

**Research Article****Knowledge and Attitude towards Breast Cancer among Mekelle University Female Regular Undergraduate Students, Tigray Region, Ethiopia, 2013**Haftom Gebrehiwot<sup>1\*</sup>, Tesfay Hailu<sup>2</sup>, Gebreamlak Gidey<sup>3</sup><sup>1</sup>Department of Midwifery, College of Health Sciences, Mekelle University, Ethiopia<sup>2</sup>Department of Midwifery, Sheba University college, Mekelle, Ethiopia<sup>3</sup>Department of Midwifery, Dr.Tewelde Health science college, Mekelle, Ethiopia**\*Corresponding author**

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**Abstract:** Breast cancer is a public health problem that is increasing throughout the world especially in developing countries. In Ethiopia, breast cancer is typically a fatal disease with high mortality. The study was aimed to assess the Knowledge and Attitude of breast cancer among Mekelle University female regular undergraduate students. A descriptive cross-sectional study design was carried out among 792 female undergraduate regular students in Mekelle University from January to June 2013. Multi stage stratified sampling technique with Probabilities proportional to size was used. Study subjects again were selected through simple random sampling technique. Data were analyzed by SPSS window version 16.0 soft ware package and presented using frequencies, texts and percentages. A total of 792 study subjects were participated in the study with 96% response rate. Of the total respondents, 407(54.3%) were aged between 20-21 years. Majority, 645(84.5%) were orthodox Christian followers. About 555(80.8%) were single. Nearly half, 329 (43.7 %) of the respondents were first year students. Regarding the knowledge score, only 1.4%, 3.6% and 22.1% of the participants were classified as having Good knowledge on the risk factors, means of diagnosing, sign and symptoms of breast cancer, respectively. Majority, 424 (55.5%) of the participants believed that breast cancer is not curable disease and around 606 (79.7%) replied they will consult a doctor if they developed breast lumps. Overall, the respondents had limited knowledge of risk factors, sign and symptoms and means of diagnosis of breast cancer. Despite the appreciable willingness to seek healthcare for breast cancer, the study participants have poor attitude about its curability and poor risk perception about the disease. Therefore, there is a need for adequate Health Education and Promotion on breast cancer among adolescent female students in the University.

**Keywords:** Breast cancer, Mekelle, Undergraduate students and University

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**INTRODUCTION**

Breast cancer is the top cancer in women worldwide and is increasing particularly in developing countries where the majority of cases are diagnosed in late stages. It also comprises 16% of all female cancers and more common in women than men [1]. Breast cancer is curable if detected early and there are two major components of early detection of breast cancer: Education to promote early diagnosis and screening. Most of the total deaths from the disease are accounted for the developing world. The low survival rates in less developed countries may be explained mainly by lack of early detection programmes, lack of adequate diagnosis and treatment facilities which results in a high proportion of women presenting with late stage disease [2].

It is the most common cause of cancer among women in both high-resource and low-resource settings, and is responsible for over one million of the estimated 10

million neoplasm diagnosed worldwide each year. It is also the primary cause of cancer death among women globally, responsible for about 375,000 deaths in the year 2000 Gc [3].

It has been estimated that one out of every nine women living in western countries is likely to be affected by breast cancer in her lifetime. The incidence of breast cancer varies between countries; the highest rates occur in the United States and Canada, where as the lowest rate is found in Asia. The Nordic countries have recently reported a steady increase in the incidence of breast cancer. A high prevalence rate of breast cancer is noted among women living in Denmark, Finland and Sweden. The incidence rate of breast cancer among Asian women has also increased in recent years and is likely related to life style changes. In Egypt, breast cancer is the most frequently diagnosed cancer among women, and it comprises 25.5% of all cancers in that country [3, 4].

Medical advances have shown that one-third of all cancers are preventable and a further one-third, if diagnosed sufficiently early, is potentially curable. This observation demands that cancer control should be of increasing priority in the health care programmes of developing countries. One potentially important strategy in reducing breast cancer mortality is the use of screening to achieve earlier detection of cancer. This is very important because an excellent prognosis is directly associated with the stage at which the tumor is detected and how localized the lesion is. Early diagnosis usually results in treatment before metastasis and signifies a better outcome of management [4, 5].

Breast cancer is the second most often occurring cancer next to cervical cancer 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 [5, 6].

Looking at the higher figure of breast cancer globally at current and future, great emphasis must be given to the issue of breast cancer and its screening to reduce the mortality rate. So far, no data has been found in Ethiopia that revolves on assessing female university students' knowledge and attitude on breast cancer. As a result, the outcomes of this study will serve as a baseline data for further findings. Therefore, the aim of this study was to assess knowledge, attitude toward breast cancer among Mekelle University female regular undergraduate students.

## **METHODS**

### **Study Setting**

The study was carried out between January, 2013 to June, 2013 at Mekelle University. This is found in Mekelle, capital city of Tigray Regional State, about 783 km away from Addis Ababa. Mekelle University began its operation in 1993 as the Arid Zone Agricultural College which is found a permanent home in Mekelle after a series of relocations. In 1993, the Arid Zone Agricultural College was again relocated, this time to Mekelle, as the College of Dryland Agriculture and Natural Resources Management, and permanently settled at the Endayesus Campus, which had been a military barracks since the time of Emperor Menelik. Mekelle University was established in May 2000 by the Government of Ethiopia as an autonomous higher education institution having its own legal personality. The merger of the two former colleges created Mekelle University [6].

Mekelle University has forty two departments under eight colleges (College of Dry Land Agriculture and Natural Resources Management (CDANR), College of Business and Economics (CBE), College of Institution of Climate and Society (CICS), College of Engineering (CE), College of Law and Governance (CLG), College

of Veterinary Science (CVS), College of Language and Social Science (CLSS), College of Institution of Pelo Environmental and Heritage conservation (CIPEHC), College of Natural and Computational science (CNCS) and College of Health Sciences (CHS)). According to the statistics obtained from student service center, Mekelle University; the total number of regular undergraduate students were about 20,452 and 6340 of them were females [6,7]. The university has two clinics in the two campuses in Endayesus and Adi haki campus which provides health services to the university students and there is one referral hospital in the Ayder campus owned by the university which provides service mainly to the population of Tigray Regional state.

### **Study Design, Participants, and Sampling Procedure**

A descriptive cross-sectional study design was used and study participants were undergraduate female students of Mekelle University.

Sample size was determined using the single population proportion; with a 95% confidence interval, a precision of 5%, and an assumed prevalence of breast cancer 50% to get a maximum sample size as there was no previous study conducted similarly in the area. The calculated sample size was 360 and by adding 10% non response rate and considering 2 design effect; the total sample size required for this study was 792 students.

After calculating the sample size, the multistage stratified sampling were employed considering all departments in Mekelle University, streams or departments and year of study in the sampling process for the selection of the study subjects. Initially, of the whole campuses of the university, Endayesus and Adihaki campuses were selected randomly and the total sample size of the study were distributed over each of the institute proportional to their size. In the second stage, departments/streams from the selected college were selected using simple random sampling (SRS) technique. Accordingly the sample size of the study allocated to each institute was distributed to each of the stream or department proportional to their size.

Finally, the required numbers of female students were selected randomly from each year of study again proportional to their size from the randomly selected departments. For this study a self administered structured questionnaire were conducted.

### **Data Management and Analysis**

Data entry and validation were done in EPI info version 3.5.1 statistical software data which was then exported to SPSS windows version 16.0 soft ware for further analysis. The outcome variables of this study were knowledge and attitude of students towards breast cancer.

**Ethical Consideration**

Ethical approval was obtained from the ethical review committee of Mekelle University, College of Health sciences and supportive letters was obtained from the University. Clear communication was conducted with the respective department heads. Informed verbal consent was obtained, Privacy, confidentiality and benefits were maintained. Participants were assured that they never face anything for their participation in the study.

More than half,(54.3%) of the respondents age were between 20 - 21 and only 6 (0.9%) of them were older than 25 years. Majority of the respondents, 645(84.5%) were Orthodox Christian followers, followed by Muslim 78(10%). With regard to marital status, about 555(80.8%) were single. Nearly half, 329 (43.7 %) of the respondents educational level were first year, followed by 234 (30.8%) second year students. Of the 760 students included in this study, 23 (3.03%) mentioned that they have breast problems and 48 (6.3%) responded that they have family history of breast cancer (Table 1).

**RESULTS**

**Socio-demographic characteristics**

Of the 792 total study subjects; 760 students participated with a response rate of 96%.

**Table 1: Socio-demographic characteristics of female regular under graduate students, Endayesus and Adi-Haki campus, Mekelle University, January to June 2013 (n=760)**

Socio-demographic characteristics	Number	Percent
<b>Age category</b>		
<18	2	0.3
18-19	186	24.5
20-21	407	54.3
22-23	124	16.5
24-25	25	3.3
>25	6	0.9
<b>Marital status</b>		
Single	555	73.0
Married	40	5.2
Living with partner	153	20.1
Other	12	1.58
Total	760	100
<b>Religion</b>		
Orthodox	645	84.5
Muslim	78	10.5
Protestant	33	4.5
Others	4	.5
Total	760	100
<b>Level of education</b>		
First year	329	43.2
Second year	234	30.8
Third year	160	21.1
Fourth year & above	37	4.7
Total	760	100
<b>Any breast problem</b>		
Yes	23	3.8
No	737	96.2
<b>Any family history of breast cancer</b>		
Yes	48	6.5
No	712	93.5

**Knowledge regarding breast cancer of the study participants**

Smoking was the most common risk factor identified by 542 (71.3%) of the participants, followed by alcohol

consumption 336 (44.2%) and high fat diet 295 (38.8%) (Table 2).

**Table 2: Knowledge regarding risk factors of breast cancer of female regular under graduate students, Endayesus and Adi-Haki campus, Mekelle University, from January to June/2013 (n=760)**

Risk factors of Breast Cancer	Number (%) with correct response
Increasing age	160 (21.1)
Positive family history	158(20.8)
High fat diet	295(38.8)
Smoking	542(71.3)
Race/ethnicity	139(18.3)
Alcohol consumption	336(44.2)
First child at late age	135(17.8)
Early onset of menarche	72(9.5)
Late menopause	137(18.0)
Stress	267(35.0)
Mean Score	2.95(1.81)

Regarding the signs and symptoms of breast cancer, 601 (79.10%) and 578 (76.10%) of them knew that breast cancer presents as a pain or soreness in the breast and painless breast lump, respectively. Majority of the

respondents explain non-lump symptoms of breast cancer such as discharge from the breast and change in the size of the breast (Table 3).

**Table 3: Knowledge regarding Signs and Symptoms of breast cancer of female regular under graduate students, Endayesus and Adi-Haki campus, Mekelle University, January to June 2013 (n=760)**

Signs and Symptoms of Breast Cancer	Correct response	
	Number	%
Lump in the breast	578	76.10%
Discharge from the breast	451	59.30%
Pain or soreness in the breast	601	79.10%
Change in the size of the breast	408	53.70%
Discoloration /dimpling of the breast	299	39.30%
Ulceration of the breast	384	50.50%
Weight loss	211	27.80%
Changes in the shape of the breast	292	38.40%
Inversion/pulling in of nipple	237	31.20%
Swelling or enlargement of the breast	441	58.00%
Lump under armpit	316	41.60%

In terms of means of diagnosis, CBE was the most common means of detecting breast cancer, mentioned by 654 (86.10%) of the participants, followed by SBE and ultrasound 452 (59.5%). Only 315 (41.40%) of the participants reported that they know how to perform

SBE and only a small number of the participants responded that they know the recommended age to start SBE 96 (12.60%). Similarly, a small number of participants correctly identified the recommended frequency for SBE, 62 (17.7%) (Table 4).

**Table 4: Knowledge regarding means of diagnosis of breast cancer of female regular under graduate students, Endayesus and Adi-Haki campus, Mekelle University, January to June 2013 (n=760)**

Questions	Correct response	
	Number	%
Pathological examination (Fine Needle Aspiration Cytology)	290	38.20%
Self Breast Examination (SBE)	452	59.50%
Clinical Breast Examination (CBE)	654	86.10%
Mammography	298	39.20%
Ultra sound	452	59.50%
Do you know the recommended age to start SBE?	96	12.60%

Do you know how to perform Self Breast Examination (SBE)?	315	41.40%
Do you know how often SBE should be done?	145	19.10%
How often SBE should be done? (Monthly)	62	17.70%
How often CBE should be done? (Once in a year)	312	42.10%
Know the recommended age to start mammography examination?	13	1.70%

Regarding the knowledge score of breast cancer, only 1.4%, 3.6% and 22.1% of the participants were classified as having Good knowledge on the risk

factors, means of diagnosing, sign and symptoms breast cancer, respectively. Overall, 75.9%, 20.4% and 3.7% of the participants were classified as having Poor, Moderate and Good knowledge, respectively (Fig. 1).

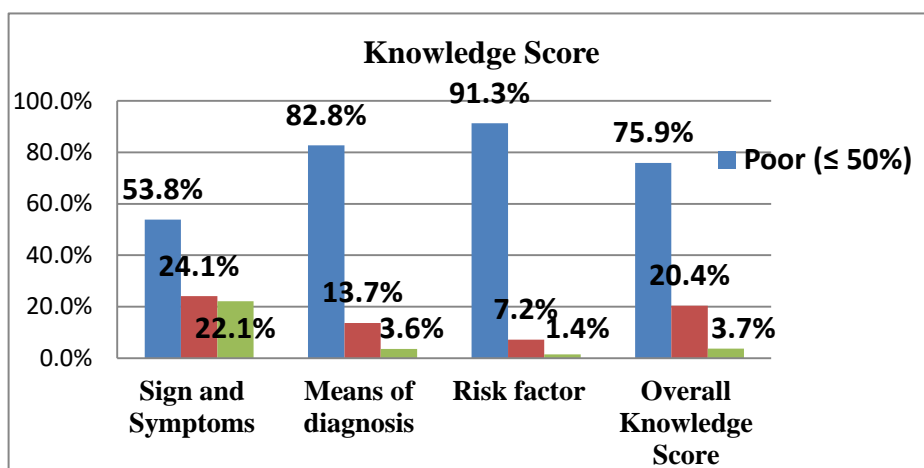


Fig. 1: Knowledge score on Breast Cancer of female regular under graduate students at Endayesus and Adi-Haki campus, Mekelle University, January to June 2013 (n=760)

**Attitude towards Breast Cancer**

Most of the study subjects, 424 (55.5%) were believed that breast cancer is not curable disease, and 465 (63.8%) believed that long time survival (> 5 years) after breast cancer. Majority of the participants 606 (79.7%) replied that, they will consult a doctor if they developed breast lumps, while only 285 (37.50%) said that they will agree to do Mastectomy if deemed necessary. Majority of the participants, 612(80.5%),

replied that they would allow a male doctor to examine their breast, while 148 (19.5%) said they will not allow a male doctor to examine their breast. Participants were asked about their perceived risk of breast cancer. Accordingly, 459 (60.4%) replied that they don't know their perceived risk. While another 77 (10.1%) said that they are not at risk of developing breast cancer at all (Table 5).

Table 5: Attitude towards Breast Cancer of female regular under graduate students, Endayesus and Adi-Haki campus, Mekelle University, January to June 2013 (n=760)

Questions		Number	%
Believe breast cancer is a curable disease	Yes	336	44.20%
	No	424	55.80%
Believe Long time survival (> 5 year) after breast cancer is rare	Yes	275	36.20%
	No	465	63.80%
Consult to a doctor	Yes	606	79.70%
	No	26	3.40%
	Don't know	128	16.80%
Agree to perform Mastectomy	Yes	285	37.50%
	No	119	15.70%
	Don't know	356	46.80%
Allow male doctor to examine your breast	Yes	612	80.50%
	No	148	19.50%
Perceived risk of breast cancer	Not at risk	146	19.20%
	Lower risk	77	10.10%
	Medium risk	67	8.80%
	Higher risk	11	1.40%
	Don't know	459	60.40%

Do you think you have any risk factors?	None	271	35.70%
	1 risk factors	93	12.20%
	2 risk factors	6	0.80%
	3 risk factors	152	20.00%
	>3 risk factors	6	0.80%
	No response	232	30.50%

**DISCUSSION**

This study highlights that a significant proportion of the targeted population have “Poor” knowledge about breast cancer; 75.9% scored less than or equal to 50% of correct answers. Only 3.7% of the answers were graded as “Good”, i.e. >70%. The proportion of participants graded as “Good” was lower compared to other similar studies conducted among female university students in Malaysia (18.8%) [8] and Iraq (14.4%) [9]. The possible reason for this could be low access of information, community mobilization on breast cancer and low awareness of the students on breast cancer.

Our respondents had better knowledge of smoking and alcohol consumption as risk factors for breast cancer, this result showed as 71.3% and 44.2% of the respondents knew Smoking and alcohol consumption increased the risk of breast cancer, respectively; This result is not in line with study conducted in Nigeria which was 45.92% and 25.51% to knew the effect of smoking and alcohol, respectively [10]. This difference might be due to community awareness on breast cancer and access on source of information.

However, a significant proportion failed to recognize the rest most common risk factors of breast cancer such as family history of breast cancer (79.2%), increasing age (78.9%), early onset of menarche (90.5%) and late menopause (82.0%). This knowledge deficit is significantly higher compared to the study from Malaysia, in which only 8.5% and 27.5% of the study participants failed to recognize family history of breast cancer and increasing age as risk factors for breast cancer [8,9]. Knowledge regarding the risk factors of breast cancer would help the women to understand that she is at risk of developing breast cancer, which in turn influences her health-related behaviour. [10] This suggests the need for improving the current knowledge of risk factors of breast through BCC and health educational programs, in order to help the women understand her risk of developing breast cancer and adopt health-related behavior, including SBE and CBE.

This study result showed that the knowledge regarding sign and symptoms of breast cancer were poor in more than half of the study participants; 53.8% failed to identify 50% of the signs and symptoms correctly. Since recognizing the whole range of breast cancer symptoms is essential for early self-detection and treatment of breast cancer. Only 22.1% of the study participants were graded as having “Good” knowledge on the signs and symptoms of breast cancer. Pain or

soreness in the breast and Lump in the breast was the most common symptoms of breast cancer mentioned by 79.10% and 76.10%, respectively. Discoloration /dimpling of the breast and Lump under armpit were mentioned by only 39.3% and 41.6%, respectively, unlike to the findings from Malaysia in which 58.5% and 78.5% of the participants mentioned the sign and symptoms [8, 11]. This knowledge gap might be due to an access of promotion, education, governmental concern and other access opportunities.

Our respondents had better aware of CBE; 86.1% correctly identified CBE as a means for detection of breast cancer; while it was only identified by 43.2% of the study participants in the Nigeria. However, a much higher proportion failed to recognize SBE as a means for detection of breast cancer (41.0%) and do not know how to do SBE as compared to only around 9.0 % in another study from Nigeria [10, 12]. Moreover, only 12.60% and 17.70% of the participants know the recommended age to start SBE and the frequency of SBE, respectively. This finding could be due to geographical variation and study participants level of education.

The vast majority of our study participants had positive attitude towards health seeking for breast cancer showing their willingness to consult a doctor within one month. However, only few showed their willingness to do mastectomy if deemed necessary. On the other hand, most of the participants negative perception about the curability of breast cancer. Besides, only 20% of the participants perceived that they are at some risk of developing breast cancer. The health belief model (HBM) originally introduced in the 1950s has been widely used in health behavior applications including breast cancer investigations ( Petro-Nustus and Mikhail, 2002). The model stipulates that health-related behavior is influenced by a person’s perception of the threat posed by a health problem and by the value associated with his or her action to reduce that threat. According to this therefore, a woman who perceives that she is susceptible to breast cancer and that breast cancer is a serious disease would be more likely to perform regular breast examinations. [10,13].

**CONCLUSION AND RECOMMENDATIONS**

In order to develop, implement, and evaluate policy for reducing prevalence of breast cancer, it is essential to study the knowledge and attitude towards breast cancer. Thus the finding of this study has reached to the following conclusions:

Overall, the students had limited knowledge of risk factors and sign and symptoms of breast cancer and means of diagnosis of breast cancer. Despite the appreciable willingness to seek healthcare for breast cancer, the study participants have poor attitude about its curability and poor risk perception about the disease.

Therefore, to promote early detection, medical health-seeking behaviors and improve the survival rate of breast cancer among women; the responsible bodies should:-

- Improve the knowledge and attitude of breast cancer by designing breast cancer awareness campaigns, through electronic media,
- The awareness campaigns should focus on disseminating information regarding risk factors, sign and symptoms and means of diagnosis, as well as raising the risk perception and curability of breast cancer
- Conduct further study involving students from other University of the country and the general population to appreciate the existing gap in Knowledge and Attitude of breast cancer.

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