Breast self-examination and associated factors among women in Wolaita sodo city, Ethiopia: Community based cross sectional study

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Abstract

Background: Early detection of breast cancer plays an important role in decreasing morbidity and mortality associated with breast cancer. Breast self-examination (BSE) is one of the screening methods for early detection of breast cancer. BSE involves the woman herself looking at and feeling each breast for possible lumps, distortions or swelling. BSE is a simple exercise which can potentially save the life of a woman but it is not well focused yet. So, this study was aimed to assess breast Self-Examination and associated factors among women in Wolaita Sodo city, Ethiopia.

Methods: Community based cross-sectional study design was employed. Systematic random sampling technique was used to select 626 women aged 20-65 years old. The data were collected using pre-tested and structured questionnaire. The data was entered using Epi data version 3.5.1 and exported to SPSS version 21 software for statistical analysis. Bivariable and multiple logistic regression analysis were done.Variables with P-value less than 0.05 were considered as statically significant.

Results: A total of 629 women were included in the study. More than half (60.9%) of the participants were in the age range of 20-29 years. Women who had mentioned BSE as method for early detection of breast problem were 6.36 times (AOR: 6.36, 95% CI :(3.72, 10.71) more likely to perform BSE than those who say that they don't know any method. Women breast feed 13-24 months were 2.43 times AOR: 2.43, 95% CI :(1.28, 4.59) more likely to examine their breast than those who breast feed different duration. Employed women were 3.13 times more likely AOR: 3.13 95% CI :(1.14, 8.58) to practice BSE than women not employed. Likewise being student was 3.73 times AOR: 3.73, 95% CI (1.19, 11.73) more likely to perform BSE than others.

Conclusion: The finding of this study showed that women's practice of breast self-examination is relatively low. Knowledge of BSE, breast feeding 13-24 months, being employed and being student were factors affecting performing breast self-examination. Therefore, educating girls and increasing awareness on electronics media is important.

Introduction

Breast cancer has increasingly become an issue of public health importance in both developed and developing nations. Because of its high prevalence, it over-burdened health system and direct medical expenditure. Breast cancer is the second leading cause of death among women worldwide with an estimated 1.38 million new cases diagnosed annually which accounts for 10.9% of all cancer cases next to lung cancer(1, 2). Its incidence is increasing both in developed and developing regions. In 2008, an estimated 636,000 incident cases were diagnosed in high resource countries, while 514,000 cases were diagnosed in low and middle resource countries. Breast cancer is the most frequent cause of death among women both in developing (269,000 deaths (12.7%) of total) and developed region with an estimated 189,000 deaths. It is estimated that 70% of all breast cancer cases worldwide will be in low and middle resource countries by 2020 (3).

The incidence varies across the continent ranges from 19.3 per 100,000 per year in Eastern Africa to 38.1 per 100,000 in Southern Africa(4).

Breast self-examination (BSE) is one of screening methods, which involves the woman herself looking at and feeling each breast for possible lumps, distortions or swelling. BSE is a simple exercise which can potentially save the life of a woman. It is recommended for every woman to start breast self-examination at age of 20 years and this expected to be done for 20 minutes every month(5). However, women in developing countries do not perform BSE for various reasons(1). A woman who performs BSE may be more motivated to seek medical attention, including Clinical Breast Examination (CBE) and mammography(6).

In Ethiopia more than half of women with breast cancer were age 50 and younger. Evidence shows that 69.6% of patients ignored their symptoms initially for an average of more than one and half year(7). BSE is still recommended as a general approach to increasing breast health awareness and thus potentially allow for early detection of any anomalies, because it is free, painless and easy to practice(5).

The American Cancer Society also recommends that women, starting from the age of 20 years should be educated on the pros and cons of performing a monthly BSE(8).

Breast cancer in low to middle income countries has late presentation with poor treatment outcomes due to several factors such as unequal access to prompt high quality treatment and lack of early screening(3)

Despite the fact breast cancer comes out recently as the worst killer of young women especially those in urban area, Ethiopia health system has traditionally concentrated on communicable diseases prevention(7).

Even though breast cancer is among the leading causes of morbidity and mortality among women, very limited report has been published that measures the level of BSE

So, this study will contribute towards building on breast self-examination related issues. And also seeks to identify the need for information on breast cancer self-examination.

Therefore, this study was aimed to assess breast self-examination and associated factors among women aged 20–65 years in Wolaita Sodo city.

Methods

Study setting and design

The study was carried out in Wolaita Sodo city. The city has a total population of 250521. Male 79871 (52%), female 73650 (48%) and the city has three sub cities, 18 kebeles, three health centers, one hospital owned by MOH and one private hospital. The city is located 160km from regional city Hawassa and 327

km from Addis Ababa, the capital of Ethiopia (9). A Community based cross-sectional study design was employed.

Source population

All women age 20–65years were considered as a source population.

Study population

The house in selected kebeles were taken by systematic random sampling technique and study unit was selected by simple random sampling technique.

Inclusion and exclusion criteria

Women age 20–60 years were included in the study and women who were seriously ill during data collection time, having known breast cancer and those not willing to participate in the study were excluded.

Sample size and sampling procedure

Sample size was calculated with open- Epi statistical software version 3.03 using single population proportion statistical formulas. n = Z (1.96)2 P (1-P)/ d 2

With assumption of: z = 1.96, at 95% confidence level.

P-prevalence of breast self-examination 53.6 %(0.536) from previous study (10).

Non-respondent rate 10% and confidence levels of 95% and 5% margin of error.

Therefore a calculated sample size was 572 and after considering 10% non-response the final sample size was 629.

Sampling procedure

Multi stage sampling technique was used to select the respondents of the study. First, among the 18 kebeles in the city, 6 kebeles were randomly selected by simple random sampling method to represent all kebeles. The number of source population in each selected kebeles was identified from Wolaita Sodo finance economic development department data(9). The calculated sample size allocated to the selected kebeles proportionate to the number of source population in the kebele. Sampling interval was calculated by diving source population to our sample (N/n) = 15098/629 = 24. The first house hold was selected by

simple random sampling method from 1–24 households listed and 10 th household was chosen randomly

Sampling frame (households) containing lists of the population from selected kebeles was obtained and every 24 th house was visited to select the study population by systematic random sampling technique until the given sample size filled for a given kebele and the respondents from each selected house hold was taken by simple random sampling technique whenever there were more than one eligible women in a selected household.

Data collection procedure

Structured, pre-tested and interviewer administered questionnaires were used. Questions on the questionnaire include the socio demographic characteristics and BSE related issues. The questionnaires were adapted from Ethiopian Development and Health Survey (EDHS) and different published literatures. Data were collected for the period of 24 November 2018 to 2 December 2018 by trained data collectors. Data were collected through face-to-face interview maintaining the pre-determined sampling intervals. The data collectors informed the respondents all details of the research purpose and procedures and what was expected of them, potential risk and benefit in order to encourage accurate and honest response. When the woman was not available in the first visit, data collectors arranged alternative visits. If a woman was still not available on second visits or declined to participate in the study, the household was jumped and the immediate next household in the sampling frame was considered.

Data quality management

Before data collection the questionnaire was first prepared in English and translated into Amharic and back to English to keep the consistence of questionnaire. Two days training was given to data collectors and supervisors by the principal investigator before data collection.

A pretest was conducted in Dilbetigil kebele which was other than selected kebele and 5% of total sample size was tested. Based on the pretest, questionnaires were revised, edited and the necessary corrections made accordingly. Daily check-up of data for completeness and consistency was done during data collection.

Data analysis procedures

The data entry was done using EPidata version 3.1 and cleaned to check for accuracy, consistencies, completeness, values and any error identified was corrected.

The data was exported to SPSS version 21 software for analysis. Descriptive statistics was done. Bivariable analysis was computed and variables with p-value of less than 0.25 was made candidate for

multiple logistic regression analysis. Multiple logistic regression analysis was done and variables with P-values ≤ 0.05 were considered as statistically significant. Adjusted Odds Ratio (AOR with 95% C.I) used to declare statistically significant association.

Ethical issues

Ethical clearance was obtained from Wolaita sodo university Institutional Review Board (IRB). Written permission was obtained from Sodo city health department. During data collection all respondents were asked their permission and informed consent was obtained from each study participants.

Operational definitions

Breast self-examination (BSE): The examination of their breast by themselves, to identify any changes in the breast(25).

Breast self-examination performed: If the woman performed breast self-examination at least once in the last 12 months.

Age 20 to 65: American cancer society recommended BSE for women aged 20 or older, and mammography for women aged 40 or older (8).

Result

Socio demographic characteristics of the subjects

A total of 629 women were interviewed and subjected to analysis. The participants were between the age 20 and 65 years. More than half (60.9%) of the participants were in the age range 20–29 years and 8.2% were greater than 50 years. Majority of women (87.3%) were Wolaita in ethnicity and 444 (70.6%) were protestant. Three hundred thirty eight (53.7%) of the respondents had completed secondary education and majority (76%) of the study participants were married. (Table1).

Knowledge and practice of BSE and information sources of women

Among the respondents, 591 (94%) knew (heard or read) about breast cancer and their main source of information was electronic media (62.4%). The contribution of health professionals as a source of breast cancer information was found to be (14.7%). Electronic media, family/friends, and health workers were respectively reported as a major source of information. Forty five (7.6%) of the respondents who reported to have had information on breast cancer mentioned other sources like journals, books, nongovernmental organizations (Figure 1).

The methods of screening for breast cancer reported were clinical breast examination 268 (45.3%), breast self-examination 107 (18%), and 216 (36.5%) women responded that they do not know any method of breast screening breast cancer. Of those who ever heard breast cancer, 272(46%) have also heard about breast self-examination (BSE) and among the study participants who had information on BSE, only 217 (79.8%) have ever done BSE and 195(71.6%) reported they keep on performing it. Among those who have ever heard breast cancer, 92% has known (heard) their family history of breast cancer. Majority of the respondents (63.5%) not know their status of benign breast lamp (Table 2).

Knowledge of the right age to perform BSE and the reasons given to perform or not

Different responders, those who perform BSE, cited different prospective on correct age at which BSE commenced, which is at the range of 10 - 30 year (mean age 18.41±2.8 SD). Of these, 63(29%) recommend it at the age of 20 years and one hundred forty four (144) responded, I don't know. Breast – Self Examination performers claimed to have their own performance at varying time period. Of these; few days after menses, few days before menses were ninety seven (44.7%), thirteen (6%) respondents respectively and one hundred seven (49%) answers no specific time/ any time they remember. From those participants who have ever done BSE, One hundred thirty three (61.2%) of them reported to practice it on a regular basis. Among the participants who practiced BSE on regular basis, 98(45%) were practicing monthly, and any time they observe a change were 65(30%). (Table3).

Reasons of not performing breast self-examination

From those responded as ever heard breast self-examination (BSE), ninety eight (45%) believed that they have some kind of barrier to practice BSE. pressure of work/too busy, I don't have enough privacy to do BSE, I know I can never have Bca, and forgetfulness, doubt about its effectiveness were mentioned as main barriers/reason not to perform BSE by 30(14%), 14 (6.4%), 13 (5.9%), 10(4.6%), and 11(5%) of the respondents, respectively. However more than half of performers 119(54.8%) claimed that there is no obstacle (Figure 2).

Distribution of spousal/parents support to perform BSE and the need of information on BSE

Spousal and other person support for breast-self-examination was 146(67.2%). On the other hand, majority of BSE performers were confident (88%) in exercising self-examination. Almost all study participants 98.6% knew early detection of breast cancer improve chance of survival. Most respondents, two hundred forty nine (91%) wanted more information on BSE. Of the total BSE performers two hundred seven claimed BSE is very important. Most of the respondents (91.1%) of the participants responded

health facility was their first choice to visit if find any breast mass within one month,1–3 months, 3 months(85.5%, 12.6% and 0.3%) respectively. whereas 49(22.5%)choices traditional healers. Within a year just prior to this study, among performers of BSE, one hundred forty nine (23.7%) participants performed it more than six times and four to six times 26 (4.1%) less than 4 times2 6 (4.1%)(table 4).

Factors associated with breast self-examination

The Bivariate binary logistic regression analysis yielded that occupational status, duration of breast feed,women education,husband education, early detection method for breast cancer, Source of information, Knowledge of personal history of having benign breast lamp became candidate for multiple logistic regression analysis at $p \leq 0.25$.

In the final logistic regression (multivariable logistic regression analysis) model occupational status of women, duration of breast feed and previously heard on BSE were significantly associated with performing BSE at P-value less than 0.05. Women who had mention BSE as method for early detection of breast problem were 6.36 times AOR: 6.36, 95% CI:(3.72, 10.71) more likely to perform BSE than those who say that they don't know any method. Those who had breast feed 13–24monnths were 2.43 times AOR: 2.43, 95% CI:(1.28, 4.59) more likely to examine their breast than those who mention different category/duration of breast feed The study participants who were employed were 3.13 times more likely AOR: 3.13 95% CI:(1.14, 8.58) to practice BSE than those who were not employed. Likewise being student was 3.73 times AOR: 3.73, 95% CI (1.19, 11.73) more likely to perform BSE than others (table 5).

Discussion

This study showed that 94% of respondents had ever heard or read about breast cancer. This is higher than the study done among Mekelle town women which showed 83% (10), lower than study findings done in Malaysian among female students is 99.5% (14) This could be due to the difference of education level among the study participants and difference in time interval between the studies. The present study also revealed that 46% of the women have previously heard about breast self-examination. This is lower than study done among Women in Malaysia where 78.4% heard about breast self-examination (13),Jordanian Women 67(15) study done among female undergraduate students in a higher teachers training college in Cameroon 47%(17), A study of BSE among Chinese immigrant women indicated that 80.9% reported having heard of BSE(1) Another study on a group of women in a rural area of Western Turkey found that 72.1% of the respondents had heard about BSE(26) and on the other hand this study was higher than study result done in Benghazi, Libya which showed only 41.5% heard BSE (16). The difference observed could be due to the difference in socio-economic and demographic characteristics among the study population. The relatively low knowledge of our respondents about BSE might preclude them from practicing BSE, which might lessen chances of early detection of the disease. Three-fifth (62 %) of those who had breast cancer information indicated that their major source of information was media. Colleagues/friends were also mentioned as important sources of information on breast cancer.

Surprisingly, the proportion of respondents who mentioned health professionals as major source of breast cancer information was lower than the above once 13.8%. This is consistent to the findings of a similar study conducted among Jordanian females where relatives, friends and neighbors were found to be the main sources of breast cancer information(15).and inconsistent with study done among Iranian women which the health professionals are the major source of information 32.4% (27).

In the present study, large proportion [98%] of breast cancer informed participants knew that early detection of breast cancer improves chances of survival from the disease. This finding is supported by the study of Mekelle town women (10) and higher than study done western part of Ethiopia [74.7%](24). The present study showed that among the respondents who reported to have had information on breast self-examination, 79% have ever done BSE, this was smaller than study done Nigerian Nurses in Lagos general hospital [89%] (4), and greater than studies done among women in north Ethiopia [37.3%](29), Malaysian female students 25.5%(14), Female Traders in Ibadan, Nigeria [18%] (6), women in a rural area in western Turkey 40.9% (26), women household heads in Northern Ethiopia [53.6](10). But consistence with study done among female health professionals in Wolega 77%(24) And also 45% participant of this study performing BSE on a regular monthly basis. Studies done in Jordanian Women only 7% (15), Malaysian female students31.2%(14), among female undergraduate students in a higher teachers training college in Cameroon 25.9 (17) This could be due to difference in time interval between the studies.

Furthermore, present study revealed that 29% of the participants know correct age at which BSE commenced this was slightly greater than study in Benghazi, Libya [27.7%](16) and smaller than study done in South East Asia where 44% of the study participants had recommended practicing BSE at age of 20(5), Nigerian women(60.28%) recommend age twenty(20) Kyadondo County, Uganda 40% could correctly answer about the recommended age of starting BSE(28)

Breast screening method cited by the participants in present study was: breast self-examination (BSE) 15.4%, clinical breast examination 42.4% and mammography 0.3%. The methods of screening for breast cancer reported by Canadian women were: BSE (64.3%), clinical breast examination (45.7%), and mammogram (32.7%)(29). A study done in northern Ethiopia the methods of screening for breast cancer reported by health extension workers were breast self-examination (14.4%), clinical breast examination (22.3%) and mammogram (3%)(12). The difference may be due to difference in educational status and composition of participant.

In this study 53.6% of BSE performers had support from their partners which was inconsistent with other study done saying,(39.8%) of BSE performers were getting support from spouse/partner (21).

The major barriers for practicing BSE identified in the present study were: pressure of work/too busy, I don't have enough privacy to do BSE, I know I can never have Bca, forgetfulness and doubt about its effectiveness were mentioned as main barriers/reasons not to perform BSE by 30(13.8%), 14 (6.4%), 13 (5.9%), 10(4.6%), and 11(5%) of the respondents, respectively. However more than half of the performers 119(54.8%) claimed that there is no obstacle.

Study done in western part of Ethiopia showed the barriers for not performing BSE were: no breast problem (12.7%), do not feel comfortable performing BSE (2.7%), scared of being diagnosed with breast problem or cancer, do not believe it is beneficial (4%) and do not know how to do it (7.7%)(24).

On the other study the three main reasons for not doing BSE were no breast problem (53.2%), not knowing BSE technique (30.6%), and not knowing the importance of BSE (21.4%](12) In study among Female Debre Birhan University Students the main reasons for not performing BSE were lack of knowledge on how to conduct BSE and not having any symptoms of breast cancer (22) other Study among women household heads in Northern Ethiopia indicate the major barriers for practicing BSE identified were absence of the symptoms and lack of knowledge about its importance(10). And Being health 100 (44.8%) and lack of knowledge 60 (26.9%) were the most barriers mention for not practicing BSE in Adama Science and Technology University (25).

The current study revealed that women who responded BSE as an early detection method of breast cancer were 6.36 times more likely to practice breast self-examination than women who do not know any methods of early detection breast cancer. This finding is consistent with study conducted among women in Malaysia which showed that knowledge of women that BSE is an early detection method of breast cancer was significantly associated with breast self-examination (13).

In current study women engagement in occupation ns other than housewife was significantly associated with performing BSE AOR: 3.12 95% CI:(1.14, 8.58).These results are in agreement with findings that were reported among Nigerian women (30), study in Benghazi, Libya (16) and study done in Southern Ethiopia (21).

Those women who breast had feed their child 13–24 months were 2.43 times more likely to examine their breast than those who mention different duration of breast feed, this may be due to, those who optimally breast feed were conscious/educated to perform BSE.

Women who use electronic media as source of information were 1.59 times more likely to practice BSE than women who use other media types. This may be due to its relative accessibility than other source of information for women get information about BSE.

Strength and limitation of the study

Strengths: previous studies conducted in Ethiopia were merely focused on health professionals at their institution but this study was focused on the urban community.

Limitations: this study was conducted in urban community, Sodo city which may not equally represent the rural community and also in this study causal conclusions cannot be drawn.

Conclusion And Recommendation

Participant previously heard on breast self-examination were low among women included in the study. Almost half (49%) of BSE performers responded no specific time (irregularly) perform it.

Less than one third correctly recognized age at which BSE commenced and Electronic Media, occupation and early detection method were among factors associated with breast self-examination. Therefore, based on the findings of the study we recommend: Wolaita Sodo administrative need to use electronic media consistently and programmatically (e.g. Wolaita Sodo FM, south TV) to advocate performing breast self-examination.Make weekly or monthly mobile phone message and encourage performing BSE. Make permanent video screen at the center of the city that demonstrate BSE issues. Ensure the advantage of performing BSE over other early screening methods.

Declarations

Abbreviations (acronyms and abbreviations)

AOR———adjusted odds ratio, AIDS—-acquired immune deficiency syndrome, Bca——-breast cancer, BSE ——breast self-examination, Ca—-cancer, CBE—-clinical breast examination, CI—Confidence interval, HEW ———Health Extension Workers, HIV—-human immune deficiency virus, HPV——-human papilloma virus, NCD——none communicable disease, NCR—-national cancer registry, OR——Odds Ratio, RHEW——Rural health extension workers, SNNPR—south nation nationality peoples region, UHEW—- health extension workers, WHO——world health organization.

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Authors’ contribution

TL, AB, BF and SA

These authors equally contributed to this research work

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Availability of data & materials

The data for this research is available, so we can contact you when you need our data for the future process.

Ethics approval and consent to participate

Ethical clearance and approval letter to conduct study was obtained from Wolaita Sodo University institutional review board and a letter of cooperation was taken from the Wolaita Sodo University College of health science and Medicine to Wolaita Sodo city health bureau. Written consent was obtained from the study participants after explaining the study objectives and procedures and their right to refuse not to participate in the study any time they want was assured. For this very purpose, a one page consent letter was attached to the cover page of each questionnaire stating about the general objective of the study and issues of confidentiality which was discussed by the data collectors before proceeding with the interview. Confidentiality of the information was ensured by coding. The interview was undertaken privately in separate area. Only authorized person was getting access to the raw data collected from the field.

Consent for publication

Not applicable

Competing interests

The authors have declared that no competing interests exist.

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Tables

Table 1 Socio demographic Characteristics of women in Sodo City, 2019(n=629)

Variables/ characteristics	Frequency (%)
Age distribution of the women	
20-29 years	383(60.9)
30-39 years	139((22.1)
40-49 years	55(8.7)
≥50 years	52(8.3)
Marital status	
Never married	113(8.0)
Married	478(76)
Divorce	17(2.7)
Widowed	21(3.3)
Women Education	
No education	73(11.6)
primary	218(34.7)
secondary	179(28.5)
higher education	159(25.3)
Husband education	
No education	20(4%)
primary	131(27.4%)
secondary	148(31%)
higher education	179(34%)
Religion	
Protestant	444(70.6)
Orthodox	131(20.8)
Muslim	24(3.8)
Catholic	16(2.5)
Ethnicity	
Wolaita	549(87.3)
Gamo	32(5.1)
Garage	18(2.9)
Amhara	12(1.9)
Others	14(2.2)
Occupational status of the women	
House wife	312(49.6)
Employee	133(21.1)
Merchant	74 (11.8)
Student	54(8.6%)
Other	56(8.9%)
Age at which first pregnancy occur	
15-24 years	382(60.7)
25-34 years	111(17.6)
35-44 years	2(0.3)
≥45 years	6(0.2)
Duration of breast feeding	
Birth-12months	77(15.4%)
13-24months	280(56%)
25-34months	141(28%)
№ of children	

None	23(7.8%)
One	107(20.7%)
Two	117(23%)
Three and more	232(43%)

Table 2: knowledge and practice of BSE and main information source among women in Sodo city, 2019(n=629).

Characteristics/variables	Frequency (%)
Ever heard Breast cancer	
Yes	591(94%)
No	38(6%)
Source of information	
Electronic media	366(62%)
Journal/brochure/leaflet/magazine	4(0.8%)
Books	3(0.5%)
Educational institution	9(1.4%)
Non-governmental organizations	1(0.2)
Health workers	87(14.7%)
Family/friend	93(15.8%)
Other person	28(4.7%)
Previously heard on BSE	
Yes	272(46%)
No	319(54%)
Early detection method for Breast cancer	
Breast self-examination(BSE)	107(18%)
Clinical breast examination(CBE)	268(45.3%)
I don’t know	216(36.5%)
Perform breast self-examination	
Yes	217(78%)
No	55(20.2%)
Still perform breast self-examination	
Yes	195(90%)
No	22(10%)
Knowledge whether early detection of Breast cancer improve chance of survival	
Yes	570(96%)
No	13(2%)
I don’t know	8(1.3%)
Family history of Bca	
Yes	14(2.4%)
No	523(88.4%)
I don’t know	54(9%)
Personal history of having benign breast lamp	
Yes	20(3.3%)
No	197(33.3%)
I don’t know	374(63%)
Knowledge of someone suffering from Bca	
Yes	116(20%)
No	475(80.3%)
Ever nurse Bca patient	
Yes	4(0.7%)
No	587(99%)
Had close contact with person having benign breast lamp	
Yes	18(3%)
No	573(97%)

Knowledge of Personal status of other body part cancer	
Yes	446(75.4%)
No	145(25%)
Position BSE	
Standing	49(22.5%)
Lying	45(21%)
Sitting	16(7.3)
Standing and lying	107(49.3)
Technical knowledge of BSE	
With palm and three middle fingers	35(16%)
Simply touch and feel	157(72.3%)
I don’t know	25(11.5%)
BSE practices applied	
Inspection	3(1.4%)
Palpation	116(53.4%)
inspection and palpation	98(45%)
Knowledge about which arm to be used for BSE	
Right hand for left breast and vice versa	33(15.2%)
The same arm for the same side breast	13(6%)
Any(no protocol)	171(79%)

Table 3: Distribution of time BSE practiced and the reasons given to perform or not among women in Sodo city, 2019(n=626).

Variable/characteristics	Frequency (%)
Appropriate time of BSE	
Few days after menses	97(44.7)
Few days before menses	13(6%)
No specific time	107(49%)
Frequency of BSE practices	
Twice per month	48(22%)
Once Every month	98(45%)
Once Every 6 month	2(0.9%)
Once per year	4(1.8%)
Any time I observe a change	65(30%)
Advantage of regular breast self-examination	
Detect any abnormality	72(33%)
Learn how the breast normally looks and feels	56(26%)
Detect breast cancer earlier and promote treatment	89(41%)
Reasons for performing BSE	
Fear from breast cancer	51(23.5%)
Early detection of breast cancer	128(59%)
Breast cancer in the my family/friends	13(6%)
Previous breast problems	3(1.4%)
Heard from media	
Barriers towards BSE	
I don’t have enough privacy for BSE practice	22(10%)
Pressure of work/ I am too busy	14(6.4%)
Doubt about its effectiveness	30(13.8)
Absence of symptom/disease	11(5%)
I am scared of being diagnosed with breast cancer	13(6%)
Forgetfulness	7(3.2%)
I know I can never have BC	10(4.6%)
No obstacle(barriers)	13(6%)
	119(54.8%)

Table 4: Distribution of spousal/parents support to perform BSE and the need for further information among women in Sodo city, 2019(n=626).

Variables/characteristics	Frequency (%)
Support on BSE from spouse/partner	
Yes	146(67.2%)
No	71(32.7%)
Desire information on how to do BSE	
Yes	249(91%)
No	23(8.5%)
Impressed on importance of BSE	
Very Important	207(95.3)
Important	10(4.6%)
Self-confidence to perform BSE	
Yes	191(88%)
No	26(11%)
Where will you go, if you discover a breast lump	
Health facility	168(77.4%)
Traditional healer	49(22.5%)

Table 5: Factors associated with breast self-examination among women in Sodo city, 2019 (n=626).

Variables	Perform BSE		Odds ratio (95% CI)	
	Yes	No	COR(95%CI)	AOR(95%CI)
Women's Occupation* status				
House wife	96(15%)	217(34.4%)	1.00	1.00
Employee	76(12%)	57(9%)	2.07(1.20,3.59)	3.13(1.14,8.58)
Merchant	26(4%)	49(7.7%)	6.25(3.42,	6.47(2.31-18.12)
Student	19(3%)	89(14%)	11.41)	3.73(1.19-11.73)
			2.49(1.25, 4.94)	
Duration of breast feed*				
Birth-12months	39(7.8%)	39(7.8%)	1.00	1.00
13-24months	101(20%)	181(36.4%)	2.10(1.18, 0.74)	2.43(1.28-4.59)
25-34months	46(9.2%)	92(18.4%)	1.16(0.75, 0.78)	1.19(0.74-1.92)
Early detection method* for Bca				
BSE	111(32%)	9(33%)	7.03(4.14,11.95)	6.36(3.72-10.71)
I don't know	106(20%)	364(59%)	1.00	1.00
Personal history of having benign breast lamp				
Yes	21(3.5%)	59(10%)	2.31(1.20,4.46)	0.03(0.08,1.52)
No	196(33%)	315(53%)	1.00	1.00
Women's Educational status				1.00
Primary	82(28.2%)	209(71.8%)	1.00	0.81(0.29,2.24)
Secondary	135(39.9%)	203(60.1%)	1.70(1.21, 2.37)	
Husband's educational status				0.62(0.26,1.49)
Primary	51	118	1.00	
Secondary	134	175	1.80(1.21,2.67)	
Source of information*				
Electronics media	151(25.5%)	218(36.8)	1.63(1.14,2.32)	1.59(1.01,2.59)
Otherwise	66(11%)	156(26.3)	1.00	1.00

Adjusted odds ratio (AOR), Significant at P-value<=0.05

Figures

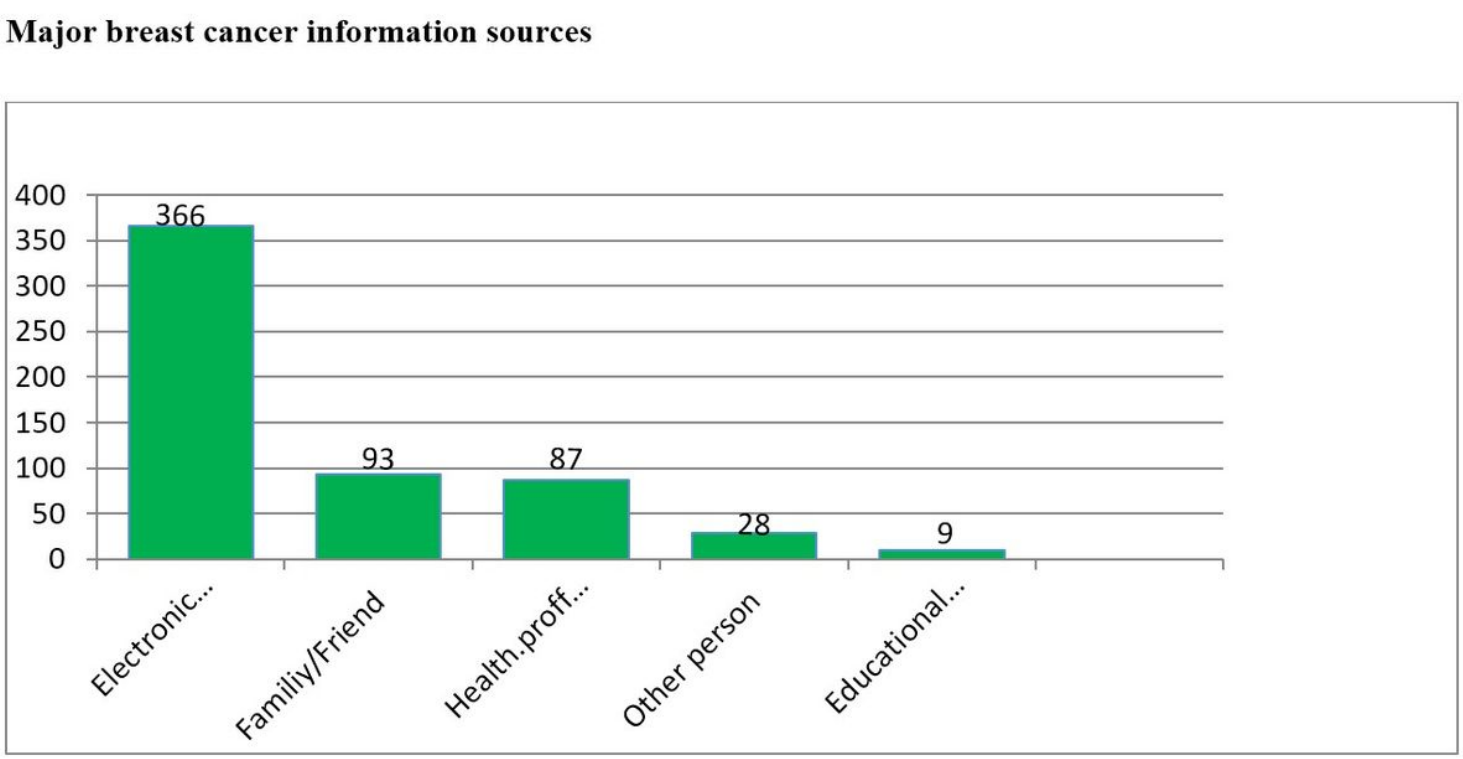

Figure 1

Breast cancer information sources among women in Sodo city, 201

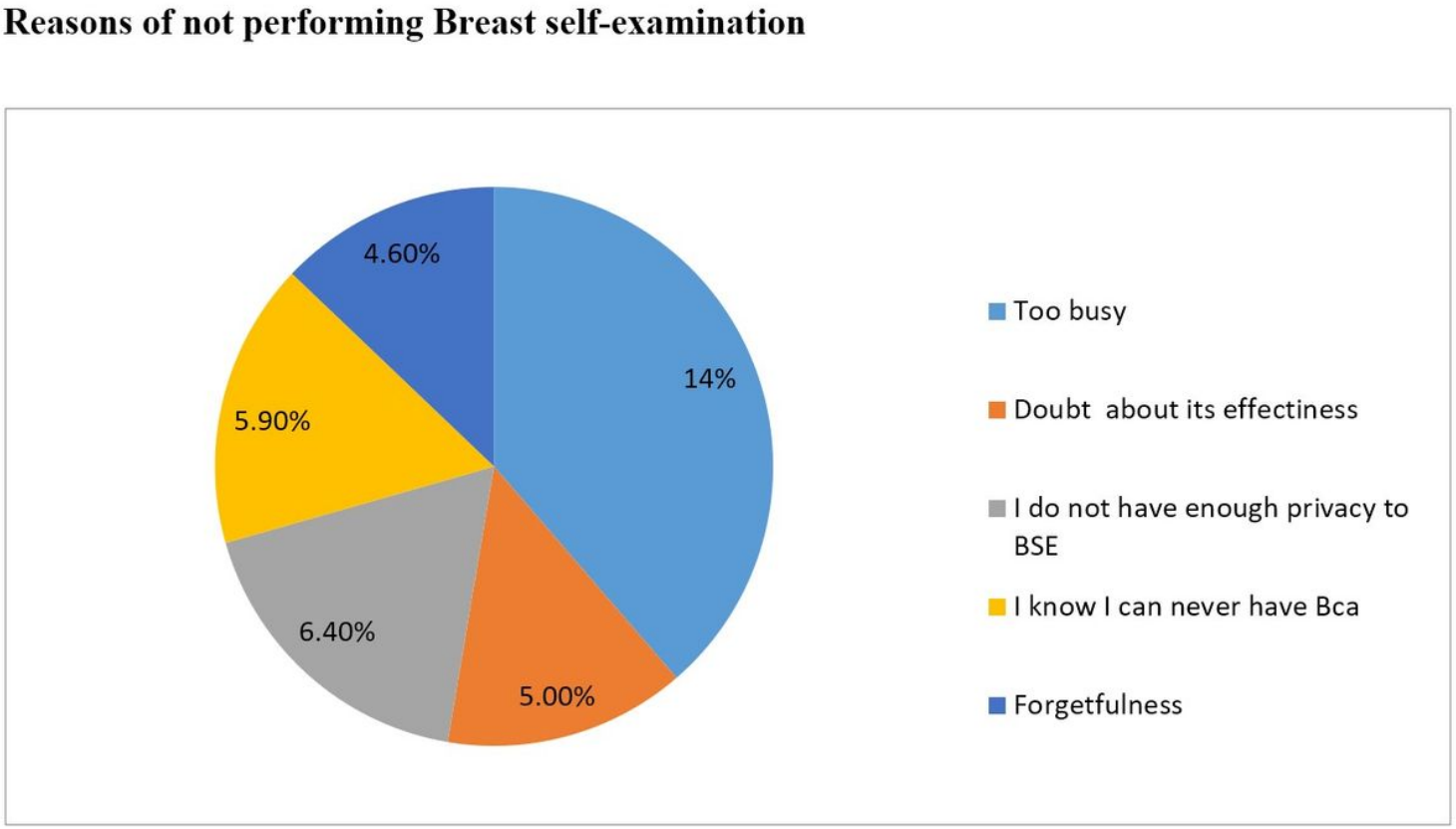

Figure 2

Reasons of not performing Breast self-examination

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Toolandconsentstatement.docx
- Samplesizedeterminationofthestudy.docx