the capital city of Bale zone which far 430 km from Addis Ababa, the capital city of Ethiopia.

### Sample size determination

Single population proportion formula was used to determine the sample size for the quantitative data. the women's knowledge score of greater than or equal to the mean knowledge score was 34.7% [15], the desired precession 5% with 95% confidence level, design effect of 2, and 10% non-response rate was considered and the final sample size calculated to be 761.

For qualitative data six Focus Group Discussions (FGD), two focus group discussions for each districts, composing of 9-10 members in each group, was conducted. Totally, 59 participants were participated in the discussions.

### Sampling procedure

A multi-stage sampling technique was used to select the study participants. In the first stage three districts were selected randomly. The kebeles in the selected districts were identified and stratified into urban and rural kebeles. The selected districts have 7 urban and 70 rural kebeles. Then three urban kebeles from the seven (one from each district) and nine rural kebeles from 70 were selected by using lottery method. The selection of kebeles was depended on their distance from the capital town of the district, taking the hospital as a center. For the

three districts, furthest kebeles in average were at the distance of 45 km. From the total kebeles closest to the town, those were at about 15 km, three kebeles; from the middle distant kebeles those were at the second 15 km, three kebeles; and from the furthest (third 15 km) also three kebeles were selected randomly. Lists of all households with eligible mothers were identified; finally, we used a sampling frame to select the study participants using simple random sampling method.

For the qualitative data convenience sampling technique was used to select participants. From each selected districts, two groups of child-bearing age women, being that study population and not included in the quantitative study were participated in the focus group discussion.

### Data collection and data quality control

For quantitative data collection, an interviewer administers structured and pre tested questionnaire was adopted from different literatures and modified for the purpose of the study. Interview guide was used to conduct FGD for qualitative part of data collection, and tape recorder was also used [16,17]. The questionnaire and interview guide were originally prepared in English language then translated to the local language (Afan Oromo), and translated back to English to check the consistency.

Quantitative data was collected using a face-to-face interview method with twelve Diploma Nurses for data collectors and three supervisors were recruited and given two days training. The training of data collectors and supervisors mainly focused on issues such as data collection tools, field methods, inclusion-exclusion criteria and record keeping. The investigators coordinated the interview process, and reviewed the completed questionnaire on a daily basis to ensure the completeness and consistency of the data collected. The questionnaire was pre-tested on 5% of the sample outside the selected district for this study.

Each focus group discussion was conducted by two trained female diploma nurses; one did moderate the discussion and the other took notes and recorded tape. One gate keeper (non- health professional) for each FGD was assigned. Totally, two individuals with one gate keeper were assigned for each group (3x6=18) people to handle the discussion.

### Data analysis

The quantitative part of the data was inserted into EPI info version 3.5.3, for data clearance and observation of data consistency and it was exported to SPSS Version 20 for data analysis. First, descriptive statistics like frequency, percentages, mean and standard deviation were carried out to describe the data. Then, simple logistic regression analysis was done by taking each independent variable with dependent variable to examine the association between the two variables. On simple logistic regression analysis significant variables at p-value<0.25 were retained for subsequent multiple logistic regression. Hosmer-Lemeshow goodness-of-fit statistic was used to assess multicollinearity. Strength of association was tested using Adjusted Odds Ratio (AOR) and 95% Confidence Interval (CI). The significance level considered for multiple logistic regressions was p-value<0.05.

For qualitative data, tape recorded and transcribed qualitative data was organized in narrative forms in congruent with the respondents' own words and analysed under selected themes based on the question guide and summarized manually.

### Operational definition

Knowledge: was assessed by asking 14 questions related to knowledge about breast cancer. Each correct answer was scored 'Yes'

and each incorrect answer were scored 'No'. Thus, the total scores were ranked from 0-14. Those reproductive age group women answered 'Yes' equal to mean and above for the questions was labeled as knowledgeable and those reproductive age group women answered, 'No' for less than mean for the questions was labelled as not knowledgeable. We used mean for categorizing the knowledge by reviewing different previously done researches [15,17,18].

### Ethical consideration

Administrative approval was obtained before conducting the study and ethical considerations was respected. Ethical clearance letter was obtained from Madda Walabu University ethical clearance committee. Official letter of collaboration was written to Bale zone administration Ginnir, Sinana and Madda Walabu districts administration to obtain formal permission. Informed consent was obtained from each interviewee and they were also given the choice to refuse to participate in the study.

## Result

### Socio-demographic characteristics

A total of 750 respondents were included in the study with the mean age of 31.09 ± 7.34 SD years. Nearly half 46.8% of the study participants were illiterate. The majority, 83.7% of the study participants were married. Regarding occupation of the mothers around ninety percent of them were house wives. Above half 54.7% of their husbands were completed primary school. Concerning monthly income the majority 56.0% of the respondents were below poverty line (<1311 EB) that was \$ 1.90. Around fifty seven percent of the study participants had television or radio (Table 1).

### Factors associated with knowledge of breast cancer

The overall knowledge score of the respondents were ranged from 0 to 14, with the mean knowledge score of 7.77 (SD=3.18) out of the 14 questions designed to assess knowledge of breast cancer. Around fifty six percent of the respondents were knowledgeable as they had a knowledge score of greater than or equal to the mean.

About 90% of women had at least one visit to the health facilities. However, the majority, 81.6% of the study participants had not any information about BC. Half of the participants responded that they did hear about breast cancer from different sources other than health workers.

This finding supported by qualitative study as two civil servant and four merchant mothers' reported, "...in our setting there has not been any awareness creating activities or education by doctors on breast matter (presence of the disease, its consequences, its symptoms and its option of treatment). We hear some information from television. Some of us are hearing even the presence of its management now from this discussion."

In FGD a 33 years merchant reported that, "...I heard my neighbour complaining breast disease; we hear also the disease is cancer, many people have been suffered of breast disease, yet, I have not seen breast disease on myself... When I was a child I had heard a woman of our neighbour died because of breast disease. People was talking about that disease by saying it was cancer. Her breast was wounded and she was referred and taken far out of this area to get better treatment in hospitals. She had visited not only one hospital, but many hospitals. Finally she died as the result of that problem."

In focus group discussion (FGD) of mothers about BC, many mothers stated that breast cancer is unknown among them. For example, 36 years merchant women reported, "... We heard about breast cancer recently, before this recent time even if the disease was present we did not know. As she (by pointing to a 33 years old civil servant woman) rightly said many women have breast disease, ...,I know a woman her breast problem was arisen from small infection and it was transferred to very severe problem, went to health facility and improved at this time".

Another FGD participant (a 37 years civil servant woman) reported, "...this breast disease is certainly present in its massive form, I have not experienced this disease on myself, it has hurt many women, some people say it became "hola" on a woman, some say cancer and some other say another thing. Even at the moment, there is a women with

Variable		Number	Percentage	p-value
Maternal age (Years)	15-24	121	16.1	
	25-34	394	52.5	0.159
	35-49	235	31.4	0.052
Mother's educational level	Illiterate	351	46.8	
	Primary school	332	44.3	< 0.001
	Secondary school	67	8.9	< 0.001
Occupation	House wife	666	88.8	
	Civil servant	62	8.3	0.004
	Merchant	22	2.9	0.019
Marital status	Married	628	83.7	
	Separated/Divorced	62	8.3	0.970
	Widowed	60	8.0	0.717
Husband's educational level	Illiterate	250	33.3	
	Primary school	410	54.7	0.020
	Secondary school	90	12.0	< 0.001
Having TV or radio	No	318	42.4	
	Yes	432	57.6	< 0.001
Monthly income	Bellow 1311	420	56.0	
	More than 1311	330	44.0	0.005
Residence	Urban	167	22.3	
	Rural	583	77.7	< 0.001

Note: TV: Television

Table 1: Socio-demographic characteristics of the respondents in Bale zone, Southeast Ethiopia, 2017.

breast problem, she has birth recently, her breast has not have milk, she has severe breast ache”.

The majority 60.4% of the respondents had at least one symptom of breast cancer. Lumps in the breast were the highest symptom among the respondents 20.5%.

This finding supported by qualitative study as a 35 years health extension worker reported, “...breast disease is known, especially when it reaches severe form, women can know on themselves. For example, if it is said how, women can palpate her breast. Even if we cannot say it is cancer as your saying, we can differentiate on palpation using our hand or fingers; it seems dhullaa or a small seed in the breast, it become hard, we fear breast problems which have such symptoms, because the great problem of our breast is this one which we believe it does not have treatment. Something that seems what has just been mentioning for example, ‘michi’ as the result of child mouth is not like what I’m saying now. It does not have a small seed like things inside the breast and it is not become hard, simply it is swelling which has ache and itching.”

A 38 years house wife in FGD also reported, “...it seems gland inside the breast, hard on palpation and painful, if something alike to gland is present, it can be differentiated during breast feeding, because it is painful to touch.”

Regarding knowledge about risk factors, more than half 52.9% of the respondents did not know any risk factors of breast cancer.

During FGD about knowledge of BC, some women stated its risk factors from different aspects. For example, a 31 years house wife said, “...if a woman gives birth and goes out from her house within ten days, fifteen days, one month or forty days starting from birth day, cold can be the cause of breast disease. On some other women the disease arises without any known reason, it swells and becomes painful, people say the problem is engorgement, some say again it is because of another thing, in reality we do not know the cause.”

A 40 years merchant woman also reported, “...God (Rabbi) sends disease to human being; I think no one can know what God brings to human being. What God brings to human being arises from the body of the person itself. Usually, a woman can get breast disease when she marries and gives birth for baby. Milk fill the breast, when it remains inside the breast for long time, it become curdle, then changed to pus. If she doesn’t get treatment either from traditional healer or health facility, the problem becomes worst and changed to severe breast disease.”

In addition, a 29 years civil servant also stated, “...what is said in our tradition, if child eat delicious food and suck the breast, it can be diseased as the result of ‘Michi’ and the belching of child on it.”

More than three-fourth 75.9% of the respondents knew that breast cancer is common in Ethiopia. Nearly one third 28.6% of the study participants recognized that all women have the chance of acquiring breast cancer. The majority 87.6% of the women stated that breast cancer is communicable disease. Around 87.8% participants mentioned breast cancer is a killer disease if it is not detected and treated early. Majority, 78.6% of the participants identified that clinical breast examination is one of the screening method of breast cancer. Regarding treatability of breast cancer about 77.1% of respondents believed with treatability of BC if the cancer is at the early stage. Medical treatments were preferred by the majority 76.2% of the respondents and 23.8% respondents prefer traditional treatments like herbal and holy water (Table 2).

In agreement to the above concept, qualitative part of the study also showed more interest to medical treatment than traditional. For example, a 23 years house maker stated, “...we, as this community, know and believe the presence of good treatment at hospitals. In addition, private health facilities also place where we visit most of the time even more than hospitals for their expeditious services. Many people left to go to traditional treatment and it has been reduced. Nowadays, we have awareness from the health education given by our health extension workers to go to health facilities for any sickness that we may face.”

Variable		Number	Percentage	p-value
Ever visiting health facility for any sickness?	No	75	10.0	
	Yes	675	90.0	
Have you got information or health education on BC?	No	612	81.6	
	Yes	138	18.4	<0.001
Ever hearing about BC?	No	373	49.7	
	Yes	377	50.3	<0.001
Is BC common in Ethiopia?	No	181	24.1	
	Yes	569	75.9	
Do you have any symptom of BC	No	297	39.6	
	Yes	453	60.4	
Which symptoms of BC do you have?	Lumps in the breast	154	20.5	
	Itching of the breast	91	12.2	
	Pain of breast	154	20.5	0.015
	Burning sensation	87	11.6	
Is BC communicable disease in terms of morbidity?	No	93	12.4	
	Yes	657	87.6	
Do you know every woman has chance of acquiring of BC?	No	535	71.4	
	Yes	215	28.6	<0.001
Is BC a killer disease?	No	91	12.2	
	Yes	659	87.8	
Which risk factor/s do you know?	Not know any risk factor	397	52.9	
	Family history of BC	154	20.5	0.008
	Never breast feeding	142	19.0	
	Aging	80	10.7	0.002
	Over weight	50	6.7	
	Being women	67	9.0	0.001

Which screening method/s, Do you know?	CBE	590	78.6	
	SBE	76	10.2	
	Mammography	75	10.0	
	I don't know	9	1.2	
Do you think BC is treatable?	No	172	22.9	
	Yes	578	77.1	0.018
Distance from home to the nearest health facility	≤ 2 hours	598	79.8	
	Greater than 2 hours	152	20.2	0.003

Note: BC: Breast Cancer; CBE: Clinical Breast Examination; SBE: Self-Breast Examination

**Table 2:** Factors associated with knowledge of breast cancer in Bale zone, Southeast Ethiopia, 2017.

A 36 years civil servant woman stated, "...we go to health facility, I myself had breast disease in 2002, and it was very severe problem that had severe pain. I went to health facility and got some injections and tablets. It was improved on that treatment, until now I have not experienced such problem."

In contrary to the above idea traditional treatment also mentioned by a few participants as urgent relief and even sometimes as ultimate cure. For instance a 39 years house maker said, "I had pain of breast recently, I went to health facility, I was told the problem was engorgement and told to boil water and making it in high land water container and to apply on it. I did that, as it contained pus nothing was changed, I couldn't get improvement. The severity of the pain was increased and lastly I went to a traditional healer, he tied some medicine on that area, with this it was burst. After long period of time I got relief of that and at the moment even the child is also sucking".

And 30 years civil servant also stated, "...even I myself feel breast pain sometimes. I boil water and make it in high land water container and apply on it or I apply kerosene (gas) on it, and then I get relief...I have never visited health facility."

A 45 years merchant woman reported, "...we do not go for health facility (seeking treatment), but we go to traditional healers", she repeated naming the same remedies by adding when we apply habukurto and hapeta on it we get some improvement, but these treatments can never cure the problem."

A 25 years house wife said; "...as our tradition what is being said, if child eat delicious food and suck breast can be infected as the result of "Michi". This time we feel breast itching and tubing pain. For this we apply some leave that we know traditionally as medicine for "michi".

### Logistic regression analysis of knowledge of breast cancer

Rural mothers had less knowledge compared to those living in urban, AOR=0.29 (95% CI: 0.13, 0.65). Those mothers who have monthly family income greater than 1311 were more likely to have knowledge of breast cancer compared to their counterparts, AOR=3.52 (95% CI: 1.73, 7.17). Respondents who consider breast cancer is a killer disease were more likely to have knowledge of breast cancer compared to their complements, AOR=3.29 (95% CI: 1.49, 7.28). Similarly, participants who know treatability of breast cancer were more likely to have knowledge compared to those do not know the treatability of breast cancer, AOR=3.81 (95% CI: 1.85, 7.79) and mothers who got information or health education at health facilities were more likely to have knowledge compared to those mothers who did not get information or health education at health facilities, AOR=2.65 (95% CI: 1.28, 5.49) (Table 3).

### Discussion

In this study the mean breast cancer knowledge was  $7.77 \pm 3.18$  SD for participants had ever heard about breast cancer. Around

fifty six percent of the respondents were knowledgeable as they had a knowledge score of greater than or equal to the mean. Much lower breast cancer knowledge level was observed in a study conducted on household women in Northern Ethiopia which indicated 34.7% of respondents had a knowledge score of greater than or equal to the mean knowledge score [15]. This difference could be due to the fact that type and number of questions prepared to assess the knowledge score for the two researches were not exactly the same. The four year time gap between the two researches could also be the other possible explanation for the variation of knowledge between the two settings.

This study showed that rural participants were less knowledgeable compared to urban AOR=0.29 (0.13-0.16) and it was in line with the result reported from Zambia [19]. This was probably due to the existence of different types of health facilities and various health promotion programs that use mass media in urban than rural residences. In addition to this, urban respondents seem more educated and have more awareness than rural. Moreover, rural participants are more influenced by harmful traditional practices and reluctant to accept such sensitive health care services than urban.

In this study thinking about the treatability of BC was significantly associated with the knowledge of BC. Those mothers who did think BC is treatable were more knowledgeable than their counterpart AOR=3.81 (1.85-7.79). It is in agreement with the study conducted in northern Ethiopia which showed household head women who thought the treatability of BC had more knowledge of BC than household head women who did not think the treatability of BC [15]. This could be due to the probability of mothers who have some information on BC, here the treatability of BC; implicit to have additional information about breast cancer. This consideration of treatability of BC could be also from the previous exposure to breast disease related problem/s that had been treated either for themselves or other women.

Another predictor for BC in the present study was previous information or attending health education at health facility. Mothers who had previous information or health education on health matters at health facility were more knowledgeable about BC than those mothers who had not have such previous exposure to information AOR=2.65 (1.28-5.49). This may be due to that information or education obtained from health professionals at health facility include many aspects of health issue that could address breast health and mothers benefitted from that. Additionally this information or education might be directly given for mothers at the service delivery point during the management of some problems that the mothers came for [20].

The other predictor that was significantly associated with the knowledge of BC was monthly family income. Mothers who had monthly family income greater than 1311 birr were more knowledgeable than the mothers whose monthly family income was less than 1311 birr AOR=3.52 (1.73-7.17). The finding was consistent with the study done in South Africa [21], but it was not in line with the study done in Addis

Variables	Knowledge of BC		OR (95% CI)	
	NO (%)	Yes (%)	COR	AOR
Thinking BC is a killer disease				
No	24 (25.0)	27 (8.4)	1.0	1.0
Yes	72 (75.0)	296 (91.6)	3.65 (1.99-6.71)	3.29 (1.49-7.28)
Monthly family income				
<1311 Birr	178 (62.0)	285 (51.9)	1.0	1.0
≥ 1311 Birr	109 (38.0)	264 (48.1)	1.51 (1.13-2.02)	3.52 (1.73-7.17)
Residence				
Urban	41 (14.3)	169 (30.8)	1.0	1.0
Rural	246 (85.7)	380 (69.2)	0.38 (0.26-0.55)	0.29 (0.13-0.65)
Thinking BC is treatable?				
No	41 (70.4)	55 (79.2)	1.0	1.0
Yes	55 (29.6)	269 (20.8)	3.65 (2.22-5.99)	3.81 (1.85-7.79)
Information/health education on BC				
No	250 (87.1)	405 (73.8)	1.0	1.0
Yes	37 (12.9)	144 (26.2)	2.40 (1.62-3.56)	2.65 (1.28-5.49)

**Note:** AOR: Adjusted Odds Ratio for occupation, marital status, husband's educational level, having TV or radio, distance of health facility, visiting health facility for any sickness

**Table 3:** Logistic regression analysis on knowledge of breast cancer in Bale zone, Southeast Ethiopia, 2017.

Ababa-Ethiopia which showed there was no difference in mothers' knowledge depending on their different monthly income [22].

Lastly, but not the least, thinking BC as a killer disease was also significantly associated with BC knowledge. Those women who did think BC as a killer disease were more knowledgeable than the women who did not think BC as a killer disease AOR=3.29 (1.49-7.28). It is in agreement with the study conducted in western Amazon which showed women who did think BC as a killer disease were more knowledgeable than their counterpart [23]. This could be due to the probability of mothers who have some information on BC, here BC as a killer disease; implicit to have additional information about breast cancer. This understanding of BC as a killer disease could be also from the previous exposure to problems of BC either on themselves or other women.

## Conclusion

The study revealed that almost half of the reproductive age women had low breast cancer knowledge compared to other study. Small proportion of the respondents had ever heard about breast cancer. This is evidenced by the fact that adequate information of health education was not being given by health professionals at different levels. The major factors for knowledge of breast cancer were residence, monthly income, knowing the seriousness of breast cancer, knowing the treatability of breast cancer and previous information or health education on breast cancer. So, it is very essential to develop health service programs that can address all mothers according to their favourable place and time to increase knowledge of breast cancer through information and health education regarding its sign and symptoms, risk factors, early detection, and management systems to reduce the burden of BC.

### Ethics approval and informed consent

The study was performed by interviewing reproductive age group women after an ethical consent was obtained from Madda Walabu University ethical clearance committee and individual verbal consent is obtained from the study participants. This manuscript has never been submitted and considered for publication to any other journal.

## Consent for Publication

Not applicable.

## Data Availability

The data will be available upon request.

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This study was supported by Madda Walabu University.

## Competing Interests

The authors declare that they have no any competing interests.

## Authors' Contributions

This work was carried out in collaboration between all authors. 'Author AH' and 'Author MK' developed the concept, designed the study, wrote the protocol, performed data collection, analysis and interpretation, and wrote the first draft of the manuscript. 'Author AL', and 'Author SN' developed the concept, designed the study, performed data collection, performed data analysis and interpretation, and wrote the first draft of the manuscript. All authors read and approved the final manuscript.

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