Breast self-examination practice and associated factors among women of reproductive age in southeast Ethiopia

Abduljewad Hussen Mohammed
  Madda Walabu University

Musa Kumbi Ketaro
  Madda Walabu University

Abate Lette Wodera
  Casa di Cura La Maddalena SpA

Shemsu Nuriye Hajisso
  Wolayta Sodo University

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Abstract

Background: Breast cancer is the most prevalent cause of cancer deaths among women especially in developing countries. It is a disease with a poor prognosis unless detected early. Breast self-examination may play a significant role in the prevention of breast cancer among women especially in low and middle-income countries.

Objective: This study aims to evaluate breast self-examination practice and associated factors among women of reproductive age in southeast Ethiopia.

Methods: A community based cross-sectional study was conducted on 836 women of reproductive age. An interviewer administered questionnaire was used for the quantitative part of the study and supplemented by focus group discussions. A database was created using Epi-info version 3.5.3, and analysed using SPSS version 20. Bivariate and multivariable logistic regressions were done to examine the effect of explanatory variables to the outcome variable. Variables with P value <0.05 during multivariable logistic regressions were considered as significantly associated with the dependent variable.

Result: Out of eight hundred thirty-six total participants, only 20.7% had ever heard about breast self-examination practice. Also only 13.2% of the mothers had practiced breast self-examinations. Maternal age, mothers' level of education, and previous history of breast examination by health professionals were significant factors for breast self-examination practices.

Conclusion: This study reported a low prevalence of breast self-examination practice. Therefore, enhancing women's education and encouraging breast examination by health professionals are essential to increase the proportion of women performing breast self-examination.

Background

Breast cancer (BC) is typically asymptomatic when the tumour is small and easily treated. Therefore, it is very essential for women to follow suggested screening rules in detecting BC in the early stage [1]. Before BC develops to a size that can be felt, the most common physical sign is a painless lump or swelling until the original breast tumour itself is large enough to be felt [2-4]. Other common signs and symptoms include breast pain or heaviness, persistent changes in the breast (swelling, thickening, or redness of the breast's skin), nipple abnormalities (spontaneous bloody discharge), erosion, inversion, and tenderness [1, 5].

Age is the most important factor for BC risk in women. It will affect women in their most productive years of life. More breast cancer cases are identified in developing countries than those in developed countries among women the reproductive aged, 15–49 years [33]. The other risk factors for BC are inherited mutations in susceptible genes; a personal or family history of BC; high breast tissue densities; high dose radiations to the chest as results from medical procedures [6]; reproductive factors that increase risks

(early start of menstrual periods and/or end later in life); not ever having children; prolonged use of oral contraceptives; and having a child after the age of thirty. Some other factors that increase risk include being overweight or obese after menopause, use of menopausal hormone therapy (combined), physical inactivity, and consumption of alcohol [7].

The most imperative strategies in achieving early detection of BC are mammography and physical examination of the breasts by qualified health workers, or clinical breast examination (CBE) and breast self-examination (BSE) [8,9,33]. Breast self-examination has been broadly recommended as a comparatively simple, non-offensive, non-harmful, and cost-free screening technique when comparing to other types of screening approaches for breast cancer[11,12]. It is a technique established for the purpose of assessing cancer; a woman uses her hands to systematically examine her breasts and the immediate areas for unfamiliar lumps and shape changes. Usually done on a fixed monthly basis, the same technique is used each time, ensuring that all areas of the breast are sensed and checked thoroughly.

In 2012 alone, approximately 1.7 million new breast cancer cases were diagnosed worldwide, representing around 12% of all new cancer cases and 25% of all cancers in women. It is the most prevalent cancer in developing countries [8, 10, 33]. Unlike the experience of the western world where BC is treatable and with lower mortalities [26], in Ethiopia, BC is typically a fatal disease among females with 24.4% prevalence rate. In 2014, around 26,200 women were died by breast cancer [9,33]. Early detection makes the disease easier to treat. Some authors suggest that BSE does not significantly reduce the breast cancer mortality but the awareness among women about their breasts provides them with knowledge to seek medical help early in order to improve the prognosis [31, 32]. Research findings suggest that BSE is an important technique in prevention of breast cancer especially in resource poor countries [31, 33]. However, stigma towards cancer, poor knowledge of BC related to signs, symptoms and its treatability, and system overload continue to account for delays in reaching care [28]. Ethiopian women usually alerted in the late stage of the disease [9, 29]. In Ethiopia, little is known about BSE practice by women of reproductive age[33]. Therefore, this study was designed to identify the prevalence of breast self-examination and associated factors among reproductive age women in Bale Zone, southeast Ethiopia.

Methods

Results

Socio-demographic characteristics

A total of 836 mothers completed the questionnaire for a response rate 99.4 %, The mothers had a mean age of 31.09 ±7.34 SD years. Forty-five percent of the study participants were illiterate. The majority, 744 (89.0%) of the study participants were married. Ninety percent of women were housewives. Regarding husband's level of education, above half 439 (52.5%) had finished primary school. The majority 463 (55.4%) of respondents had a monthly income below the poverty line (Less than 1311 EB or $1.90 per month). The majority 475 (56.8%) of the study participants had television or radio. The majority 210

(74.9%) were rural dwellers. Health centers or hospitals were very close to 667 (79.8%) of the study participants (about five kilometers or less, maximum journey of 2 hours on foot) **(Table 1)**.

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

Variable		Number	%
Maternal Age (Years)	15-24	146	17.5
	25-34	424	50.7
	35-49	266	31.8
Mother's Educational Level	Illiterate	376	45.0
	Primary School	362	43.3
	Secondary School	98	11.7
Occupation	House wife	752	90.0
	Civil Servant	62	7.4
	Merchant	22	2.6
Marital Status	Married	744	89.0
	Separated/Divorced	57	6.8
	Widowed	35	4.2
Husband's Educational Level	Illiterate	278	33.3
	Primary School	439	52.5
	Secondary School	119	14.2
Having TV or Radio	No	361	43.2
	Yes	475	56.8
Monthly Income	Bellow 1311	463	55.4
	More than 1311	373	44.6
Residence	Rural	210	74.9
	Urban	626	25.1
Distance of health facility	<= 5 kms	667	79.8
	> 5kms	169	20.2

Breast self-examination practice

The majority, 576 (68.8%) of the respondents had sufficient knowledge about breast cancer screening. Regarding sources of information: television and radio were the main sources, 98 (56.6%). This finding was supported by comments from a 19 year old merchant mother who reported, *"…in our place there is no awareness creating activities or education by doctors on breast problem: presence of the disease, its consequences, its sign and symptoms, and its risk factors, and an options for treatment. We heard*

information from the television and radio. Some of us even heard the presence of its management today from this discussion."

A 42 year old civil servant also stated that, "…*I heard my neighbour complaining of a breast disease; I heard also that the disease was cancer. Many women have suffered with disease of the breast, yet I haven't seen any breast disease on my body…. When I was a child, I heard a neighbour whom died due to breast disease. Her breast was wounded, and she was referred and taken far out of this area to receive better treatment in referral hospitals. Even though she had visited many hospitals, she died as the consequence of the disease.*"

Only 187 (22.2%) of participants knew the appropriate timing to perform BSE. The knowledge how BSE is performed was known to 491 (58.7%) of the study participants. The majority, 650 (77.8%) of the mothers responded that performing BSE is important. Above ninety percent of respondents had visited health facilities at some time for sickness. However, only thirty-seven percent of the mothers had a clinical breast examination by health workers during the visit (Table 2).

Table 2. Breast self-examination knowledge and practice in Bale zone, southeast Ethiopia, 2017

Variables	Number	%

Have you heard about BSE	No	663	79.3
	Yes	173	20.7
*If yes, what is/are the sources?	Health workers	87	50.3
	TV or radio	98	56.6
	Family or friends	55	31.8
Knowledge of BC screening	Not knowledgeable	260	31.2
	Knowledgeable	576	68.8
Knowing how BSE is done	One finger palpation	73	8.7
	Palm and three finger palpation	491	58.7
	Do not know how to do	272	32.6
Ever visiting health facility for any sickness	No	76	9.1
	Yes	760	90.9
History of BE by health worker	No	527	63.0
	Yes	309	37.0
Have you practiced BSE			
	No	726	86.4
	Yes	110	13.2
Detected abnormalities during BSE (n=110) BSE (n=110)	Contour	36	32.7
	Lump in breast	29	26.4
	Pain of breast	26	23.6
	Itching of the breast	12	10.9
	Tenderness	9	8.2
	No any abnormal	8	7.3
Did you consult health workers (n=102)	No	38	37.3
	Yes	64	62.7
Is it important to examine your breast by yourself?	Important	650	77.8
	Not important	186	22.2
Knowing appropriate time for performing BSE	2-3 days after monthly menstruation	187	22.2
	Monthly at any time	144	17.5
	Few days before menstruation starts	212	25.4
	Do not know specific time	293	34.9

*Multiple responses allowed; P/E: Physical Examination; HF: Health Facility health center or Hospital).

During another FDG a 16 year old housewife reported, *"…this breast disease is certainly present in its massive form; I have not experienced this disease on myself; it has hurt many women; and 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 woman with breast problem, she gave birth recently, her breast has not produced milk, and she has severe breast ache. The problem is existed among us however; we don't know the right time to perform BSE…"*

In this study, only 110 (13.2%) of the mothers performed BSE. The main reasons given by the mothers were; lack of information 269 (37.1%), fear of detecting abnormalities 158 (21.7%) and lack of privacy 138(16.5%) **(Figure 1).**

During a focus group discussion about BSE, six mothers stated that breast self-examination was not practiced among them. For example, a 23 year old civil servant woman reported that, *"…I don't need to touch and examine my breast if I don't suspect the problem. If it develops a problem, symptoms force us to touch and examine the breast. It is important to see some internally felt discomfort or externally observed signs and symptoms of disease. We don't know breast cancer. Therefore, we don't give focus to our breast. If we have a previous problem, we check the improvement of that problem from time to time. Unless and otherwise, we don't examine our breast…"*

Those mothers who performed BSE had detected abnormalities in their breasts such as changes in contour 36 (32.7%), and lump in breast 29 (26.4%). The majority, 64 (62.7%) of the respondents who detected abnormalities in their breasts did consult health workers **(Table 2).**

A 47 year old house wife also stated, *"… for example, when I have pain of the breast, if all things, even children touch me, I feel pain on both breasts specially at the tip of it, before this time I haven't ever see such things. For this reason, I have started to touch and look at my breast. If somebody has such problem that woman should touch and examine their own breast, otherwise there is no need to touch…"*

During another FDG a 35 year old health extension worker stated that, *"…women know their breasts or their bodies especially during a change. Breast pain is not simple, its pain is more severe than other disease; therefore, it is easy to know breast problem on ourselves. However, women have seen this problem traditionally and some of them mostly seek traditional treatment because, they will not permit to expose their breast to health professionals if the disease is not severe. This makes the disease too fatal among our community…"*

Factors associated with breast self-examination practice

Women in the age range of 25-34, and 35-49 were more likely to practice BSE compared to those women in the age range of 15-24, AOR=3.61(95%CI: 1.13, 11.58), and AOR=9.35(95%CI: 2.31, 37.85) respectively. Participants who have finished primary education, AOR=3.88(95%CI: 1.26, 11.98), and secondary and above, AOR=11.14(95%CI: 2.48, 49.96) times more likely to practice BSE than illiterate mothers. In addition, participants who have ever had breast examination previously by health workers were more

likely to practice BSE compared to those mothers who have never had clinical breast examination, AOR=3.62 (95%CI: 1.15, 11.45) (**Table 3**).

Table 3. Factors associated with breast self-examination practice in Bale zone, southeast Ethiopia, 2017

Variables		Ever performing BSE			OR (95%) CI	
		No	Yes	COR	AOR	
Present maternal age						
	15-24	132	14	1.0	1.0	
	25-34	379	45	1.61(0.76-3.41)	3.61(1.13-11.58) *	
	35-49	215	51	3.44(1.26-9.39)	9.35(2.31-37.85) *	
Mother's level of education						
	Illiterate	357	19	1.0	1.0	
	Primary school	307	55	2.89(1.37-6.10)	3.88(1.26-11.98) *	
	Secondary & above	62	36	5.68(2.23-14.51)	11.14(2.48-49.96) *	
Occupation	House maker	668	84	1.0	1.0	
	Civil servant	52	10	0.57(0.22-1.47)	0.74(0.18-3.12)	
	Merchant	6	16	1.83(0.63-5.30)	0.56(0.13-2.46)	
Residence	Rural	200	10	1.0	1.0	
	Urban	526	100	2.11(0.45-9.03)	3.02(0.98-4.58)	
Knowledge of BC screening						
	Not knowledgeable	237	23	1.0	1.0	
	Knowledgeable	489	87	1.84(0.84-4.03)	1.45(0.38-5.53)	
Ever visiting health facility for any sickness						
	No	32	44	1.0	1.0	
	Yes	694	66	3.23(1.68-6.19)	0.90(0.31-2.59)	
Knowing how BSE is done						
	One finger palpation	63	10	1.0	1.0	
	Palm & 3 finger palpation	407	84	2.47(0.75-8.15)	3.59(0.82-15.79)	
	Do not know	256	16	0.20(0.06-0.68)	0.36(0.08-1.56)	
Having TV or Radio						
	No	351	10	1.0	1.0	
	Yes	375	100	2.35(0.95-5.81)	1.62(0.30-8.64)	
History of BE by health workers						
	No	508	19	1.0	1.0	
	Yes	218	91	5.11(2.36-11.06)	3.62(1.15-11.45) *	
Have you heard about BSE						
	No	621	42	1.0	1.0	
	Yes	105	68	2.16(1.15-4.05)	1.11(0.41-3.01)	
Distance from home to the nearest health facility						
	<= 5kms	594	73	1.0	1.0	
	> 5kms	132	37	0.23(0.09-0.61)	1.42(0.32-6.41)	
Importance of BSE						
	Important	552	98	1.0	1.0	
	Not important	174	12	0.35(0.15-0.84)	0.73(0.15-3.58)	
Knowing appropriate time for performing BSE						
	2-3 days after menses gone	144	43	1.0	1.0	
	Monthly in fixed days	113	31	0.92(0.37-2.29)	1.50(0.43-5.29)	
	Before menstruation starts	198	14	0.29(0.11-0.73)	1.05(0.27-4.05)	
	Do not have specific time	271	22	0.33(0.14-0.76)	0.98(0.26-3.65)	

Discussion

Breast self-examination (BSE) is an important and inexpensive method for screening and early detection of breast cancer [17, 32]. This study showed that 20.7% of the participants responded that they have heard of BSE. This result was very low compared to a study conducted in Malaysia and Libya [18,19]. Mentioned sources of information on BSE for 56.6% of the study participants was from the television and radio, altogether. These findings are consistent with a study conducted in Libya [18]. The present study showed that only 13.2% of the respondents have practiced BSE. This result showed the information was more frequent practice than studies conducted in Zambia, 5% and south India, 2.4% [22,23], but less that found in Malaysia, 48%, Nigeria, 43.5%, and Ethiopia, 53.6% [13,19,25]. The main reasons mentioned by non-performers were lack of knowledge and fear of detection of abnormalities. This finding was similar with a study conducted in Iran [24].

This study showed that as mothers age increases especially between 20 and 30 years of age the practice of BSE increases. This is equivalent to a study reported from north Ethiopia [13], two studies conducted in Nigeria by Oladimeji et al., 2015, and Balogun and Owoaje, 2003, which revealed that around the ages of 25, 30 and 40 years more women practiced BSE. This may be due to the fact that at these age women are paying attention to their reproductive activity, resulting in their attention to and care of their breast health, as the result of increased contact to health facilities and health professionals than any other times in their lives. These opportunities may expose mothers to information that can be obtained from health professionals to help them to practice BSE.

Different studies showed that practice of BSE was determined by educational level of mothers. A study done in Libya [18], and another study done in Nigeria [25] reported that higher levels of education were significantly associated with BSE practice. Consistent with these previous studies, our study revealed that BSE was related to mothers' level of education. This is because educated mothers have a greater awareness of the existence of health care and benefited from by using such services. As education empowers women, they have greater confidence and capability to make decision to use modern health care services[26].

In this study a previous history of breast examination by health professional was also another predictor for BSE practice. This result was consistent with a study conducted in northwest Ethiopia which indicated that health extension workers who had previously had their breasts examined by health professionals were a significant predictor of BSE practice. This could be due to the fact that if mothers came to know how breast examination is done, the probability of continuing examination by themselves seems high [14].

Strengths of the study

We have collected both quantitative and qualitative data, and the questionnaires were produced from standardized sources. The sample size of the study was large enough to establish generalizability to a large population. From the perspective of representativeness, the study included women from three different communities in the rural areas (lowland, temperate and highland) of Bale Zone.

Limitations of the study

As a cross sectional study, a cause and effect relationship cannot be established to identify actual predictor. The study was focused on only reproductive age women and didn't include older for whom concerns about breast cancer may be greater.

Conclusion

The study revealed low breast self-examination practices among the reproductive age women comparing with the other studies conducted in Ethiopia. The proportion of the respondents who had ever heard of breast self-examination was also low. Present maternal age, mothers' level of education and previous history of breast examination by health professional were found to have significant associations with breast self- examination practices. So, increasing maternal education and coverage of breast examination by health professionals is crucial to increase breast self- examination practice.

List Of Abbreviations

BC   Breast Cancer

BSE   Breast Self-Examination

CBE   Clinical Breast Examination

AOR   Adjusted Odds Ratio

COR   Crud Odds Ratio

FGD   Focus Group Discussion

LMIC   Low and Middle Income Countries

OR   Odds Ratio

SPSS   Statistical Package for Social Studies

SSA   Sub-Saharan African Countries

WHO   World Health Organization

Declarations

Ethics approval and consent to participate

The study was done by interviewing the reproductive age mothers after an ethical consent was obtained from Madda Walabu University ethical clearance committee and individual verbal consent was obtained from the study participants. Regarding the minors, consent to participate was found from their parents on their behalf. This manuscript has never been submitted and deliberated for publication to any other journals.

Consent for publication

Not applicable.

Availability of data and materials

Data and materials will be available upon request. You can contact Mr. Abate Lette and Mr. Abduljewad Hussen if you want the data and materials at any time.

Competing interests

The authors have no any competing interest and all have agreed the manuscript for publication.

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Authors' contributions

The authors': AH, MK, AL and SN developed the concept, developed methods, collected data and analyzed it, and drafted and edited the manuscript. All authors critically reviewed the manuscript, read and approved the final manuscript.

Authors' information

AH is a lecturer at Madda Walabu University, MK is an assistant professor and an academic and research coordinator at Madda Walabu University, AL is an assistant professor and public health department head at Madda Walabu University, and SN is a lecturer at Wolayita Sodo University.

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Figures
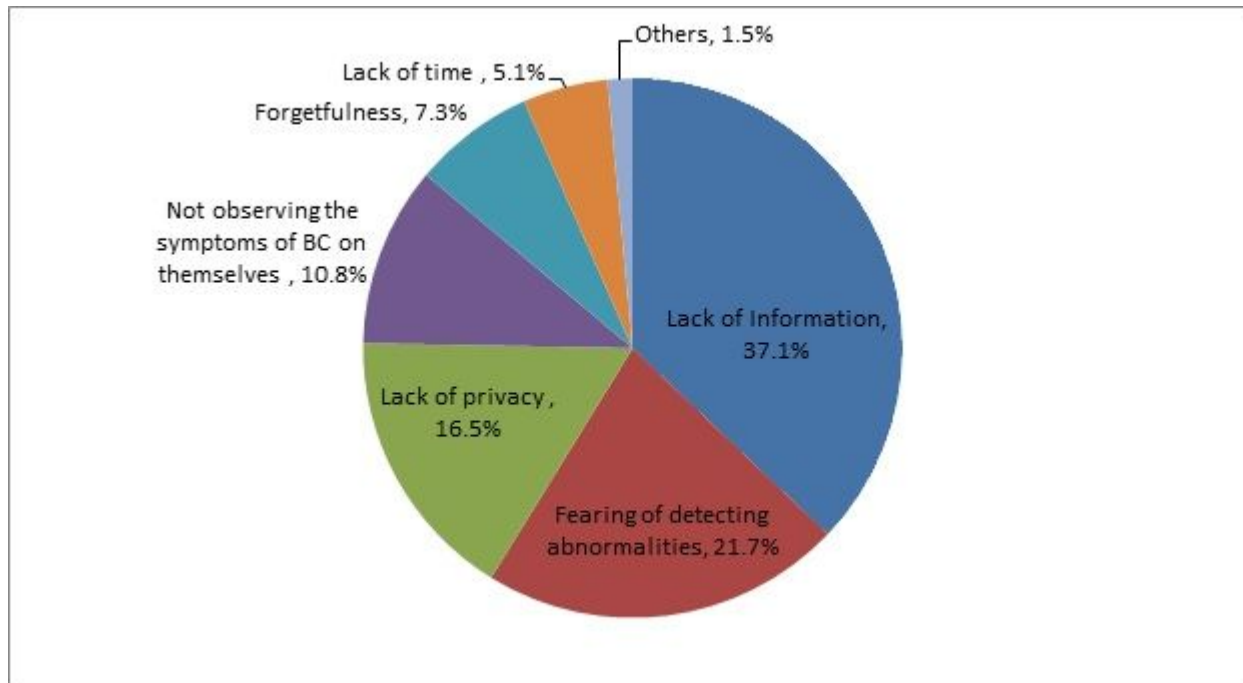
Figure 1

Reasons of non-performing BSE reported by the participants