

**ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH
SCIENCE DEPARTEMENT OF NURSING AND MIDWIFERY
POST GRADUATE PROGRAM**

**ASSESSMENT OF BREAST CANCER KNOWLEDGE AND
PRACTICE OF BREAST SELF - EXAMINATION AMONG
FEMALE STUDENTS IN MADAWALABU UNIVERSITY, BALE,
ETHIOPIA.**

BY:

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Addis Ababa, Ethiopia

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Approved by the board of examiners

This thesis by _____ is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of Master of Science in Nursing.

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Acronyms

APJCP:	Asian Pacific Journal of Cancer Prevention
ACSNCI:	The American Cancer Society and National Cancer Institute
BC:	Breast Cancer
BSE:	Breast Self Examination
CBE:	Clinical Breast Examination
ECA:	Ethiopian Cancer Association
Epi Info:	Epidemiological information
GLOBOCAN:	Global Breast cancer
IARC:	International Agency for Research on cancer
IOSRJPBS:	International Organization of Scientific Research Journal of Pharmacy and Biological Science
MOH:	Ministry of health
MWU:	Madawalabu University
NGO:	Non-Governmental Organization
NCR:	National Cancer Registry
SSA:	Sub-Saharan Africa
USA:	United States of America
WHO:	World Health Organization
SPSS	Statistical Package for Social Studies

Abstract

Background: Breast cancer is a disease of public health importance. It results in high morbidity and mortality in women worldwide. Breast examination as a screening tool for breast cancer in developing countries is advocated in view of its cost-effectiveness.

Early detection of breast cancer using breast self-examination (BSE) plays an important role in decreasing its morbidity and mortality.

Objective: To assess breast cancer awareness and practice of breast self-examination among female students in Madawalabu University Bale, Ethiopia, 2014

Methods: Cross-sectional study design was employed from December –June, 2014 in Madawalabu University.

First the students were divided in to two practical strata, which are health science students and non-health science students. From each stratum, participants were selected by simple random sampling based on the proportion of the number of female students in each stratum that was 39 health science students and 383 non- health science students.

Self administered questionnaire was used to collect the data. Data were entered with Epi Info version 3.5.1 and analyzed using SPSS statistical package version 16.0. Bivariate and multivariate logistic regression analysis was performed.

Result: This study found that only [31.0%] of students had awareness about breast cancer and [15.5%] practiced BSE. The three main reasons for not doing BSE were belief that there is no problem with their breast [50.8%], not knowing the technique of BSE [40.0%], and Lack of privacy [15%].

Awareness about breast cancer and got information about BSE by health professionals were found significantly associated with practice of BSE. Respondents in the health related disciplines were six times more likely to practice BSE than other respondents.

Conclusion: Awareness of breast cancer and BSE practice was found low in this study. Having information on the importance of BSE was predictor of BSE practice.

1. Introduction

1.1. Background

Breast cancer is a malignant tumor that starts in the cells of the breast. A malignant tumor is a group of cancer cells that can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. The disease occurs almost entirely in women, but men can get it, too (1).

Breast cancer is the second leading cause of cancer death in women, exceeded only by lung cancer.

Both in Developed and developing world breast cancer is major life- threatening public health interest; in recent years, the incidence of breast cancer has shown an alarming increasing trend in developing countries (2, 3).

The incidence in our country is on the rise as well. It is estimated that around 10,000 Ethiopian women and men have breast cancer with thousands of more cases unreported as women living in rural areas often seek treatment from traditional healers before seeking help from the government health system(4).

The causes of breast cancer are not fully known. However, researchers have identified a number of factors that increase one's chances of getting breast cancer. These are called risk factors. Risk factors do not cause breast cancer, but can increase the chances of getting breast cancer. Some women have many risk factors, but never get breast cancer. And, some women have few or no risk factors, but do get the disease (5).

Breast cancer risk factors includes family history of breast cancer; personal history of breast cancer; early menarche (< 12 years); late menopause (> 55 years); aging; alcohol; late age at first full-term pregnancy (> 30 years); never breastfed a child; recent oral contraceptive use; high fat

diet; tobacco smoke; obesity (postmenopausal); recent and long-term use of hormone replacement therapy; high-dose radiation to chest; lack of physical activity (6).

Lack of awareness is a big problem here in Ethiopia. There is lack of awareness about the magnitude of the problem in the country. There are also stigma and misconceptions about cancer; that all cancers are incurable. There is little work done, to date, to promote the awareness that most cancers can be prevented, can be cured if diagnosed early, and quality of life of patients can be improved even if the disease is diagnosed in advanced stage(7).

In Ethiopia high proportion of breast cancer, if diagnosed at all, is diagnosed too late for meaning-full intervention. While the average life expectancy for women in Ethiopia is over 58 years, approximately half of patients with breast cancer are under the age of 40 (8).

1.2. Statement of the problem

According to WHO's Global Breast cancer (GLOBOCAN) statistics report an estimated 12.7million new cancer cases and 7.6 million cancer deaths occurred in 2008. Higher burden of cancer observed in less developed regions of the world which accounts 56%of new cancer cases and 63% of cancer deaths. Breast cancer is the second commonly diagnosed cancer which accounts 1.38 million (10.9% of all cancers) next to lung cancer and is the leading cause of cancer death among women worldwide (9, 10). Despite the availability of methods for early detection and treatment, breast cancer caused an estimated 458,000 deaths in women, and of the 1.4 million new cases of breast cancer identified, about half were in low- and middle-income countries in 2008 (10).

The incidence rate is high (greater than 80 per 100,000) in developed except Japan and low(less than 40 per 100,000) in developing region (9).

In sub-Saharan African (SSA) countries and in other low-resource countries a significant increase in the incidence of breast carcinoma has seen (11, 12). The high breast cancer mortality rate in SSA has been attributed to a lack of public awareness of the disease which often leads to late diagnosis of the disease (13).

While in Western countries, breast cancer screening is usually done using mammograms, the use of mammograms is limited and inaccessible to most women in SSA. This situation is doubtful to change in the near future (14). In the absence of readily available mammographic screening, despite its known limitations, breast self-examination (BSE) remains a viable and practical alternative for African women (14, 15). With greater awareness of breast cancer and proper training in BSE combined with regular clinical breast examination, it is possible to diagnose breast cancer earlier. Women who regularly perform BSE become familiar with both

the appearance and feel of their breasts which often helps them detect any changes early. However, if improperly done, BSE has the risk of giving false health security and may actually reduce willingness to undergo mammographic screening even in place where it is readily available (16).

Breast cancer is the most commonly diagnosed cancer and the second leading cause of death in women in Africa, with much geographical variation in incidence and mortality within the continent. The age adjusted incidence of breast cancer is 38.1 per 100 000 per year in southern Africa, 32.7 per 100 000 per year in northern Africa, 31.8 per 100 000 per year in western Africa, 21.3 per 100, 000 in middle Africa and 19.3 per 100 000 per year in eastern Africa.

Due to a lack of private and NGO efforts to increase breast cancer awareness, little has been factually known about the incidence, severity and prevalence of breast cancer in Ethiopia (17, 18). Five year prevalence of breast cancer, mortality and incidence is (25%, 14.1% and 18.2%) respectively (17).

The high morbidity and mortality from breast cancer can be decreased by measures targeted at early detection such as screening. Breast examination as a screening tool for breast cancer in developing countries is advocated in view of its cost-effectiveness (17, 19).

In response to increasing breast cancer in young women under 41 years of age in recent years, further investigation focused on this age group is indicated, and encouragement of proper breast self examination is warranted and should be advocated as a quality health maintenance practice(17).

The American cancer society guidelines for cancer screening recommend monthly BSE is made optional with emphasis on the importance of breast self-awareness outside a structured BSE (20).

Another study conducted in Turkey stated that many women miss early detection and treatment opportunities due to lack of information and awareness of breast cancer, as well as to cancer screening practices.

Though there is debate about the effectiveness of BSE in lowering breast cancer mortality it's important in resource poor countries in promoting breast lump awareness to encourage women to seek health advice, to trigger action and enter into care sooner.

BSE makes women more "breast aware", which in turn may lead to an earlier diagnosis of breast cancer (21).

Little is known about the level of knowledge and awareness of breast cancer in Ethiopia. The purpose of this study was to knowledge about breast cancer and practice of breast self examination among female students in Madawalabu university, Bale, Ethiopia.

1.3. Significance of the study

Studies have not been conducted so far on the assessment of awareness of breast cancer and practice of breast self examination among female students in Ethiopia.

A majority of cancers in Africa are diagnosed at an advanced stage of disease because of lack of screening and early detection services, as well as limited awareness of early signs and symptoms.

Students were the primary focus of this study for various reasons, including the fact that it reinforces cancer prevention at an early age, provides teaching opportunities for shaping health behaviors into adulthood and also encourages dialogues of students with their parents and other family members. For example, teaching breast self-care may encourage positive behaviors such as performing BSE which set the stage for adherence to clinical breast examination and mammography screening later in life.

2. Literature Review

Cancer is becoming a leading cause of death worldwide. More than one million new cases of female breast cancer are diagnosed each year, making it the most commonly occurring disease in women, accounting for over 1/3 of the estimated annual 4.7million cancer diagnosis in females and the second most common tumor after lung cancer in both sexes (18, 20). It is also the most common female cancer in both developed and developing countries with 55% of it occurring in the developing countries (20). Early identification of breast abnormality is an essential factor that signals special attention (22).

World breast cancer rates increased by 0.5% each year and up to 50% of breast cancer remains unexplained. This makes the problem alarming and worrisome because the main cause of the disease could not been ascertained (20).

The incidence of breast cancer in low- and middle-income countries is growing by up to 5% per year as population's age and urbanize. Because of poor access to diagnosis and treatment, women in low- and middle-income countries generally have much poorer outcomes as well. In sub-Saharan Africa only 32% of women are still alive five years after a breast cancer diagnosis, compared with 81% in the USA (23).

In countries such as Ethiopia, obstacles such as lack of patient and provider awareness of breast cancer and a reliance on traditional healers often delay access to appropriate care (23). Although some early detection methods have been proposed, many remain inaccessible to women in developing countries due to limited advanced technology and lack of diagnostic and curative facilities. Screening mammography cannot be routinely applied in countries with limited health service resources (24) since it is expensive, need technology and trained professional.

Even if Breast self-examination (BSE) have not shown to be effective in reducing mortality it may be the realistic approach for early detection of breast cancer in developing countries

because, it has a positive effect on the prognosis as well as limits the development of complications and disability, and it increases life quality and survival. Furthermore, BSE continues to be recommended by health care practitioners because it is free, simple, need low technology and teaching is possible (23).

Breast self-examination is a very low cost, noninvasive adjuvant screening method for the detection of early breast cancer (BC) in women. Its purpose is 2 fold: to make women familiar with both the appearance and the feel of their breasts and to help women detect any changes in their breasts as early as possible. There is evidence that women who correctly practice BSE monthly are more likely to detect a lump in the early stage of its development, and early diagnosis has been reported to influence early treatment and to yield a better survival rate (26).

Until research uncovers a way to prevent breast cancer or to cure all women regardless of when their tumor is found, early detection will be looked upon as the best hope for reducing the bad effect of this disease.

Fifty years ago, there was no established method for the detection of breast cancer at an early stage or for screening of the general population, but advances in technology, policy recommendations by various organizations, and legal mandates have thoroughly changed that situation. BSE, Clinical Breast Examination (CBE) and Mammography are now the mainstays for early detection of breast cancer (2, 27). Screening for early cancer detection has been attributed for part of the recent reduction in breast cancer mortality.

Monthly BSE is a common method of identifying lumps and other abnormalities in the breast for any signs of abnormality (28, 29). BSE in conjunction with screening mammography is currently advocated by many organizations, and it is also recommended for younger women starting in their 20s (28) who are not yet being screened by mammography.

A study conducted in USA among 758 breast cancer patients shows that almost half (49%) of patients age above 40, discovered their cancer by mammography. From 64 patients age below 40 years (69%) of these younger women discovered their breast cancers by breast self-examination, (18%) by mammography, and 3 (5%) by professional clinical breast examination (4).

Breast cancer is the second most often occurring cancer (cervical cancer is first) among women in Ethiopia. It is estimated that around 10,000 Ethiopian women and men have breast cancer with thousands of more cases unreported as women living in rural areas often seek treatment from traditional healers before seeking help from the government health system(2).

Before the program began in 2005, Ethiopia had no data on breast cancer patients, no mammography or treatment guidelines and only one cancer specialist and one radiotherapy unit for a country of 85 million people (23).

According to Addis Ababa cancer registry (the first cancer registry in the country established in 2011) breast cancer is taking higher percentage (34.0%) followed by cervical cancer in women (30).

A study conducted in Ethiopia among women with breast cancer shows that more than half of the patients were age 50 and younger. Breast lump was the first symptom experienced by 82.6% of the patients. Around 69.6% of patient ignored their symptoms initially for an average of more than one and half year (26).

Patients with high level of awareness present with less advanced stage of breast cancer due to adoption of screening methods. Patients with low level of awareness mostly present with advanced stage. Another study conducted in Turkey stated that many women miss early detection and treatment opportunities due to lack of information, knowledge and awareness of breast cancer, as well as to cancer screening practices (32).

The American Cancer Society and National Cancer Institute (ACSNCI) recommend BSE as one of three screening practices for early breast cancer detection (33). Even though there is controversy on effect of BSE, since there is no sufficient evidence to disapprove BSE, it is still considered a simple, non- invasive, inexpensive, affordable and accessible method for younger and high risk women to discover early changes in their breasts (22).

Breast cancer accounts for one of every three cancers diagnosed in the United States. A new case is discovered every 2 minutes. It is estimated that one out of every seven women will develop the disease at some time during her life, and the mortality rate of those with breast cancer is 1 in 30. BSE is a technique that enables a woman to detect any changes in her breasts; this could result in early cancer detection. The emphasis is now on awareness of breast changes, not just discovery of cancer. Doing BSE is one way for a woman to know how her breasts normally feel so that she can notice any changes that do occur. Although 12% to 29% more White women than Black women are diagnosed with breast cancer, Black women are 28% more likely than White women to die from the disease (6).

Data from South Africa's National Cancer Registry (NCR) show breast cancer as the leading cancer among women. South African women have a 1 in 29 lifetime risk of developing breast cancer, with an age- standardized incidence rate of 30.6 per 100,000 populations. These rates vary by race group, with Black women having the lowest (16.3) and White women the highest (69.4) rates of breast cancer diagnosis (2).

Turkey Ministry of Health (MOH) recommends BSE to increase awareness of breast cancer. In Egypt breast cancer is usually detected at late stages (around 60% of cases detected in the third stage of breast cancer), when treatment options are limited, and fatality rate is high; as breast cancer is a highly fatal disease especially with late diagnosis; therefore early detection of breast cancer leads to better outcome and prognosis of breast cancer (22).

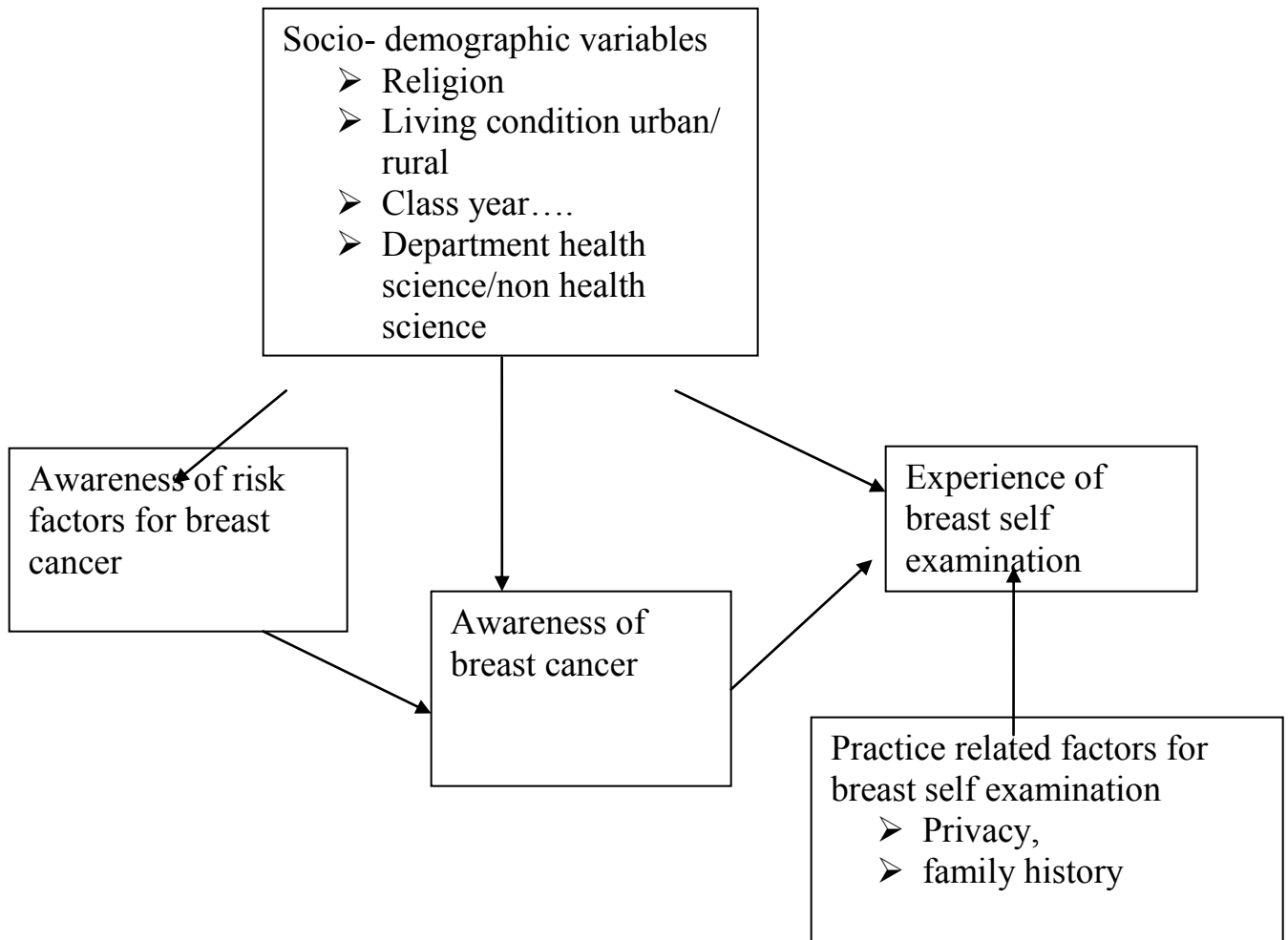
In the study conducted in Nigeria, it was found that those who performed BSE had reported their symptoms to health personnel sooner than the other subjects (34).

Young breast cancer patients have a lower rate of survival than old breast cancer patients due to being diagnosed at advanced stages. BSE makes women more "breast aware", which in turn may lead to an earlier diagnosis of breast cancer (31, 35).

Although many researches done regarding breast cancer awareness and BSE in other countries there were no studies done in our country but there is increasing breast cancer morbidity and mortality in developing countries including Ethiopia.

The practice of any of the screening methods is dependent on the awareness about breast cancer. If this knowledge is poor among those who should teach others, there will be difficulty promoting this life saving methods. Therefore the aim of this study was to assess BC awareness and BSE of female students in Madawalabu University.

Figure1. Conceptual framework on assessing breast cancer awareness and practice of breast self examination (developed by the investigator)



3. Objectives

3.1. General Objective

To assess about breast cancer awareness and practice of breast self-examination among female students in Madawalabu University 2014.

3.2. Specific Objective

- ◆ To assess awareness of students about breast cancer.
- ◆ To examine students practice of breast self examination and its associated factors.

4. Methods and Materials

4.1. Study Area and period

The study was employed in Madawalabu University from December to June, 2014. Madawalabu University (MWU), one of the higher educational institutions, is located in south eastern part of Ethiopia, Bale Zone, Robe Town at about 430 Km away from the capital city, Addis Ababa. The name Madawalabu University is given to the university based on the place name which is 227 Km away from the zonal town Robe to the south west. Historically the place is closely related to the Oromo people who are the brain child of the culture of the “Gada” system as it has been recurrently indicated by elders and researchers.

Madawalabu University is, in fact, among the recently founded (1999 E.C) institutions of public higher education in the country. However; despite its being new the university can be categorized as the rapidly changing institution in terms of student admission, expansion of programs and campuses.

Currently, the university has two campuses (the main campus in Robe town and College of Medicine and Health Science in Goba town). Currently, a total of 11,116 students of which 6,074 (**Male**=4,206, **Female**=1868) are regular students- are enrolled and is running over 32 programs at Bachelor Levels. It has 6 Schools within the institute and 1 college.

4.2. Study Design

An institution based cross sectional study was employed among female students from December - June in Madawalabu University 2014

4.3. Population

4.3.1. Source Population

The source population consists of all female students attending their education during the study period in Madawalabu University.

4.3.2. Study Population

The study populations were regular female students attending their education during the study period in Madawalabu University.

4.3.3. Inclusion and Exclusion Criteria

Inclusion criteria:

- Female regular students attending their education in the selected department during the study period.

Exclusion criteria

- All extension female students in the selected schools
- Students who were in different educational practice out of the town
- Seriously ill.

4.4. Sample Size Determination

The total sample size was determined using single population proportion formula $\{n = [(Z\alpha/2)^2(1 - P)]/d^2\}$, where P = proportion of students who are aware of breast cancer is unknown and was as assumed 50%, $Z\alpha/2$ at 95%CI (1.96) and d =5% margin of error (0.05).

By considering 10% non- response rate and incomplete lost questionnaire, the final sample size was 422.

4.5. Sampling method

To obtain a representative sample, stratified random sampling was applied to select study participants from the source population. First the students were divided in to two practical strata, which are health science students and non-health science students. From each stratum, participants were selected by simple random sampling based on the proportion of the number of female students in each stratum that was 39 health science students and 383 non- health science students from list obtained from MWU registrar office. All female undergraduate students at the University were eligible for the study.

Proportionate allocation:

$$n_h = \frac{n}{N} * N_h \quad \text{Where } n_h = \text{sample size of health science stratum}$$

N_h = Population size of health science stratum

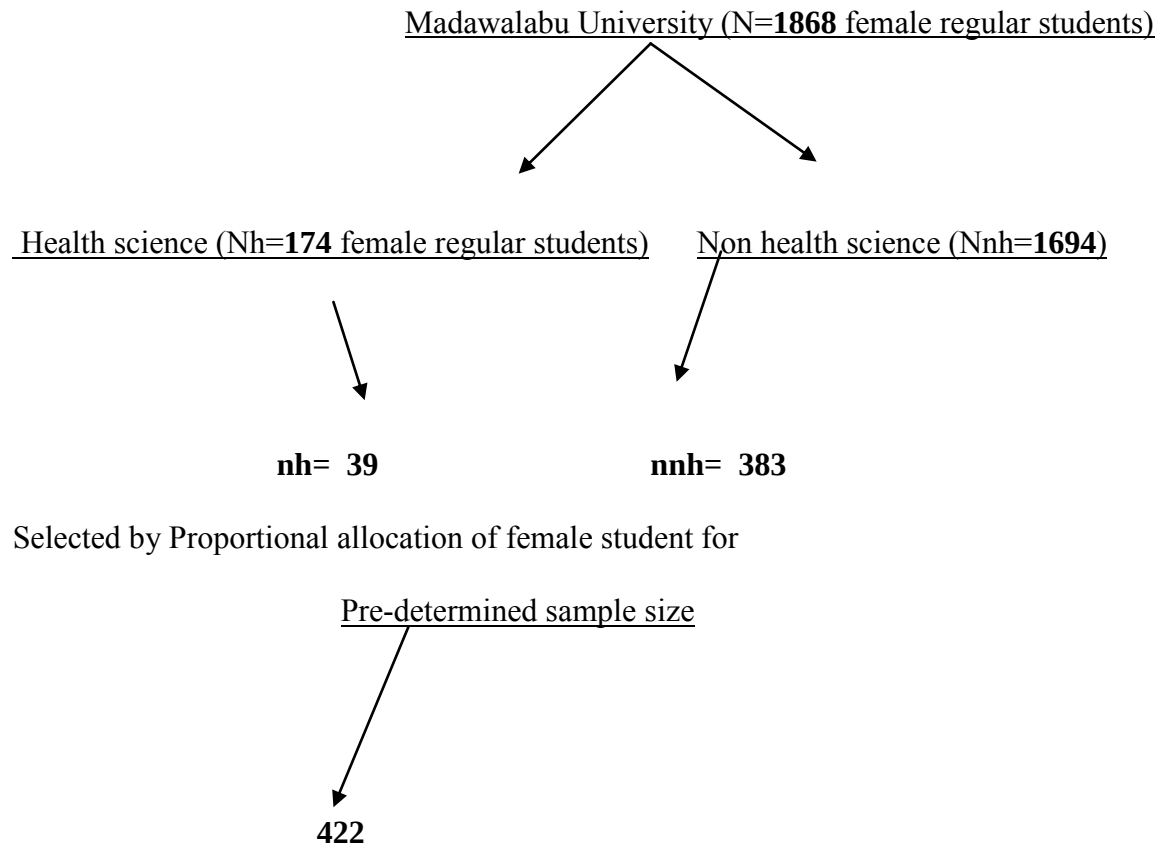
$n = n_h + n_{nh}$ is the total sample size

n_{nh} = sample size of non health science stratum

$N = N_h + N_{nh}$ is the total population size

Finally, simple random sampling was employed to select students from each stratum.

Figure 2 Schematic presentation of the sampling technique:



Simple random sampling technique was used from the two strata using list of female students from Madawalabu University registrar office.

4.6. Data Collection

Data were collected using self-administered structured English version questionnaire (see Annex III). The questionnaire contains three parts which include students' socio-demographic status, awareness of breast cancer and practice of breast self examination.

The data collectors were university students recruited from the university; Supervisors were instructors who are working in Madawalabu University. For data collectors and supervisors training was given by the principal investigator to make them familiar with the data collection tool. Principal investigator and supervisors were assisting and coordinating the data collectors as well as the students during data collection.

Data was collected from female students that are selected from each school. The supervisors' responsibility was coordinating the students and discussing about the purpose of the study then based on their willingness to participate questionnaire were distributed and orientation was given on how to fill the questionnaire and clarification for any difficulty was the duty of the data collector and supervisors. Finally completed questionnaire was returned to the data collectors.

4.7. Study variables

Dependent variable

- Awareness about breast cancer and practice of breast self examination

Independent variable

- Residence (before coming to the university)
- Educational status(year of study and type of study)
- Religion
- Marital status
- Source of information

- Privacy
- Department(health science/non health science)

4.8. Operational Definitions

- Urban/Rural- residence as students mention.
- History of breast problems: Respondents having breast problem previously.
- Source of information: Television, Radio, Family.
- Health science: Health officer, Nursing, Midwifery, Medicine
- Non health science: are (like Engineering and Technology, Natural science, Social Science, Agriculture).

Knowledge of breast cancer was assessed by requesting the respondents to answer eleven questions (by taking each risk factor as Yes /No questions with others) . Each correct response was scored [1] and incorrect response scored [0]

The median value was used to categorize students as knowledgeable or not knowledgeable about breast cancer. Accordingly, the sum value less than the median [7] was categorized as not knowledgeable and the value greater than or equal to the median was categorized as knowledgeable.

Practice of the respondents BSE was assessed by asking ever practice, frequency of practicing, age starting BSE and appropriate time for doing BSE. Each correct response was scored one [1] point and each wrong response was scored zero [0] then, the mean (0.52) was used as the participants practice BSE or not i.e. Participants scored above 0.52 were taken as practicing BSE.

4.9. Data processing & analysis

After data collection, each questionnaire was checked for completeness and code was given before data entry. Data was entered, Data entry and validation was done in EPI info version 3.5.1 statistical software data was then exported to SPSS windows version 16.0 where frequencies and statistical analyzes were run.. Different frequency tables were used to describe the study variables. Binary Logistic regression was performed to assess the strength of association between each independent variable and the outcome variables.

Then those variables that show significant association with the outcome variable were included in multiple logistic regressions. Finally only those independent variables that maintain their association with outcome variables in multiple regressions were used to construct the final models. Odds ratio with its p- value and confidence interval were used or reported in each logistic regression analysis.

4.10. Ethical clearance

The study was conducted after getting ethical clearance from Institutional Review Board committee (IRB) of the Addis Ababa University. Permission was obtained from Madawalabu University and respective schools. Informed verbal consent was obtained from the study participants after telling the objective of the study. Confidentiality and privacy were insured for collected information from the study participants.

5. Results

5.1 Socio demographic characteristics

Four hundred students were participated in the study. Non respondents were 22[5%]. Three hundred thirty three [83.2 %] of the participants were single. Majority of the participants were Orthodox Christians 45%.

Almost half of the study participants' 50.5% origin of residence was Rural. Of the total study participants, about 90.7% were non health science students. Forty six point two [46.2%] percent and 53.8% participants were first to second and third year and above students respectively (table 1).

Table 1: Socio demographic characteristics of female students in Madawalabu University Bale Zone, Ethiopia, June 2014

Variables	Total study subjects[n=400]	Percent
Marital status		
Single	333	83.2
Married	67	16.8
Origin of residence		
Urban	198	49.5
Rural	202	50.5
Religion		
Orthodox	180	45
Muslim	101	25.3
Protestant	109	27.3
Others	10	2.5
Ethnicity		
Amhara	102	25.5
Guragie	73	18.3
Oromo	183	45.8
Tigre	33	8.2
Others	9	2.2
Class year		
First to Second	185	46.2
Third and above	215	53.8
Department		
Health science	37	9.3
Non health science	363	90.7

5.2. Knowledge of breast cancer

Among the respondents studied, 367 [91.8%]of them have heard of breast cancer (Table2) and media was the major source of information 73.8%, while health workers accounted for 37.8% and the least common source was neighbors accounting for 9.0% (Table 3).

Generally the level of awareness on breast cancer and risks of breast cancer among the respondents in the study was below average; 31.0% [124 out of 400]. Sixty nine [69.0%] percent of respondents' level of awareness about breast cancer is low.

Two hundreded seventy seven [69.2%] study participants knew breast cancer is common cancer in women in Ethiopia, while 64[16.0%] did not know whether it is common or not.

About curability of breast cancer 54.2% of study subjects said that breast cancer is curable but 25.8% of not curable, controlled and 20% did not know (Table 2).

Table 2: Awareness of Breast cancer among female students in MWU, June, 2014

Variable	Total study subject[n=400]	Percent
Knowledge		
not knowledgeable [0-6]	276	69.0
Knowledgeable [7-11]	124	31.0
Ever heard about breast cancer		
Yes	367	91.8
No	33	8.2
Breast cancer in Ethiopia		
Common cancer in women	277	69.2
Not common	59	14.8
I don't know	64	16.0
Knowledge of breast cancer curability		
Curable if detected early	217	54.2
Non-curable, controlled	103	25.8
Don't know	80	20.0
Knowledge of breast cancer risk factors *		
Family history	127	31.8
Being woman	177	44.2
Contraceptive pills	119	29.8
Increasing age	106	26.5
Obesity	79	19.8
Not breast feeding	136	34.0
Don't know	6	1.5

*indicates multiple responses

Table 3: Sources of information about breast self examination among 367 respondents in MWU female students June 2014.

Source of information *	Number[n=367]	Percent [%]
Radio /Television	271	73.8
Learned at class	86	23,4
Health worker	139	37.9
Books /Internet	43	11.7
Friends	41	11.2
Neighbors	33	9.0

*indicates total number is not same due to multiple responses.

Being a woman is the most commonly identified risk factor for breast cancer 44.2% followed by non-breastfeeding 34.0% and family history of breast cancer 31.8%. On the other hand, a lesser percentage 19.8% of the sample knew that the obesity is a risk factor for breast cancer (Table 2).

5.3 BSE practice

Although 24.0% of the women had heard about the BSE, and only 15.5% had ever done the examination, and the same percent [15.5 %] were practicing BSE. Among participants practicing 59.7% said that they did it once a month. The majority [50 %] of them begin BSE at the age of 20 years or younger (Table 4).

The women were assessed on their timing of performing BSE in relation to their menses; majority 41.9% of them performed BSE 2-3 days after menses 29.0% just before menses (Table 4).

For those participants who did not performing BSE, 50.8% were “not knowing how to perform BSE”, other reasons identified were “I don't have breast problem” 40%, and for 15% of them, it

was felt “lack of privacy at dormitory”. Other reasons were due to “I don't think as I should be examined” 12.8%, and it is not comfortable 6.8% (Table 4).

Significant predictors of BSE were good knowledge of breast cancer [OR=3.69, 95% CI: 1.33-10.29, p=0.012], being health science student [OR=6.02, 95% CI: 1.70-21.34, p=0.005] and heard from health worker [OR=5.50, 95% CI: 1.77-16.80, p=0.003](Table 6). Participants who had good knowledge about breast cancer were 3.69 times more likely practicing BSE than not knowledgeable and participants learned from health workers were 5.50 times more likely in practicing BSE than participants got information from other sources.

There is no statistically significant relationship between the selected variables [class year, marital status, ethnicity, and origin of residence] and performing BSE [p= 0.321, 0.609, 0.057, 0.111 respectively] (Table 5).

Respondents in the health related disciplines were six times more likely to practice BSE than other respondents. This may due to deference in sources of information.

Table 4: Breast self examination Practice and reasons not doing among female students in MWU June 2014.

Variables	Number	Percent
Heard about BSE		
Yes	96	24.0
No	304	76.0
Source of information for BSE*n=96		
From health worker	71	73.9
From friends, relatives	33	34.4
From books	29	30.2
Ever practiced breast self-examination		
Yes	62	15.5
No	338	84.5
Frequency of BSE practice n=62		
Every month	37	59.7
Once every 6 months	25	40.3
Once every 12 months	0	0.0
Starting age BSE		
≤20 years	31	50.0
21-25 years old	24	38.7
26-30 years old	6	9.7
31 and above	1	1.6
Appropriate time for performing BSE		
2-3 days after cessation of menstruation	26	41.9
Monthly in fixed day	4	6.5
Few days before menstruation starts	18	29.0
At any time within the month	14	22.6
Practice of BSE		
Practicing	62	15.5
Not practicing	338	84.5
Reasons for not doing BSE*n=338		
I don't have breast problem	160	40.0
I don't know the technique	203	50.8
I don't think as I should be examined	51	12.8
It is not comfortable	27	6.8
Lack privacy at dormitory	60	15.0

* Total number is not equal to “n” due to multiple responses

Table 5: Bivariate Analysis: Association between Socio Demographic Variables and Breast cancer awareness among female students in MWU, June 2014.

Variables	Knowledge	COR[95% CI]	P-value
Marital status			
Single	333	0.860[0.482-1.534]	0.609
Married	67	1	
Residence			
Urban	198	1.414[0.923-2.166]	0.111
Rural	202	1	
Religion			
Orthodox	180	1	
Muslim	101	1.351[0.790-2.310]	0.272
Protestant	109	1.942[0.525-7.188]	0.320
Ethnicity			
Amhara		1	
Guragie		1.329[0.678-2.605]	0.408
Oromo		1.697[0.985-2.921]	0.057
Tigre		1.155[0.475-2.810]	0.751
Department			
Health science		3.52 [1.31-12.41]	0.041
Non health science		1	
Class year			
First to second year	185	1	
Third year and above	215	0.726[0.386-1.365]	0.321

COR =crude odd ratio, CI=confidence interval

Table 6: Results of the Binary Multiple Regression Predicting BSE in MWU Female students, June 2014.

Variables	BSE practice	OR[95%CI]	p-value
Department			0.005
Health	37	6.02[1.70-21.34]	
Non health	367	1	
Hear about BSE			0.009
Yes	96	4.42 [1.45-13.51]	
No	304	1	
Heard from health worker			0.003
Yes	71	5.50[1.77-16.80]	
No	329	1	
Knowledge			0.012
Knowledgeable	124	3.69[1.33-10.29]	
Not knowledgeable	176	1	

OR=odd ratio, CI=confidence interval

6. Discussion

When the respondents were asked about breast cancer in Ethiopia, 91.8% [n =367] said that "they have heard about the disease" and 69.2% [n = 277] believed that "breast cancer is a common problem among women in Ethiopia".

In current study, ever practice of BSE was reported by 24% of students which is inconsistent with studies done among Ethiopian female healthcare professionals in Addis Ababa (75.1%) (8), Nigerian Nurses in Lagos general hospital 89% (20). It could be due to the difference of education level among the study participants.

This study have come up with findings like major source of information for breast cancer for the 367 students participated in the study 73.8% to be Television/radio, while health workers accounted for 37.8%, Learned at class 23.4%, Books /internet 11.7%, friends 11.2% and the least common source was neighbors accounting for 9.0% (Table 3) similarly in Nigeria the major source of information on breast cancer for most of the respondents was the mass media 73.2%(20). The study conducted on knowledge, attitudes, beliefs, behavior and breast cancer screening practices in Ghana, West Africa and in Egypt, the mass media [radio, television, and newspapers] was the major source 65.4% and 60% (22) respectively. In Malaysia main source of information was health workers 28.7% and friends 8.9% (4).

In previous study seventy one [61.7%] knew that BSE is performed monthly and only 47 [40.8%] knew the correct timing which is 2–3 days after menstruation (35). It is consistent with this study in which thirty seven [59.7%] participants were practicing it once a month and twenty six [41.9%] of them performed BSE 2-3 days after menses.

Thirty one percent of female students were Knowledgeable about breast cancer, but only 15.5% did the practice of BSE which is consistent with study done on blind girls in Qena Governorate 13.5 % were practicing BSE (21). Among those not practicing, "not knowing how to

perform BSE” 50.8%, did not have breast problem 40.0% and lack of privacy 15.0 % were identified as barriers for not practicing BSE, this is consistent with a study conducted in Turkey Beydag and Karaoglan found that 50% of female university students did not know how to perform BSE(5). It is inconsistent with the study conducted among high school students in turkey which shows most common reasons for not doing BSE were "not knowing how to perform BSE" [98.5%], "not expecting to get breast cancer" [45.6%] (31).

The findings of the current study showed that factors [department, heard about BSE, heard from health worker and level of awareness] were found to be associated with the practice of BSE. Respondents in the health related disciplines were six times more likely to practice BSE than other respondents. This finding is consistent with findings that having information on BSE from health professional is a predictor of BSE practice. Study conducted on Jordanian nurses (34), and Nigeria reported that higher level of education was statistically significant associated with BSE practice (20).

In the current study being women 44.2% followed by non-breastfeeding 34.0% and family history of breast cancer 31.8%, contraceptive use 29.8% and increasing age 26.5% were well distinguished risk factors, which is almost comparable with Study conducted in Addis Ababa university hospitals among nurses use of oral contraceptive 36.7%, increasing age 31.9% (2).

Study conducted in Addis Ababa university hospitals 42.2% of the nurses working at the university hospital on Assessment of knowledge of breast cancer and screening methods were not knowledgeable about breast cancer(2) which is inconsistent with this study in which 69.0% of participants were not aware. This discrepancy may due to exposure to patients with BC among nurses working in the hospitals.

7. Strength and Limitation of the Study

Strength

This study is new in its type and identifies students' level of awareness about BC and practice of BSE.

Other researchers may use as base line for further studies.

Limitation

Since the sample of this study included students of a university, the results of the study cannot be generalized to the larger population in Ethiopia.

8. Conclusion

This study has yielded some valuable information. On the basis of the findings of this study it is clear that the level of awareness of the participants regarding breast cancer was inadequate and only 15.5% practices BSE. The major reasons for not doing BSE were inability of how to do and perception of BSE done only when breast problem occurs

In conclusion, practice of breast self-examination was low among students. Getting information on breast self-examination from health professional and awareness about breast cancer were the factors found associated with BSE practice.

9. Recommendation

Lack of breast cancer knowledge among university undergraduate female students in this study is further evidence for widespread ignorance among the general public. University students tend to be better informed on health issues than the average public person (34). It is, therefore, crucial that health care providers and educators employ culturally appropriate strategies to increase breast cancer awareness.

Establishment of trained breast cancer awareness peer groups at universities and other educational institutions may increase breast cancer awareness. Nowadays widespread use of internet social media such as Face book and Twitter are seen in Ethiopia. There is a lot of possibility to use these online social media as a means of disseminating information on breast cancer and breast self examination.

In addition, further studies are recommended to explore the reasons in the differences between knowledge of BC and practice of BSE and should include the women in the general population especially those who live in the rural areas where access to information may still be a challenge.

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11. Annexes

11.1. Annex I. Information sheet

Name of organization and Sponsor: Addis Ababa University College of Health Science

School of Allied Health Science Department of Nursing and Midwifery

This Self administered Questionnaire is designed to assess Level of Awareness on breast cancer and practice of breast self examination among Female Students in Madawalabu University. All the respondents are kindly requested to fill all the questions below. Your Response is importance to the result of the research.

You are selected by systematic random sampling technique.

Benefit and risk

Participating in the study does not involve risks. your participation in this research may not give you direct benefit but your participation is likely to help us in identifying the real awareness of breast cancer and practice of breast self examination among students and will have the benefit of choosing appropriate and cost effective prevention and treatment strategies in tackling the problem.

You will not be provided any incentives to take part in this research. If you have any questions contact any of the following individuals and you may ask at any time you want:

1. Fetene Kasahun- **principal investigator**

Tel: +251920254586 or use Email address kfetene@gmail.com.

2. Workinesh Sinshaw- **Advisor**

Tel: +251116290633/0912063554

11.2. Annex II. Informed consent

Dear students!

Good day! My name is from Addis Ababa University, College of Health Science; School of Allied Health Science Department of Nursing and Midwifery. I am here to study about awareness of breast cancer and practice of breast self examination among university female students and you are chosen to participate in this study.

The purpose of this study is to generate important information on awareness of breast cancer and practice breast self examination and also to identify the determinant factors of practicing breast self examination which to improve the service provision and to achieve changes in practicing breast self examination for early detection and treatment of breast cancer. In order to attain this study objectives your good will and kindly participation is needed. Confidentiality is strictly protected and none of your response will be reported separately. Therefore, there is no need to write your names or ID numbers on these questionnaires. It is your right to participate or to refuse in this study. If you don't want to participate in this study, you can leave the format on the table (upside down). However, your sincere responses will help us to generate valuable information to attain the purpose of the study. So please take a few minutes to answer to the questions.

Are you willing to participate in this study?

Yes ☐ No ☐

Put "X" mark in the box you chosen.

11.3. Annex III. Questionnaire

Name of your department _____

Questionnaire # _____

Date of interview _____

Read each questions and circle your response in front and some questions have possibility of multiple responses. For short answers write on the space provided.

I. Socio demographic information

S.N o	Questions	Response category	Skip to
101	What is your marital status?	single -----1 married -----2	
102	Where is your origin of residence?	Urban -----1 Rural -----2	
103	What is your religion?	Orthodox-----1 Muslim -----2 Protestant -----3 others(specify)_____	
104	What is your ethnic group?	Oromo -----1 Amhara -----2 Guragie -----3 Tigrie -----4 Others (specify _____) 5	
105	In which Department are you learning?	Health science -----1 Non health science -----2	
106	In which class year are you?	First to second-----1 Third to fourth -----2	

II. Knowledge of breast cancer and its risk factors

S.No	Questions	Response category	Skip to
201	Have you heard about breast cancer in Ethiopia?	Yes-----1 No -----2 →	203
202	From where did you hear about breast cancer? (Multiple responses are possible)	Radio /Television -----1 Learned at class-----2 Health worker-----3 Books /net-----4 Friends -----5 Neighbors -----6 Others (specify) _____ 7	
203	What do you think about breast cancer in Ethiopia	Relatively common cancer in women --1 Not common -----2 I don't know -----3	
204	Is Breast cancer curable	Curable if detected early-----1 Non-curable, controlled -----2 Don't know -----3	
205	What Specific risk factors of breast cancer do you know? (Multiple responses are possible)	Family history -----1 Contraceptive pills-----2 Increasing age -----3 Being woman-----4 Obesity -----5 Not breast feeding-----6 Don't know-----7	

III. Awareness and Practice of breast self examination

S.No	Question	Response category	Skip to
301	Have you ever been taught to perform BSE?	Yes -----1 No-----2 →	303
302	Where did you learn from to perform BSE? (Multiple responses are possible)	From health worker-----1 From friend, relative-----2 From books-----3 Other, specify _____ 4	
303	Have you ever practiced breast self-examination?	Yes-----1 No-----2 →	308
304	How frequent have you practiced breast self-examination?	Every month -----1 Once every 6 months-----2 Once every 12 months -----3	
305	Women should perform breast self-examination?	≤ 20 years -----1 21-25 years old -----2 26-30 years old -----3 31 and above-----4	
306	When is the appropriate time for performing BSE?	2-3 days after cessation of menstruation---1 Monthly in fixed day-----2 Few days before menstruation starts---3 At any time within the month----4	
307	Reasons for not doing breast self-examination (Multiple responses are possible)	I don't have breast problem -----1 I don't think as I should be examined-----2 Lack privacy at dormitory-----3 It is not comfortable-----4 I don't know the technique-----5 Other specify-----6	

Thanks for your cooperation!

Declaration

The thesis my original work, has not been presented for a degree in only other university and that all sources of materials used for the thesis have been duly acknowledged.

Name of the principal investigator: Fetene Kasahun (BSc, MSc candidate)

Date: _____ **Signature:** _____

Confirmation of the advisor

Name of the Advisor: Workinesh Sinshaw (RN, BSC, MPH)

Place of submission: College of Health Sciences, School of Allied Health Sciences Department of Nursing and Midwifery

Date of Submission: June, 2014

This thesis work has been submitted for examination with my approval as University advisors

Advisor:

Date: _____ **Signature:** _____